

Name: \_\_\_\_\_

## Evaluating Whether to Enter a Building During a Fire

### Lesson 2: Evaluating Stability and Safety of Buildings

#### **Part 1.** Fighting Fires with Thermal Drones Video

**Directions:** Watch the Youtube video called “Fighting Fires with Thermal Drones” and fill out the notes below while watching the video.

UAVs with Thermal Imaging helps with fighting structure fires, wildfires, and forest fires. UAVs and thermal images can help with:

1. \_\_\_\_\_
  - Helps with the see head and edge of wildfires and the location of crews
2. \_\_\_\_\_
  - Can give crews vital information on structural integrity of roofs
3. \_\_\_\_\_
  - Allows for plan of attack in fires because they can see fire and smoke moving through structures which leads crews to know where to ventilate and make entry
4. \_\_\_\_\_
  - Determine the amount of material in tank and detect leaks before entering the hazard zone
5. \_\_\_\_\_
  - UAVs can give instant feedback on the integrity of the wet lines
6. \_\_\_\_\_
  - Allows crews to see smoldering areas that could flare up later

## **Part 2.** Evaluating Thermal Images of Fires

Use the images below in the data table to answer the following questions. The colors yellow, orange, and red indicate that there is a fire in the structure. Red indicates the highest temperature of the fire.



Photo Credits: Jakubowski 2010 & Thermal Imaging Cameras (TICs) High-Rise Fire Fighting 2013

1. Use the images above to indicate where the location of the fire is in this structure (first floor of building, second floor of building, specific room, all rooms, etc.)
2. Are some parts of the fire hotter than other parts of the fire? Explain with using evidence from the photos above.

### **Part 3. Analyze and Evaluate Building Safety and Stability with UAV images**

#### **Image A:**

**Directions:** Evaluate the UAV thermal image to determine if firefighters can use the roof top access of the building to help fight the fire. In your evaluation, use the thermal image to determine the safety and reliability of the roof structure. After you evaluate the image, write a CER conclusion (claim, evidence, reasoning).

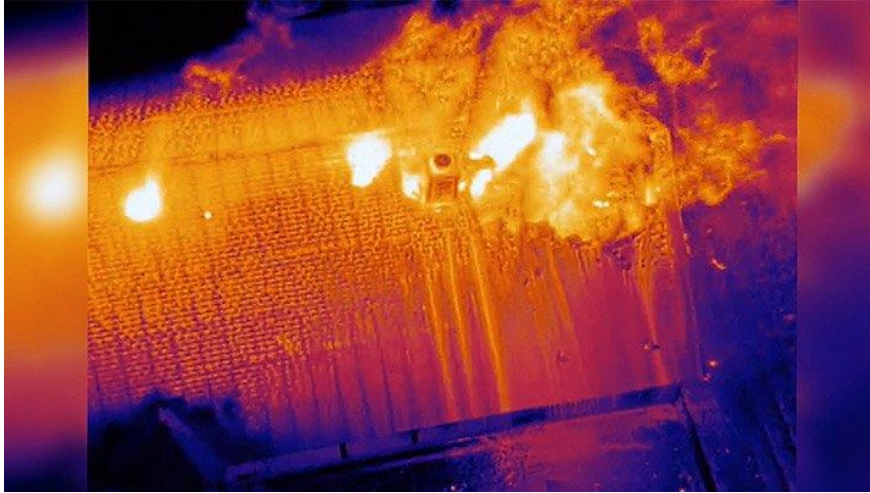


Photo Credit: Delta Episode 10- Using Thermal Drones to Assist Fire Fighting Operations 2019

**Scientific Question:** Is it safe and reliable for firefighters to use the roof top access of the building to help fight the fire?

**Claim:**

**Evidence** (from pictures):

**Reasoning:**

**Image B:**

**Directions:** Evaluate the UAV thermal image to determine if firefighters can use the roof top access of the building to help fight the fire. In your evaluation, use the thermal image to determine the safety and reliability of the roof structure. After you evaluate the image, write a CER conclusion (claim, evidence, reasoning).



Photo Credit: Lufkin 2015

**Scientific Question:** Is it safe and reliable for firefighters to use the roof top access of the building to help fight the fire?

**Claim:**

**Evidence** (from pictures):

**Reasoning:**