



## TORNADOES & SEVERE THUNDERSTORMS

Responsibility:	<i>Superintendent, Human Resource Services Manager, Health, Safety &amp; Security</i>
Related References:	<i>Board Policy 6000 – Safe Schools; AP3000 – Emergency Procedures; AP4130 – Severe Weather Conditions (Bus Cancellation – Student Dismissal – School Closing); Environment Canada; Inclement Weather Policy Cancellation of Student Transportation and School Closure Plan (STSWR); Appendix A: WRDSB Tornado Procedures Poster.</i>
Revisions:	
Reviewed:	<i>January 2016</i>

### 1. Preamble

- 1.1 This procedure outlines the steps school administration must take to prepare for and respond to the threat of severe thunderstorms and tornadoes. This procedure is intended to complement other Board emergency procedures relating to drills and severe weather conditions such as ice, snow and flooding.

### 2. Definitions

**Weather Advisory:** An alert that can be used for any situation for which there is no other alert that effectively describes the conditions expected. Actual or expected weather conditions which may cause general inconvenience or concern, but do not pose a serious threat, warrant a weather warning. Environment Canada, weather radio and local media are to be monitored on a frequent basis.

**Thunderstorm:** A localized storm that produces lightning and thunder. Caused by strong, rising air currents, thunderstorms are most likely to develop when the weather is hot and humid. Often they are characterized by strong gusts of wind and heavy rain. They are sometimes accompanied by hail and tornadoes.

**Severe Thunderstorm Watch:** When conditions are favourable for the development of severe thunderstorms with one or more of the following conditions:

- Wind gusts of 90 km/h or greater, which could cause structural wind damage;
- Hail of two centimeters (cm) or larger in diameter; or
- Heavy rainfall, as per rainfall criteria, excluding those for winter and during thaw.

**Severe Thunderstorm Warning:** When there is evidence based on radar, satellite pictures, or from a reliable spotter that any one or more of the following weather conditions is imminent or occurring:

- Wind gusts of 90 km/h or greater, which could cause structural wind damage;
- Hail of two centimeters (cm) or larger in diameter; or
- Heavy rainfall, as per rainfall criteria, excluding those for winter and during thaw.

**Tornadoes:** A tornado is a violently rotating column of air extending between a cloud base and the surface. While often depicted as a funnel with the narrow end on the bottom, there is no typical tornado. Tornadoes exhibit a high degree of variability in their appearance, strength, speed, direction of movement and duration.

**Tornado Watch:** When conditions are favourable for the development of severe thunderstorms with one or more tornadoes.

**Tornado Warning :** When a tornado has been reported; or when there is evidence based on radar, or from a reliable spotter that a tornado is imminent.

**Designated Safe Areas:** Locations in the building that have been identified as appropriate for building occupants to seek cover during a tornado. These areas are on the lowest level of the building, preferably a basement. If on the ground floor, use interior spaces, such as hallways, locker rooms, bathrooms, etc. staying away from windows.

**Protective Position**

1. Face wall
2. Crouch on knees and elbows
3. Cover head with hands



**Figure 1: Protective Position**

(National Oceanic and Atmospheric Administration, 2015)

**Weatheradio Canada:** Weatheradio is a network of radio transmitters providing continuous broadcasts of weather information and instant updates when weather threatens. Weatheradio Canada is operated by Environment Canada’s Meteorological Service and broadcasts weather and environmental information 24 hours a day on seven (7) dedicated frequencies. This permits the transmission of a tone ahead of a warning message that will activate the Weatheradio receiver and alert you to an incoming important message.

**Weatheradio Receiver:** The Weatheradio receiver allows users to be able to receive the full suite of weather and non-weather related emergency messages which include watches, warnings and advisories. It is a dependable, constant source of weather information.

**3. Severe Thunderstorms**

To be prepared for any severe weather, routinely monitor Environment Canada weather forecasts (See *Section 7: Weather Related Resources*) for watches and warnings using the Weatheradio receiver, radio/television stations or other reliable sources. If thunderstorms are forecast, avoid being outdoors at that time and/or make an alternate plan.

