Safety in Demolition Work Practical Example
A Case Study on Construction Safety
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Module No # 03
Lecture No # 11
Safety in demolition work Practical examples

Hello everyone, my name is Mohamad Shahid Hamkar, and I am from Afghanistan. I am faculty in the department of civil engineering at Kardan University. I am also the founder of a private engineering consultancy. I have over 5 years of experience in teaching, designing and consultant and managing civil engineering in related areas. And in this short video, I will show you some practical examples of good and bad practices, related to demolition of work. Of course, these videos are surely for educational purposes and we are not criticizing anyone here.

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Let us start with the first video.

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In this video as you can see the demolition is improper and risky, because it can potentially cause damage to nearby structures. The workers are not using any PPE and the lives of workers are also at risk. As these types of all can trigger the other structure members fall. Looking at these

cracks over here, it looks like the whole building is not in good condition. The state of the building is so bad, that they could not even remove these windows first.

And you have to be very careful with the electric poles near the structure, like the one here. And these are some of the access equipment, which one can use during the demolition work.

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This is called wrecking ball demolition and the steel ball can weigh up to 6500 kg. So, you can imagine its impact energy. You know that demolition is a highly destructive activity. At this video demolition is been carried out with other activities going on nearby. You can see the movement of vehicles around the area. Actually, the entire area should have been isolated, barricaded and restricted from entering.

So, you have to be very careful and guard all the blind and hazardous spots of a machine. And these are some of the equipment used for breaking and cutting concrete.

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Metal Cutting Tools
1. Oxy-Acetylene and Oxy-Propane Cutting
2. Abrasive-Type of Circular Saws
3. Plasma-Arc Torches
4. Burning Bars
5. Reciprocating Saws
6. Small Shears

In this video again, the entire area should have been isolated. They should have stopped the traffic for some time or should have properly planned this. And these are some of the tools used for cutting metal.

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PPE required for all projects as a bare minimum
1. Hard Hats
2. Safety Glasses
3. Safety Boots
4. Gloves
5. Hearing Protection
6. High-Visibility Vests

This is the practical example of a near miss. As you can see the wall is being demolished without following any standard procedure. Even if it had to be demolished manually, the workers should

follow a proper method. This demolition is totally unplanned and put the lives of the workers at risk of fatality. Also, the workers are not using any PPE.

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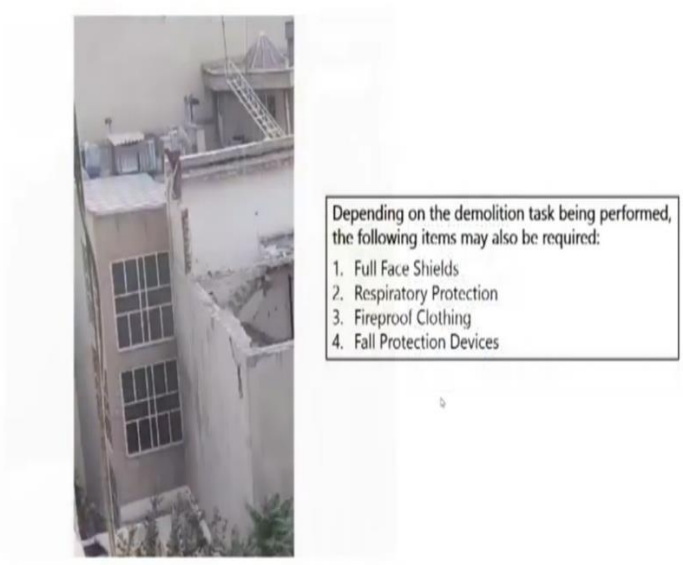

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In this video the worker case out the wall's demolition in the right way. But there is no regard for his own safety. It is like he is cutting the branch of the tree on which he is sitting. There is no scaffold or staging system to support him. And again, he is not using proper PPE and fall protection system or personal fall risk system. So, this is not a good practice at all.

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In this video as you can see the sudden fall of the wall, could have triggered the fall of the floor on which it fell. The worker performing the demolition is not equipped for his safety and there is no measure for dust control.

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In this video, no dust control measures have been taken even though the workers are near the demolition site. Also, demolition of this left out part of the structure could endanger the adjacent structures.

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In this video, the demolition is happening close to the workers. You can see how simply he is jacking up the whole brick wall, without taking any safety measures.

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Demolition in this way can trigger the collapse of the entire structure at once, due to the impact. Hence it can lead to the fatality of the workers, working on the structure members without any support. See how these workers are working at such height without using any personal fall risk system.

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Here the worker is wearing PPE, but he is working at the edge of the structure without fastening the harness. Hence the PPE will prove to be of no use, in case of a fall. And I think, work harder is good, but you have to be smart enough. So, work smarter is better.

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Here you can see that someone only destructed the columns at specific point. Let me show you that. I am talking about these points. And because the columns are no longer able to resist the load, the structure collapses. And at this demolition the problem is that the collapse might happen during the destruction of those columns. I mean when the person uses hammers or drillers and might lead to injury or fatality. And no measure to control the dust is another big problem here.

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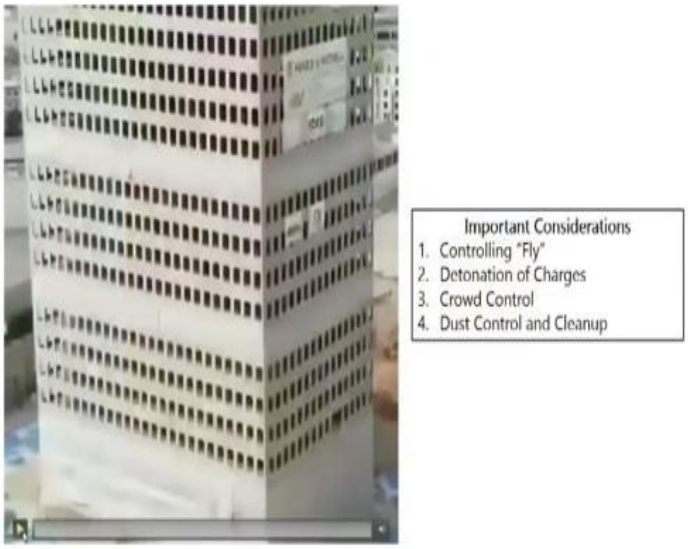

This is an example of building implosion**.** In a building implosion, the strategy is to place the explosive materials and timing of its detonation and then detonate so that the structure collapses on itself. Please note that these blue objects are some water containers. And what they did is that they exploded these water containers first as you can see here and then the structure to minimize dust.

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These areas, I mean openings are wrapped with fabrics to avoid flying concrete. And you have to be even more careful when you demolish prestressed concrete members. Some of the important considerations that must be taken into account when planning or building or other structures implosion or controlling fly, the detonation of charges, crowd control, dust control and clean up. That's it. Thank you.