Valparaiso University

SEVERE WEATHER POLICY FOR ALL EMPLOYEES INCLUDING FACULTY AND HOURLY OR SALARIED STAFF

Table of Contents

I. INTRODUCTION

The purpose of this Severe Weather Plan is to provide a course of action to be used during a severe weather event to minimize the potential for injury and loss of life that can result during a severe weather situation, such as a tornado. This plan also identifies the most tornado-resistant areas in your building. These areas are not necessarily to be considered tornado safe; but, they are the "best available" for locating people during tornado warnings. All employees should review this plan at least annually. Tornados develop from high winds associated with thunderstorm activity or in conjunction with weather front activities. Typically, spring and late summer thru early fall seasons provide the best conditions conducive to tornado formation; although, a tornado can form during any season. A quick reference guide is provided in the emergency flip chart provided in each building and on the web at **www.valpo.edu/alert/ .**

II. SEVERE WEATHER ALERTS

The National Weather Service has defined several severe weather alerts. The actions recommended are intended to be the minimum responses necessary for this severe weather plan and weather issues that have the potential to affect Valparaiso University.

A. SEVERE THUNDERSTORM WATCH

A severe thunderstorm watch means weather conditions are such that a severe thunderstorm could develop, but has not at this time. This alert usually lasts for five or six (5 or 6) hours.

B. SEVERE THUNDERSTORM WARNING

A severe thunderstorm warning means a severe thunderstorm has developed and will probably affect those areas stated in the alert message. The National Weather Service will issue a severe weather statement every 15 minutes.

C. TORNADO WATCH

A tornado watch means weather conditions are such that a tornado could develop, but has not at this time. This alert usually lasts for five or six (5 or 6) hours.

D. TORNADO WARNING

A tornado warning means a tornado has formed and was indicated by weather radar or was sighted, and may affect those areas stated in the alert. The National Weather Service will issue updates every 10 minutes. Theses statements include up-to-date information about the storm (path, speed, etc.) as well as cancellation or expiration statements.

E. WINTER WEATHER

Winter weather advisory means that periods of snow will cause travel difficulties. Be prepared for slippery roads, limited visibility, and use caution when driving. This may also include extreme cold temperatures and limited outside activities are advisable.

III. THUNDERSTORMS

Thunderstorms may develop at any time of the year; however, the more violent storms occur in the spring and summer months. Thunderstorms can be single cell, multi-cell cluster, multi-cell line, and super cell. Super-cells always form severe thunderstorms. Thunderstorms typically consist of very high winds, rain, lightning, and in many cases hail. Typically the larger the hail is, the stronger the thunderstorm is. Hail ¾ inch in diameter or more with winds in excess of 55 mph indicates a severe thunderstorm where tornados are likely to be spawned; severe thunderstorms can produce damaging winds with or without tornados. Tornado formation is most likely to occur where the hail falls. Another dangerous aspect of a thunderstorm is lightning. The best protection from lightning is to seek shelter in a nearby building. Flooding can also occur in low areas and in areas where storm drains are blocked.

IV. ANATOMY OF A TORNADO

Tornados form under a certain set of weather conditions in which three very different types of air come together in a certain way. Temperature and moisture differences between the surface and upper levels create instability that can lead to formation of a tornado. A tornado is a violently rotating column of air which can come in contact with the ground at speeds of 60-300 mph. Tornados are only visible due to water droplets mixed with dust and debris. Doppler radar will not "see" tornados. However, radar can detect precipitation; radar detection of light rain in the center of heavy rain indicates tornado potential. Contrary to popular belief, tornados do not leave the ground. As their intensity changes they appear to "jump".

Tornados can be categorized into three groups based on the "Fujita" scale:

- **Weak** - 80% of all tornados, 60-110 mph winds, path 3 miles long lasting 1-10 minutes. These cause less than 5% of all tornado-related deaths.
- **Strong** - 19% of all tornados, 110-205 mph winds, path less than 5 miles, lasting 10-20 minutes. These cause 30% of all tornado-related deaths,
- **Violent** - 1% of all tornados, winds greater than 205 mph, can have a 50 mile path lasting up to 60 minutes. These cause 70% of all tornado-related deaths.

EF-Scale Categories	Wind Speed Ranges
EF0	65-85 mph
EF1	86-110 mph
EF2	111-135 mph
EF3	136-165 mph
EF4	166-200 mph
EF5	Over 200 mph

The most common direction of a tornado path is from the southwest to the northeast, but they can come from any direction. Tornados are most likely to occur during the afternoon and evening; the peak hours are from 12:00 noon until 7:00 p.m. The most violent storms occur in March, April, May, and November.

