SID

Removing the risk

The most important thing a designer can do to ensure safety during a demolition is give the contractor information about the site and structure. This guide tells you what you need to know.

Health and safety during demolition, dismantling and decommissioning is the contractor's responsibility. But you can help, by collating as much information as possible about the site and structure.

This will help the contractor to ensure the process is as safe as possible – protecting the workforce and the public from unnecessary exposure to risk.

Demolition is not only concerned with the removal of entire structures. Refurbishments often involve small-scale demolition – which can sometimes be more dangerous than taking down a whole building. More information about refurbishment is provided in MTN501 Refurbishment.

Hazards

Demolition is a high-risk activity. The hazards to which workers and the public are exposed include:

- **Falling from height**
- **Temporary situations, such as retaining-wall situations, created by the demolition**
- **Premature collapse of structures**
- **Exposure to harmful substances**

Workers are often faced with further risk when they stray into areas of the demolition site to which access is prohibited. It is therefore vital to ensure that clear information is given about access to the site, and dangers that are located throughout it.

Information

Designers should obtain as much information as possible to help contractors plan safe demolitions.

Site information
Table 1 provides guidance on how to access existing information about a site.
You should also make sure you:

- **Commission or undertake a contamination survey and chemical analysis of the site**
- **Commission an asbestos survey**
- **Take water and soil samples, and samples from fixed plant and process machines**
- **Conduct structural inspections of all buildings, structures and boundaries on the site. You should also inspect any adjacent buildings that might be affected by the work**
- **Carry out a survey of existing surface treatments, to identify the use of substances that may be harmful to health. For example, you should ascertain whether lead-based paint is present on the site**
- **Ascertain whether groundwater is likely to be a problem during the demolition**
- **Identify the location of statutory services, and note whether they need to be diverted prior to the demolition**

Structural information
Whenever a structure is demolished, there is a risk of premature collapse. You can mitigate this risk by providing the following information with your design:

- **A description of the basic structural form**
- **Details of the framing, if any, and materials used**
- **Construction details, such as the strength of steel and concrete, or curtailment rules for reinforcement. Note that pre-stressed concrete is very difficult to deal with, because of the energy stored in the tendons. You need to establish whether the pre-stressing tendons are in ducts, or cast in**
- **Information about assumed load paths, and alternative load paths during the demolition process**
- **Details of any critical loading conditions that could cause collapse**
- **Identification of any critical load-bearing elements that should not be removed without a suitable temporary supporting arrangement. Examples include**
  - Load-bearing walls
  - Columns under simply-supported beams
  - Some columns under continuous beams
  - Floor beams and lintels
  - Slabs providing torsional restraint to beams with a significant cantilever in front
  - Members providing lateral restraint to compression members

Temporary situations

Demolition can create temporary situations that are hazardous. You should consider whether the proposed demolition could:

- **Create retaining wall situations – for example, in cellars**
- **Turn propped cantilever walls into cantilever walls – for example, when floor slabs are demolished**
- **Create excavations of any depth – for example, when foundations are demolished**
- **Undermine any adjacent structures – for example, when demolishing basement retaining walls**
- **Destabilise adjacent structures – for example, when demolishing an adjoining structure**

Height and harmful substances

To find out more about managing the risks associated with hazardous materials and working at height, see: CON307 **Fall prevention by design**, MAT401 **Hazards associated with materials**, SIT105 **Asbestos survey and management**, and SIT106 **Lead-based paint survey and management**.

Existing information

The following table provides guidance about where to look for existing information about a site:

Table 1: Sources of information about your site

Existing information	Source
Historical drawings of site	Client/current owner, Local Authority, library, local interest groups, original designer/s, Ordnance Surveys
Calculations (e.g. concerning load-bearing assumptions)	Client/current owner, original designer/s, Local Authority
History of use of structure	Client/current owner, local people
Storage on site	Client/current owner, Fire Brigade, Environment Agency
Structural frame (e.g. material of construction)	Original designer/s, Local Authority
Building materials (e.g. strengths, rules for use)	Original designer/s, Local Authority, Design Standards of the time
Hazardous materials	Original designer/s, surveys, historical knowledge of works, local people
Recent inspections (e.g. use, abuse, neglect)	Client/current owner
Adjoining structures	Ordnance Survey maps
All statutory service records, including cables and flood plan information	Statutory Authorities, Environment Agency

Other hazards

A variety of other hazards may arise during a demolition. You should give consideration to the following factors in your design:

- **Site restrictions, such as access and exit restrictions, or restrictions on working hours**
- **The provision of storage areas for deliveries of materials needed during the demolition**
- **The use of cranes on site – see CON302.1 Crane information for further details**
- **The generation of dust, noise and vibrations – see CON303 Noise management for more guidance**
- **Radiological hazards. If an isotype is discovered on site, you need to identify a means of safe disposal**
- **Temporary site roads. You need to ascertain whether there is sufficient space on the site to create adequate temporary access roads**

Useful resources

The Party Wall Act 1996
BS 6187:2011 – Code of Practice for Demolition

See elsewhere on SID:

SIT105 Asbestos survey and management
SIT106 Lead-based paint survey and management
CON302.1 Crane information
CON303 Noise management
CON307 Fall prevention by design
MAT401 Hazards associated with materials
MTN501 Refurbishment