

Severe Weather

ACTSAFE SAFETY BULLETIN #16

Severe weather can pose significant risks for events, particularly those outdoors. With the reasonably foreseeable threats of lightning, high winds, and air quality from wildfire smoke, it is no longer acceptable to state that events will take place "rain or shine". Based on the severe weather risks the globe is experiencing, along with challenges and costs around trying to insure events against severe weather, it is imperative that severe weather planning is a critical component of your workplace and event operations and emergency plans.

The purpose of this bulletin is to provide general information on reasonably foreseeable weather hazards in BC, Canada and guidance on the requirements and practices associated with severe weather planning and monitoring.

This bulletin does not provide information on:

- Comprehensive requirements related to emergency plans
- Information on requirements related to event medical, security or crowd management
- Risk assessments
- Exposure Controls Plans (ECPs)
- New/young worker training and orientations

HAZARDS

Severe weather systems that can pose significant risks to the safety and well-being of workers and event attendees along with adverse impacts to events include but are not limited to:

- Lightning
- Hail and hailstorms
- High winds
- Tornados and cyclones
- Extreme temperature (i.e. heat and cold)
- Poor air quality due to wildfire smoke, pollution or other environmental factors
- Severe rainfall and flooding

The risks associated with failing to plan accordingly for severe weather includes, but is not limited to:

- Worker and event attendee injuries or fatalities directly related to severe weather (i.e. lightning) or indirectly related to emergency response and crowd control (i.e. stampeding, crowd crush)
- Worker and event attendee illness or fatalities related to extreme temperatures or exposure to poor air quality

- Loss of support from the city and other external stakeholders impacting future events
- Poor sentiment in the media contributing to adverse public perception and negative impacts to reputation of event and event organizers
- Risk to event brand and associated sponsorship brands leading to increased costs and loss of future funding
- Financial liabilities associated with increased premiums, recovery efforts and legal costs



TIP!

Insurance policies may not provide coverage against certain emergency weather scenarios or this could be cost-prohibitive. If you are able to obtain insurance, it is important to understand what is covered, i.e. costs of the event (if so, which costs?) or forecasted revenues from the event. Additionally, are costs associated with mitigation covered? For instance, if flooding occurs days before the event, are costs associated with bringing in gravel or other materials covered to repair the event site?



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CONTROL MEASURES

It is critical throughout all phases (i.e. planning, load-in/builds, event, load-out/strike) of the event to be informed of the risks, communicate appropriately and stay flexible. Weather conditions can change rapidly and event organizers must be prepared to make adjustments and take contingency actions to ensure the safety and well-being of all those involved in the event.

Emergency Planning

When including severe weather in your event planning, consider:

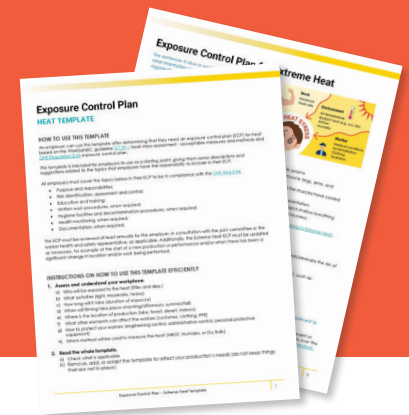
- Severe weather plans need to provide a robust and comprehensive framework in monitoring weather, communication and alert methods, consider colour-codes for describing severe weather (i.e. green, yellow, orange, red and black) and a weather action matrix identifying specific required actions for people, areas, equipment, and temporary structures based on pre-established thresholds.



TIP!

See ANSI ES1.7 - 2021- Event Safety Requirements - Weather Preparedness, Annex B for an example "Weather Action Matrix" (i.e. trigger chart)

REMINDER this must be specific to the location, event management team, tailored to the event (i.e. structures, equipment, event space) and account for foreseeable weather patterns of the geographic area.



- Plan for redundancies in power, communication, emergency lighting and other critical elements of the event to facilitate a safe evacuation should power be lost
- Individuals should be designated in advance for monitoring and decision-making related to event pause/stop, postponement or cancellation
- Establish methods for communicating effectively within the incident management team, and to security, workers on site, volunteers, vendors, event attendees and emergency responders
- Egress routes along with muster/assembly points and areas of refuge/shelter-in-place locations must be known in advance and included in plans. These should account for the travel time, occupant capacity and other factors such as road closures, public transit and parking



TIP!