V. EFFECTS OF HIGH WINDS

The causes of damage to buildings by a tornado may be classified in one of three categories including: extreme winds, missiles, and collapse. All buildings have at least one undesirable structural feature relating to the effects of a tornado. Examples are: large areas of glass, long roof/ceiling spans, wind tunnels, and load-bearing wall construction. The areas designated in this report are not to be considered "tornado-proof," but rather the best available areas for sheltering during tornado and severe thunderstorm warnings. Shelter areas were selected by the Safety Committee in conjunction with the Porter County Emergency Management Agency. As much as possible, the shelters were selected to:

A. Avoid glass
B. Avoid interior and exterior doors
C. Utilize interior spaces with short spans
D. Keep occupants as far away as possible from entrances
E. Avoid areas expected to become wind tunnels
F. Distribute locations throughout the building to facilitate rapid access
G. Avoid areas where chemicals are stored
H. Put as many walls as possible between occupants and the exterior of the building

VI. EMERGENCY NOTIFICATION SYSTEM

Severe weather alerts are transmitted by two means: via sirens stationed at two specific locations around the campus and via severe weather radios located within campus buildings. The sirens and radios are tested audibly on the first Tuesday of the month at 11 a.m. (To prevent confusion, this will not occur if it is storming.). The weather radios are tested every Wednesday at 11 a.m. The weather radio will have a light that flashes during this test. Defective radios should be immediately reported to the safety manager for repair or replacement.

Watches and warnings are broadcast via the severe weather radios. Minimum actions that should be taken based on specific alerts are detailed in the next section.

Sirens will not sound for a tornado watch, only for a tornado warning which means a tornado has been sighted in our area. The sirens will activate for three minutes when a tornado has been sighted.

VII. MINIMUM ACTIONS TO BE TAKEN BASED ON SPECIFIC SEVERE WEATHER ALERTS

A. SEVERE THUNDERSTORM WATCH

Be aware that conditions may be ripe for the development of a tornado.

B. SEVERE THUNDERSTORM WARNING

Review your severe weather action plan. Usual activities can continue but be prepared to seek shelter. Avoid going outside if possible.

C. TORNADO WATCH

Review your severe weather action plan. Usual activities can continue but be prepared to seek shelter.

D. TORNADO WARNING

When a tornado warning is issued, sirens will be activated and a tornado warning will be broadcasted via the severe weather radios. **All supervisors and instructors shall immediately lead their employees and students to their building's designated shelter area.** Persons responsible for severe weather radios in the building should unplug them and take them to the shelter area to monitor for additional warnings. In addition:

- **All persons located outdoors shall seek shelter indoors immediately.**
- Exterior doors should not be opened.
- People should not leave buildings during a warning.
- During a warning, persons should take one of two positions: (1) The preferred position is kneeling with head between knees facing the wall, or (2) seated on the floor with backs to the wall. In either case, persons should be as low as possible to reduce potential for injuries from flying missiles, glass, or debris.
- If available, some form of covering should be used to protect heads, arms, and legs.

Tornado warnings issued by the National Weather Service can last for anywhere from 15 to 60 minutes. An expiration time will ALWAYS be included in the text of the specific warning. Building occupants should remain in the shelter area for at least that long unless a new warning is issued, or the original warning is canceled. Updates to tornado warnings will be issued every 10 minutes, so listen to your NOAA weather radio for updated information. Remember, you typically have only three minutes to reach a shelter, so **do not delay**. Waiting can mean the difference between life and death. Everyone must be familiar with the location of the severe weather shelter area(s) in their buildings and should be briefed on what actions to take when the sirens have sounded. Persons in the shelter should tune to local radio stations, a NOAA Weather Radio, or if the internet is available in the shelter, *www.weather.gov/chicago* can be used for additional information.

VIII. UNIVERSITY DELAY / SCHEDULE CHANGE

Due to the fact that the University is a residential campus, the University does not usually close. However, the decision to delay or change schedules ultimately lies with the President. When time and circumstances permit, decisions regarding University delays or schedule changes will be made by the President, Provost, and/or the Vice-President for Administration and Finance in consultation with VUPD, the department of Meteorology and/or the Incident Command Team. Weather conditions shall be monitored on an ongoing basis; communication will be maintained with the Porter County EMA and other agencies regarding information on potential emergency situations. Others may be consulted as needed to make an informed decision. The decision to delay or change schedules will be communicated to the campus community as quickly and with as much advance notice as possible. When time permits, classes may be canceled or schedules changed in advance of the weather event to allow a more organized closure and to reduce the impact of traffic in and around campus.

IX. FLOOR PLAN & SHELTER AREA IDENTIFICATION

Floor plans and location of the shelter area for your building are on file with Facilities Management; these are updated annually as part of the Porter County Lock Box ordinance.

SHELTER AREA

A. All doors around shelter areas should be closed and secured during a tornado warning.
B. Window and doors with glass panels should be avoided because of potential missiles propelled by high wind.
C. Chemicals and cleaning supplies should be removed from areas designated for shelter use and relocated to a non-shelter area.

XI. ADDITIONAL RESOURCES

The National Weather Service (Chicago area)
www.weather.gov/chicago

The Tornado Project Online
One of the most informative Web sites regarding tornado facts and statistics
www.tornadoproject.com/index.html

The National Weather Association, Tornados Fact Sheet
www.crh.noaa.gov/lmk/preparedness/tornado_large/

NOAA National Severe Storms Laboratory
www.nssl.noaa.gov/

The National Weather Service
Current and Forecasted Weather Conditions, Hazardous Weather Outlook and Other Resources
www.weather.gov

Red Cross Tornado Safety
http://www.redcross.org/www-files/Documents/pdf/Preparedness/checklists/Tornado.pdf

Storm Encyclopedia
www.weather.com/encyclopedia/tornado/form.html

The Weather Channel – Tornado Information
www.weather.com/safeside/tornado/