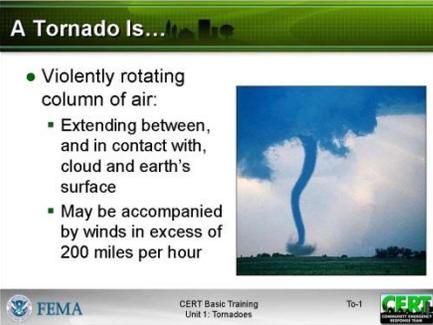


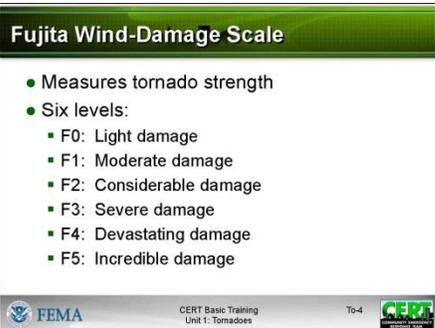
Tornadoes

INSTRUCTOR GUIDANCE	CONTENT
 <p>Tornadoes</p> <p>CERT Basic Training Hazards</p> <p>FEMA citizen corps</p> <p>Display Slide To-0</p>  <p>A Tornado Is...</p> <ul style="list-style-type: none">● Violently rotating column of air:<ul style="list-style-type: none">▪ Extending between, and in contact with, cloud and earth's surface▪ May be accompanied by winds in excess of 200 miles per hour <p>FEMA CERT Basic Training Unit 1: Tornadoes To-1</p> <p>Display Slide To-1</p> <p>http://rst.gsfc.nasa.gov/Sect14/tornado.jpg</p>	<p>Tornadoes</p> <p>Tell the participants that <u>tornadoes</u> are powerful, circular windstorms that may be accompanied by winds in excess of 200 miles per hour. Tornadoes typically develop during severe thunderstorms and may range in width from several hundred yards to more than a mile across.</p>

**COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES**

INSTRUCTOR GUIDANCE	CONTENT
<p>Tornado Risks</p> <ul style="list-style-type: none">● Rip trees apart● Destroy buildings● Uproot structures and objects● Send debris and glass flying● Overturn cars and mobile homes  <p>FEMA CERT Basic Training Unit 1: Tornadoes To-2</p> <p>Display Slide To-2</p> <p>www.spc.noaa.gov/faq/tornado/f3.jpg</p>	<p>Tornado Risks</p> <p>Explain that tornadoes pose a high risk because the low atmospheric pressure, combined with high wind velocity, can:</p> <ul style="list-style-type: none">▪ Rip trees apart▪ Destroy buildings▪ Uproot structures and objects▪ Send debris and glass flying▪ Overturn cars and mobile homes
<p>Tornado Facts</p> <ul style="list-style-type: none">● Occur in every state● About 800 reported every year● About 180 people killed every year● Season runs March – August, but tornadoes can occur any time of year● Can occur any time of day but most likely to occur 3:00 p.m. to 9:00 p.m.● Annual damage can be hundreds of millions <p>FEMA CERT Basic Training Unit 1: Tornadoes To-3</p> <p>Display Slide To-3</p>	<p>Tornado Facts</p> <p>Point out that while tornadoes have been reported in every state, they are most prevalent east of the Colorado-Wyoming-New Mexico area. Most frequently, tornadoes are found in the area from Kansas to Kentucky, the Great Plains, and the Upper Midwest. “Tornado Alley” includes Texas, Oklahoma, and Kansas.</p> <p>Tell the participants that more than 800 tornadoes are reported nationwide in an average year. Tornadoes can happen any time of the year and any time of day.</p> <p>Explain that tornado season lasts from March to August, but can occur year-round. More than 80 percent of tornadoes occur between noon and midnight, and one quarter occur from 4:00 p.m. to 6:00 p.m. Tornadoes are most likely to occur between 3:00 p.m. and 9:00 p.m.</p> <p>Tell the group that 9,000 deaths have been attributed to tornadoes in the past 50 years – an average of about 180 people each year. Annual damage from tornadoes can run into the hundreds of millions of dollars.</p>

**COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES**

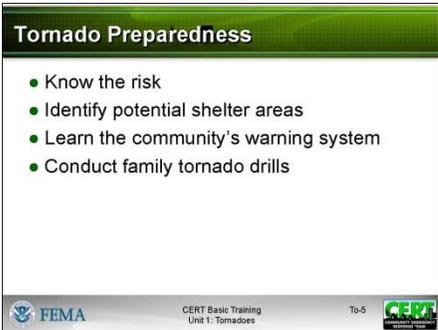
INSTRUCTOR GUIDANCE	CONTENT
 <p>Fujita Wind-Damage Scale</p> <ul style="list-style-type: none">• Measures tornado strength• Six levels:<ul style="list-style-type: none">▪ F0: Light damage▪ F1: Moderate damage▪ F2: Considerable damage▪ F3: Severe damage▪ F4: Devastating damage▪ F5: Incredible damage <p>FEMA CERT Basic Training Unit 1: Tornadoes To-4</p> <p>Display Slide To-4</p> <p>PM, P. To-3</p>	<p>Explain that the population in the ten tornado-prone States is increasing because of more rapid urban development, which increases the likelihood of injuries and deaths.</p> <p>Fujita Wind-Damage Scale</p> <p>Refer the participants to the chart titled <i>Fujita Wind-Damage Scale</i> in their Participant Manuals. Explain that tornado strength is measured on the Fujita Wind-Damage Scale, which correlates damage with wind speed. There are six wind-damage levels on the scale:</p> <ul style="list-style-type: none">▪ F0:<ul style="list-style-type: none">• Winds: Up to 72 miles per hour (mph)• Damage: Light▪ F1:<ul style="list-style-type: none">• Winds: 73–112 mph• Damage: Moderate▪ F2:<ul style="list-style-type: none">• Winds: 113–157 mph• Damage: Considerable▪ F3:<ul style="list-style-type: none">• Winds: 158–206 mph• Damage: Severe▪ F4:<ul style="list-style-type: none">• Winds: 207–260 mph• Damage: Devastating▪ F5:<ul style="list-style-type: none">• Winds: 261 mph or greater• Damage: Incredible

**COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES**

INSTRUCTOR GUIDANCE	CONTENT
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PM, P. To-3	Fujita Wind-Damage Scale
WIND-DAMAGE LEVEL	WIND SPEED AND ANTICIPATED DAMAGE
F0	<ul style="list-style-type: none"> ▪ Winds: Up to 72 miles per hour (mph) ▪ Damage: Light
F1	<ul style="list-style-type: none"> ▪ Winds: 73–112 mph ▪ Damage: Moderate
F2	<ul style="list-style-type: none"> ▪ Winds: 113–157 mph ▪ Damage: Considerable
F3	<ul style="list-style-type: none"> ▪ Winds: 158–206 mph ▪ Damage: Severe
F4	<ul style="list-style-type: none"> ▪ Winds: 207–260 mph ▪ Damage: Devastating
F5	<ul style="list-style-type: none"> ▪ Winds: 261 mph or greater ▪ Damage: Incredible

**COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES**

INSTRUCTOR GUIDANCE	CONTENT
<p>If your community is located near a large body of water, take a few moments to explain the differences between tornadoes and water spouts, including differences in the times of year they can be expected.</p>  <p>Allow the participants time to respond.</p>  <p>Display Slide To-5</p>	<p>Tell the participants that, although the Midwest and sections of the Southeast have the highest risk of tornadoes, with the help of sophisticated radar and other measures, meteorologists are now able to predict when conditions favorable for tornado formation exist and are able to warn the public better.</p> <p>Stress that many tornadoes (usually F0 and F1) are still unreported or unconfirmed.</p> <p>How can you prepare for a tornado? Summarize the discussion using the slide.</p> <p>Preparing for a Tornado</p> <p>Be sure to make the points listed below.</p> <ul style="list-style-type: none"> ▪ <u>Know the risk</u> for tornadoes in the area. Although tornadoes have been reported throughout the United States, some areas are clearly at higher risk than others. ▪ <u>Identify potential shelter areas</u> where family members can gather during a tornado. <p>The best shelter from a tornado is to be underground.</p> <p>If an underground shelter or tornado-safe room is not available, move to an interior room or hallway on the lowest floor and get under a sturdy piece of furniture. The idea is to get as many walls and roofs between you and the outside as possible. Avoid rooms with large free-span roofs.</p> <p>Mobile homes, even if tied down, offer little protection from tornadoes and should be abandoned in favor of more substantial shelter.</p>

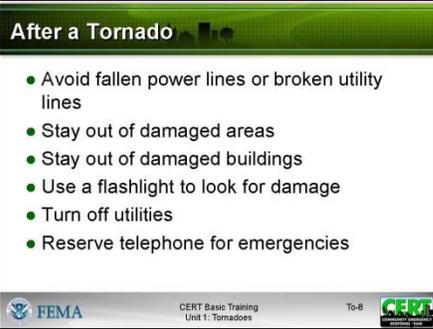
**COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES**

INSTRUCTOR GUIDANCE	CONTENT
<p>Take this opportunity to explain your community's tornado warning system.</p>  <p>Allow the participants time to respond.</p>	<ul style="list-style-type: none">▪ <u>Learn the community's warning system.</u> Many areas use Emergency Alert System (EAS) to warn of imminent hazards. Within these areas, though, communities may have other warning systems for tornadoes, including sirens that are also used to signal fires and other hazards. For those who live in communities that use sirens, it is critical to learn the siren warning tone to ensure recognition. Also, when severe weather threatens, NOAA weather radio carries current information and instructions.▪ <u>Conduct periodic tornado drills</u> with the family to ensure that all family members know what to do and where to go during a tornado emergency. <p>What do you look for to recognize a tornado?</p> <p>Stress that the “obvious” is not always as obvious as we think.</p> <ul style="list-style-type: none">▪ Tornadoes may appear nearly transparent until they pick up dust and debris.▪ Tornadoes can be wrapped in heavy rain, which may limit visibility; however, because tornadoes are associated with powerful updrafts, <u>rain does not always fall</u> in or near tornadoes.

COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES

INSTRUCTOR GUIDANCE	CONTENT
<p>Tornado Warning Signs</p> <ul style="list-style-type: none">● High winds● Very large hail  <p>FEMA CERT Basic Training Unit 1: Tornadoes To-6</p> <p>Display Slide To-6</p> <p>http://snrs.unl.edu/amet351/hull/hailstorm2.jpg</p> 	<p>Tornado Clues</p> <p>Occasionally tornadoes develop so rapidly that advance warning is not possible. Remain alert to signs of an approaching tornado, notably the sound that is something like an approaching freight train.</p> <p>Emphasize that the most obvious clues that a tornado may be forming or has formed are <u>high winds</u> and <u>very large hail</u>. Urge the participants to be alert for these clues and to take protective action, even if no tornado warning is issued.</p> <p>What should you do when you see a tornado or receive a tornado warning?</p> <p>Allow the participants time to respond. Summarize the discussion using the visual.</p>
<p>During a Tornado</p> <ul style="list-style-type: none">● Keep windows and doors closed and stay away from them● Use shielding and protective clothing<ul style="list-style-type: none">■ Furniture■ Blankets■ Bike helmets● Listen to EAS or NOAA Weather Radio <p>FEMA CERT Basic Training Unit 1: Tornadoes To-7</p> <p>Display Slide To-7</p>	<p>During a Tornado</p> <p>Emphasize that:</p> <ul style="list-style-type: none">■ Damage often occurs when wind gets inside a home. <u>Keep all windows and doors closed</u>. Houses do not explode because of air pressure differences.■ <u>Go immediately to an underground shelter or tornado-safe room</u>, or interior room or hallway on the lowest floor.■ <u>Put as much shielding material (such as furniture, blankets, bike helmets, etc.) as you can around you.</u>■ <u>Listen to EAS or NOAA Weather Radio</u> for current emergency information and instructions. <p>Continue by telling the group that if they are driving and see a tornado <u>go to a nearby sturdy building</u> and seek an area on the lowest level, without windows. If there are no buildings nearby, <u>get out and away from the vehicle</u> and lie down in a low spot on the ground. Protect the head and neck.</p>

COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES

INSTRUCTOR GUIDANCE	CONTENT
<p data-bbox="240 359 673 688"></p> <p data-bbox="240 722 513 758">Display Slide To-8</p> <p data-bbox="240 989 315 1062"></p> <p data-bbox="240 1167 410 1203">PM, P. To-6</p>	<p data-bbox="706 359 1507 506">Explain that following a tornado, citizens should continue listening to EAS or NOAA weather radio for updated information and instructions. As with many other hazards, post-tornado actions include:</p> <ul data-bbox="706 527 1507 926" style="list-style-type: none">▪ <u>Avoiding fallen power lines or broken utility lines</u> and immediately reporting those you see▪ <u>Staying out of damaged areas</u> until told that it is safe to enter▪ <u>Staying out of damaged buildings</u>▪ <u>Using a flashlight to look for damage</u> and fire hazards and documenting damage for insurance purposes▪ <u>Turning off utilities</u>, if necessary▪ <u>Reserving the telephone for emergencies</u> <p data-bbox="706 989 1507 1094">Does anyone have additional questions, comments, or concerns about tornadoes or tornado preparedness and response?</p> <p data-bbox="706 1136 1507 1241">Refer the participants to <i>Tornado Myths and Facts</i> in the Participant Manual. Suggest that they review these myths and facts after the session.</p>

**COMMUNITY EMERGENCY RESPONSE TEAM
TORNADOES**

PM, P. To-8	Tornado Myths and Facts
Myth:	Areas near lakes, rivers, and mountains are safe from tornadoes.
Fact:	No place is safe from tornadoes. A tornado near Yellowstone National Park left a path of destruction up and down a 10,000-foot mountain.
Myth:	The low pressure with a tornado causes buildings to explode as the tornado passes overhead.
Fact:	Violent winds and debris slamming into buildings cause most structural damage.
Myth:	Windows should be opened before a tornado approaches to equalize pressure and minimize damage.
Fact:	Windows should be left <u>closed</u> to minimize damage from flying debris and to keep the high wind out of the structure.
Myth:	If you are driving and see a tornado, you should drive at a right angle to the storm.
Fact:	The best thing to do is seek the best available shelter. Many people are injured or killed by remaining in their vehicles.
Myth:	People caught in the open should seek shelter under highway overpasses.
Fact:	Do <u>not</u> seek shelter under highway overpasses or under bridges. If possible, take shelter in a sturdy, reinforced building.

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