Safe shelter areas must be assessed in advance to ensure they can provide adequate protection and do not create additional risks

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TRAINING

- Staff working load-in/out and those working the event must be trained in their responsibilities and actions in an emergency (including severe weather) along with general emergency procedures and locations
- Emergency plans (particularly severe weather) should be exercised in drills and tabletop exercises.
- Communicate when weather is being monitored due to a looming threat. This can provide confidence to workers and event attendees, reduce questions to staff, supervisors and general inquiry lines. Communication can also provide “next steps” so people are more prepared should the severe weather meet a threshold and may allow for a smoother and more efficient response actions



TIP!

Tabletops provide a valuable opportunity to bring together incident management leads and support, key event personnel (i.e. medical, security, production), emergency responders, city representatives and other key stakeholders to walk-through weather and other emergency scenarios.

Communication

- Communication methods should consider the use of audio announcements through loudspeaker, graphics and visual messaging through stage screens and screens/media throughout the event, way-finding signage and use of social media and mobile alerts
- Have scripts (audio and visual) prepared in advanced with the ability to adjust if necessary. Scripts should be specific to the event phase (i.e. load-in/out or event time), audience (workers and attendees) along with specific to the event and location. These scripts should be readily available
- Communication should also be adapted to the demographics of your staff and event attendees, and therefore should consider languages and those that may have hearing, visual or other impairments
- It is recommended to communicate to workers and event attendees in advance with the steps they can take for their own safety and well-being. Examples include codes of conduct, reminders to dress for the weather-elements, staying hydrated (and locations of water stations), as well as reminders to keep informed and follow instructions related to safety and emergency response

Weather Monitoring

- Designate an individual (and alternate) responsible for monitoring weather to stay informed on weather conditions for all phases of your event (i.e. planning, load-in/builds, event, load-out/strike)
- Ensure those responsible for weather monitoring and taking action in the event of looming severe weather and associated emergency response are trained and have the proper plans and communication devices
- Use an off-site meteorology service that provide updates and notifications, particularly when events have temporary/demountable structures and large crowds
- Events with multiple stages/structures and large crowds should consider an on-site meteorologist, anemometer(s) and Wet Bulb Globe Temperature (WBGT) metre



TIP!

See ANSI ES1.7 - 2021- Event Safety Requirements - Weather Preparedness for more information on what WBGT metres measure and their benefits. Additionally Annex C of this standard provides a risk table with recommended work/rest and water intake schedules for acclimated and unacclimated workers.

- Weather monitoring systems should be reliable and provide real-time updates on potential severe weather threats in the area. Alerts and warnings should be automated notifications based on pre-planned thresholds outlined in weather action matrices (often referred to as “trigger charts”)



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RELATED RESOURCES

- ActSafe has a library of resources related to weather including heat/cold temperature, lightning and hail, wind and severe rainfall, which are available at <https://www.actsafe.ca/topic/weather/>
- Government of BC, Get Prepared for Severe Weather Resources: <https://www2.gov.bc.ca/gov/content/safety/emergency-management/preparedbc/know-your-hazards/severe-weather>
- ANSI ES1.7 - 2021- Event Safety Requirements - Weather Preparedness is available for free download under the "Guidance" tab at <https://www.eventsafetyalliance.org/>
- CCOHS: https://www.ccohs.ca/oshanswers/safety_haz/climate/extremeweather_emergencies.html
- Ontario: <https://www.ontario.ca/document/safety-guidelines-live-performance-industry/outdoor-venues>
- Plasa: Guidance for Outdoor Events available for a free download: <https://www.plasa.org/lightning-guidance/>
- AccuWeather: <https://afb.accuweather.com/blog/how-weather-mitigation-can-help-keep-live-events-on-track>
- FREE WEBINAR: <https://afb.accuweather.com/on-demand-webinar-live-events>
- WeatherOps: <https://www.dtn.com/how-weather-intelligence-elevates-the-safety-and-quality-of-outdoor-events/>

REGULATORY REFERENCES

For information on requirements for written rescue and evacuation procedures, see section 4.13, Risk Assessment, in the Occupational Health and Safety Regulation.

Actsafes Safety Association

Actsafes (www.actsafe.ca) is a not-for-profit health and safety association supporting British Columbia's arts and entertainment industries. Actsafes provides resources and training to employers, workers, and supervisors. We are always here to provide information relevant to best practices around health and safety in the arts and entertainment industries in B.C.

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