**3.1. Lightning**

Lightning is an electrical discharge caused by a build-up of static electricity between thunderclouds, or between thunderclouds and the ground. Thunder is the noise created when air suddenly expands from the heat of a lightning discharge.

There are three types of hazardous phenomena caused by lightning; direct strikes, ground current and side flash/splash. A ground current is set up when lightning hits the ground, spreads out and sends a current through a victim. Side flash/splash occurs when lightning hits a tall object, travels partly down the object and then jumps to a nearby victim.

**3.1.1. Safety Precautions**

- Monitor weather forecast;

- If you can hear thunder, you are within striking distance of lightning. Take shelter immediately. There is no safe place outdoors during a thunderstorm;
- If you cannot find a sturdy, fully enclosed building with wiring and plumbing, get into a metal-roofed vehicle. Do not park under tall objects and stay in the vehicle if there are downed power lines nearby;
- Stay inside for 30 minutes after the last rumble of thunder;
- If you are caught outside, do not stand near tall objects or anything made of metal. Take shelter in a low lying area;
- Do not handle electrical equipment, telephones or plumbing. These are all electrical conductors;
- People who have been struck by lightning do not carry an electrical charge and can be safely handled. Victims may suffer from burns or shock and should receive medical attention immediately.

### 3.2. 'Straight-Line' Winds

'Straight-line' winds cause most thunderstorm wind damage in Canada. Straight-line winds move horizontally along the ground away from thunderstorms, sometimes with tornado-like force. These may be technically labelled as microbursts, downbursts, squall lines, plough winds or derechos and may cause swirling dust and debris, which is often confused with tornadoes.

Straight line winds are capable of causing damage, such as blowing down trees, and creating flying debris which can present a significant hazard. They may be as strong as some tornadoes and usually cover a much larger area.

#### 3.2.1 Safety Precautions

- Monitor weather forecast;
- Watch for signs of wind;
- Monitor for swirls of dust on the ground or approaching waves on water;
- Shelf clouds beneath thunderstorms are often associated with strong, gusty winds;
- Take shelter immediately, preferably indoors away from outside walls, especially large glass surfaces. As with tornado procedures, avoid rooms with large, open roof-spans, such as gymnasiums;
- If you are caught outside, stay alert to flying debris and projectiles.

### 3.3 Heavy Rain

There are two types of heavy rains:

1. Large scale weather systems with long-term rainfall – these large weather systems can last several days. Environment Canada issues Rainfall Warnings for this type of event;
2. Short-lived thunderstorms with significant rainfall – within a short period of time, sometimes only minutes, localized downpours from thunderstorms can produce flash flooding. Environment Canada issues Severe Thunderstorm Warnings for these types of rainfall events.

#### 3.3.1 Safety Precautions

- Monitor weather forecast;
- Know potential risks for flooding in your area. Plan an escape route to higher ground, while keeping in mind the threat from lightning;
- During heavy rains, avoid roadway underpasses, drainage ditches, low lying areas and water collection areas. They can unexpectedly flood or overflow. Do not try to drive across a flooded road. You cannot tell the condition of the road under the water;
- Stay away from power lines or electrical wires during floods.

## 4. Tornadoes

### 4.1. Preparation

#### 4.1.1. Administrator Responsibilities

- Please refer to Administrative Procedure 4130 – Severe Weather Conditions (Bus Cancellation – Student Dismissal – School Closing) for information regarding school closure due to inclement weather, including contingency planning for early dismissal/school closing due to weather or other circumstances;
- Ensure staff and students are familiar with tornado procedures. This includes maintaining “Tornado Procedures” signs and training your Emergency Response Team (ERT) on their dedicated roles and responsibilities;
- Conduct at least one tornado drill prior to the end of April each year to prepare staff and students. Additional drills may be required should there be changes to Designated Safe Areas, etc.;
- Ensure a communication system is in place for informing staff and students of adverse weather conditions (e.g., PA Announcements, whistle blasts);
- Designate staff (including ERT members) to assist with monitoring conditions during a Tornado Watch;
- Designate staff (including ERT members) to assist with ‘whistle blow’ alert during a Tornado Warning.

