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# DEMOLITION OF BUILDING

**MOFIZOOR RAHMAN, PARVEZ MANSOORI, MD IBRAR ALAM**

*IIMT College of Engineering, Greater Noida U.P (India)*

## INTRODUCTION

We know every structure is designed for a life period. The existence of the structure after the service life period is very dangerous to its occupants and surrounding buildings .The building act usually contains provisions that enable local authorities to control demolition works for the protection of public safety and to ensure adjoining premises and the site are made good on completion of the demolition. A notice of conditions is issued that require certain works to be undertaken to achieve these aims. Where demolition of a building takes place, the owner must inform the council. Greenhouses, conservatories, prefabricated garages and sheds do not require permission to be demolished. Usually if the building to be demolished has a volume of less than 1750 cubic feet (49.56 cubic meters), then permission is not required to knock it down.

## DEMOLITION

Demolition is the process of tearing down or falling down of a building after its life period with the help of some equipments or any other method. When explosives are used for this then the demolition process are called as an implosion. Every civil engineering structure is designed for a life period. After that the existence of a structure is very dangerous. So removal of such structures with proper safety measures has got great importance. There are different steps involved before and during the time of a demolition activity. They are described as follows.

## STEPS BEFORE DEMOLITION

The different steps before the execution of a demolition process are:

1. Surveying
2. Removal of hazardous materials
3. Preparation of plan

4.Stability report 5.Safety

measures

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## METHODS OF DEMOLITION

There are two types of demolition

1. Non explosive demolition
2. Explosive demolition.

### Non explosive demolition

It means the demolition of a structure done with some equipment without the use of any explosive. Different equipments used for the demolition activity are

*a. Sledge hammer*

A sledge hammer, equipment used for removing a stone wall or a single column. It consists of a long stem with a metallic head. It is used to give impacts on the surfaces and that cause the demolition of structure. It cannot be used for removal of large buildings.

Fig 1. Sledge hammer

*b. Excavators and Bulldozers*

Fig 2. Excavator

Hydraulic excavators may be used to topple one-or two-story buildings by an undermining process. The undermining process means, erode the base or foundation, i.e., dig or excavate beneath the foundation so as to make it collapse. The strategy of excavation is to undermine the building while controlling the manner and direction in which it falls. The demolition project manager will determine where under mining is necessary so that the building is pulled into the desired manner and direction. Safety and cleanup considerations are also taken into account in determining how the building is undermined and ultimately demolished.

Fig 3. Bulldozer

Loaders or bulldozers may also be used to demolish a building. They are typically equipped with “rakes” (thick pieces of steel that could be an I-beam or tube) that are used to ram building wall. Skid loaders and Loaders will also be used to take material out and sort steel.

*c. Wrecking balls*

Fig 4. Crane with wrecking ball

In case of buildings have greater heights (5 to 6 story) normal excavators and bulldozers are not sufficient. In such cases crane with wrecking balls are used to perform the demolition activity. The wrecking balls are steel balls hanging from a steel rope which is attached to the crane. This method is more effective only for high rise masonry structures because of the uncontrolled backward movement of steel ball after the impact on the wall surface. Now this method not commonly used because of this uncontrolled behavior of wrecking balls.

*d. High reach excavators*

Fig 5. High reach excavator

High reach demolition excavators are more often used for tall buildings where explosive demolition is not appropriate or not possible. These excavators are used to demolish up to a height of 300 feet. These excavators with some attachments are also provided for some specific purposes. For example excavators with shear attachments are typically used to dismantle steel structural elements. Hydraulic hammers are often used for concrete structures and concrete processing attachments are used to crush concrete to a manageable size, and to removing reinforcing steel.

**Explosive demolition**

The basic idea of explosive demolition is quite simple. If we remove the support structure of a building at a certain point, the section of the building above the point will fall down on the part of the building below that point. If this upper section is heavy enough, it will collide with the lower part with sufficient force to cause significant damage. The explosives are just trigger for the demolition. It's gravity that brings the building down.

Demolition blasters or blasting expert ("Blasting expert" means a person who is the holder of a valid mine blasting certificate.) load explosives on several different levels of the building so that the building structure falls down on itself at multiple points. When everything is

**CONCLUSION**

Type of demolition method depends upon various factors such as site condition, type of structures, age of building, height of building and economy. Anyway controlled demolition of building is necessary to ensure safety. Explosive demolition is the preferred method for safely and efficiently demolishing the larger structures. Almost all major building implosions in the world are handled by 20 well-established companies, blasting is passed on from generation to generation.