Several major accidents in the UK have highlighted the dangers posed to people located within occupied buildings such as control rooms or administration blocks. Occupied buildings on many sites are located close to the process plants to improve coordination and communications and make the operators better able to prevent accidents and control abnormal events. However, the closer operators are to the plant, the higher the risk of being exposed to the consequences of hazardous events. These events are associated with dangerous substances and sources of stored energy, typically causing exposure to toxic releases, thermal radiation from fires, or blast overpressure effects due to vessel ruptures or vapour cloud explosions.

The HSE requires operators of COMAH lower and top tier sites to carry out and maintain an occupied building risk assessment. This needs to be in accordance with relevant good practice and the latest guidance from the HSE, CIA and API.

Recent updates to this guidance (CIA updates of October 2010 and API updates of 2009) mean that compliance is becoming harder to achieve. In October 2010 the CIA guidance for occupied building risk assessment was updated, similarly in 2009 the corresponding API guidance (API 752) was also updated. Although the general approach in both of these documents is unaltered there have been significant changes. For example, the removal of occupancy criteria. A building should be assessed as being occupied if it is ‘intended for occupation’, rather than previously where many companies used a minimum number of hours occupation per day to define whether a building was occupied and therefore subject to assessment. This may bring additional buildings into the assessment process. The updated guidance has also placed an increased emphasis on keeping occupied building risk assessments up to date, including demonstration that occupied buildings are considered as part of a management of change process and also that occupied building assessments are formally reviewed on a periodic basis.

What we offer
ABB offers a complete range of services to carry out an occupied building risk assessment. This will identify what, if any, improvements are required, and then demonstrate the basis of safety for the occupied building in accordance with relevant guidance. ABB also provides guidance and support for the ongoing review of occupied building risk assessments as part of the site Process Safety Management (PSM) system, including action reviews, handling changes and developing management procedures.
ABB’s occupied building risk assessment methodology combines practical expertise in:

- Identifying relevant hazardous events to include in the assessment
- Modelling the hazardous effects of fire, explosion and toxic gas releases
- Assessment of the hazardous effects on a range of building constructions
- Quantification of the risks to building occupants
- Improvements to processes or buildings to eliminate or reduce risks
- Design of buildings required to become designated toxic gas refuges
- Development of management procedures for occupied buildings

With in-house expertise in structural engineering and project management, ABB can assess your buildings and where necessary propose and implement cost effective improvements.

Temporary buildings
The accident at BP’s Texas City refinery in 2005 showed the dangers to people based in temporary buildings due to the weak construction standards. Portacabins are often required close to the plant during overhauls and may have been kept in this location housing engineering staff. Recent updated guidance from the CIA and API has focussed on temporary buildings and explosion resistant mobile buildings are now available for high risk areas. ABB can provide guidance on the precautions to take when using temporary buildings on high hazard sites, including managing of the risks during plant shut-downs.

Revalidation
CIA guidance requires periodic reviews of occupied building risk assessments to ensure that findings remain valid for activities on the site. The review period should be included in the site’s occupied building policy. ABB can revalidate existing assessments and ensure any major changes to buildings or hazards are incorporated, as well as providing guidance on further cost effective risk reduction measures.

Benefits
- The risk assessment will allow the client to prove to themselves and the governing bodies that all risks are ALARP (as low as reasonably possible)
- It will allow the client to gain compliance with the latest legislation from the HSE, CIA and API using a structured argument showing a logical progression from identification of hazards through to implementation of the appropriate prevention, control and mitigation measures
- The study will identify any potential unacceptable impacts to occupied buildings and will offer cost effective and practical solutions, giving the client peace of mind that occupants are adequately safeguarded
- ABB’s structured occupied building risk assessment methodology and effective management policies / procedures will assist plant operators in managing the conflicting needs of financial constraints, effective plant operations and ensure the ongoing safety of building occupants

Why ABB?
Our team of experienced specialists with operational heritage will use their experience to make pragmatic technical judgements and offer solutions that are cost effective. ABB can provide the whole solution to ensure occupied buildings are safe; from the risk assessment, to the implementation of management policies, right through to a structural review of the building, enabling the design of building improvements where necessary. By calling upon in-house expertise from ABB we are able to design buildings to withstand explosion over pressure.