#### 4.1.2. Teacher Responsibilities

- Be aware of applicable procedures and actions to be taken in the event of adverse weather conditions;
- Ensure students are informed about tornado procedures, including their Designated Safe Area and the Protective Position, prior to drills or an actual emergency.

### 4.2. Designated Safe Areas

4.2.1. Administrators are required to determine appropriate Designated Safe Areas for each classroom and review these areas annually, or as required. Schools must conduct adequate tornado drills to ensure the suitability of the Designated Safe Areas. These areas may require review/change based on school population changes, structural changes, etc.

4.2.2. Considerations when choosing Designated Safe Areas include:

- Use the lowest level of the building, a basement if possible;
- If there is no basement, use ground level interior spaces including hallways, change rooms, bathrooms, etc.;
- All staff and students in portable classrooms are to be brought into the main building;
- All upper floors of the building must be evacuated;
- Never use rooms with wide roof-spans, such as gymnasiums, libraries, cafeterias;
- Never use hazardous areas such as boiler or electrical rooms;
- Remain at least a door-width away from doors and as far away from glass as possible.

4.2.3 Each room must have posted the “Tornado Procedures” sign identifying the Designated Safe Area. These must be updated and/or replaced as required. These signs are distributed by the Health, Safety and Security department.

4.2.4 If you require assistance in identifying Designated Safe Areas please contact Health, Safety and Security for assistance.

### 4.3 Tornado Drills

Tornadoes typically occur from April to October with the peak period being from June to August.

4.3.1 Each class of students will be instructed on tornado procedures on an annual basis.

4.3.2 At a minimum, one tornado drill must be completed before the end of April each year.

4.3.3 Additional drills are to be completed at the discretion of the site administrator, and are required if changes have been made to Designated Safe Areas in order to ensure suitability of the areas to accommodate building occupants.

### 4.4 Tornado Procedures

Tornadoes can develop very rapidly. It is important for administrators and school staff to monitor

conditions closely and initiate appropriate procedures as soon as required. This includes using the Weatheradio receiver, monitoring local radio/television stations and listening for local alert systems (e.g., sirens). In case of either a tornado watch or warning, the school will be placed on tornado alert.

#### 4.4.1 Tornado Watch

During a tornado watch:

- Administrators must initiate the site based communication plan to alert staff and students about the tornado watch;
- Contact WRDSB Urgent Response at 519-570-0003, ext. 4123;
- Designated staff (possibly ERT) will assist with monitoring the telephone, Weatheradio and other media, such as radio, internet or television stations, for a tornado warning. (See Section 7: *Weather Related Resources*);
- Staff can also be designated as 'weather spotters' to monitor the sky for colour (green or black), dark rolling clouds, hail, driving rain, or a sudden increase in wind, in addition to a funnel. Tornadoes are often obscured by precipitation or darkness. Any weather spotters must have access to a communication system to initiate response, if required;
- Close all external doors and windows. Close drapes. Flying glass and debris are the greatest risk to human safety during a tornado;
- At the discretion of the Principal, staff in portable classrooms may be instructed to bring their students into the main building;
- Any staff or students who may be outside must take shelter indoors.

#### 4.4.2 Tornado Warning

During a tornado warning:

- **Administrators** initiate tornado procedures by alerting staff and students through repeated blasts of a whistle, both inside the building and on playground areas. Designated staff (possibly ERT) must be identified ahead of time to assist with the alert;
- If time permits, contact WRDSB Urgent Response at 519-570-0003, ext. 4123.
- **Teachers** if time permits, close all exterior doors and windows (if not already completed during tornado watch);
- Guide students to their Designated Safe Area;
- Be the last person to leave the classroom;
- If time permits, close and lock the classroom door;
- Instruct students to assume the Protective Position;
- Have a class list and take attendance if possible.
- **Custodial Staff**
  - Assist with closing of interior/exterior doors and windows, where possible.
- **Bus Drivers**
  - Refer to <http://www.stswr.ca/policies/> for further information.

## 5. Weatheradio Receivers

### 5.1. Distribution

Each Board location must have a Weatheradio receiver appropriately programmed and functioning in their main office at all times. The Weatheradio receiver must be plugged in and also have batteries installed for back-up power should the hydro go out or need to be turned off during a weather emergency. Additional Weatheradio receivers can be purchased if a school wishes to have another receiver in a location other than the main office.

### 5.2. Programming

Please refer to the manufacturer instructions for information on setting up your Weatheradio receiver. In order to receive pertinent weather alerts, the Weatheradio receiver must be programmed using the appropriate frequency and location code.

Here is a brief video showing how to properly program your Weatheradio receiver:  
<https://midlandusa.com/weather-radios/programming-your-radio/>

Please note: All of the applicable locations in the WRDSB would fall under the following frequencies:

The applicable network station and frequency is:           **Kitchener**                   **162.550**  
The applicable Canadian Location Code (CLC) is:           **Waterloo-Wellington**   **0464**

For a full listing of codes and further information on the Weatheradio service, please visit:  
<http://www.ec.gc.ca/weatheradio>

## 6. Outdoor Events

When planning outdoor events (e.g., sporting events, fun fairs, etc.) between April and October, consideration should be given to the possibility of severe thunderstorms or tornadoes. For any location hosting an event, whether Board owned or external, areas should be identified where participants could be sheltered should severe weather arise during the event. If severe weather is forecast for the date of the event, cancellation or postponement is recommended.

## 7. Weather Related Resources:

7.1 **Environment Canada Website:** <http://weather.gc.ca>

7.2 **Environment Canada – Alerts, Watches and Warnings for Waterloo-Wellington:**  
[http://weather.gc.ca/warnings/report\\_e.html?on38](http://weather.gc.ca/warnings/report_e.html?on38)

7.3 **Environment Canada Radar** (follow approaching weather conditions for the Waterloo-Wellington area):

- Exeter, ON Radar: [http://weather.gc.ca/radar/index\\_e.html?id=WSO](http://weather.gc.ca/radar/index_e.html?id=WSO)
- King City, ON Radar: [http://weather.gc.ca/radar/index\\_e.html?id=WKR](http://weather.gc.ca/radar/index_e.html?id=WKR)

7.4 **Environment Canada’s “EC Alert Me”:** Subscribe to EC’s email alerting program for direct email communications concerning any notable/severe weather conditions affecting your specified region:

- “EC Alert Me” website: <https://ecalertme.weather.gc.ca>
- **Step 1:** Log on to the webpage and register for the service using your work email address (email and password required)
- **Step 2:** A confirmation email will be sent to your email address with instructions to create an ‘alert region’ using a 4-step process

7.5 **National Oceanic and Atmospheric Administrations - National Weather Service (USA):**

Tornado Preparedness Tips for School Administrators  
<http://www.spc.noaa.gov/faq/tornado/school.html>

# TORNADO PROCEDURES

**Your designated safe area is:**

## Instructions:

- ➔ If time permits, close all external doors and windows
- ➔ Guide all students to their 'designated safe area' in the lowest level of the building (preferably basement). Use interior spaces such as hallways, locker rooms, and bathrooms.
- ➔ Bring students from portables into the main building
- ➔ Assume protective position (below)
- ➔ Do NOT use rooms with wide-roof spans (i.e. gymnasiums or cafeterias) and windows or doors to the outside.

## Assume the 'Protective Position'

Face wall,  
Crouch on knees  
and elbows,  
Cover head with hands.



PROTECTIVE POSITION

September, 2013