

Sustainable Hotel *Siting, Design and Construction*



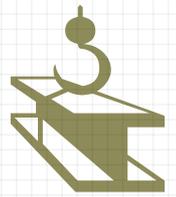
The industry guide to good practice

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CONSTRUCTION AND REFURBISHMENT



6.1 Construction and sustainable development

It is well known that construction sites have negative impacts on the local environment and community through noise, air, and water and land pollution. Clients and contractors should make provisions to minimise these impacts and any disruption to the community and ensure the health and absolute safety of local residents as well as that of all staff on site.

The construction phase of a new hotel can have detrimental impacts on its surroundings such as:

Increased **traffic** to and from the site, particularly heavy lorries and construction vehicles, which increases the likelihood of sediments and **contaminated soil** being carried off the site.

Noise, dust and a **poor visual appearance**.

Possible destruction of **flora** and **fauna**.

Increased demand for **utilities**.

Affect on the **social community** by factors such as an influx of workers.

Issues associated with **waste** disposal.

The construction industry can contribute to the achievement of sustainable development by:⁵⁹

Operating to the highest international **safety** standards.

Delivering buildings and structures that provide **greater satisfaction, well-being and value** to customers and users.

Treating its **stakeholders** fairly and respectfully, including the labour force.

Recruiting from the local community, where possible, training and capacity building.

Working with **suppliers** and ensuring sustainable practice is integrated throughout the **supply chain**.

Enhancing and protecting the **natural environment and biodiversity**.

Minimising its impact on the consumption of energy (especially carbon-based energy), **water** and other non-renewable **natural resources**.

Minimising **waste** by reusing materials where possible.

Avoiding **pollution**.

Setting targets and **measuring performance**.



Picture courtesy The Commtech Group

⁵⁹ See 'Building a Better Quality of Life—A Strategy for More Sustainable Construction', DTI, 2000, www.dti.gov.uk



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Some of these measures—for example, reusing existing buildings and waste materials and respecting people and the environment—can be implemented at little or no extra cost. Other measures and techniques may increase the initial capital cost but should be weighed against the resulting long-term savings over the entire life of the building.

If sustainable objectives are followed, the industry can expect to benefit from fewer conflicts, faster planning applications and access to investment, resource efficiency, better health and safety and an improved local employment and skill base. It will also contribute to more sustainable asset management by delivering buildings that are more efficient, have lower maintenance costs and increased value and marketability.⁶⁰

Before construction can commence, the client must be content that the project fully satisfies the original criteria set out in the project and design briefs, including all the sustainability objectives that have been specified. The client should verify that funds are readily available and ensure that payments are paid promptly when they are due in accordance with the contract.

The commissioning and handing over of a project by the construction team is an important and final phase of the construction process. This phase should be given due care and attention with both objectives and activity planned well in advance. As part of the handover it is essential to provide the client with all the necessary training, facility operations and maintenance information and all relevant health and safety files and procedures for reporting defects.

6.2 Pre-construction

- A** The site should already have been subject to an **EIA** (see **Section 2.3**), which will take into account issues such as contaminated land and specific characteristics of the site that need to be protected. Any recommendations from the assessment must be implemented before work begins on the site. In the case of soil remediation, this work may take several months.
- B** Establish a **construction policy** that includes health and safety and an EMS for inclusion into the construction documents from the outset. This should cover issues such as health and safety, site preparation, minimising environmental and social impacts and landscape restoration.
- C** Make sure that everyone is **aware** of the importance of sustainability to the project. This may involve the need for induction training based on sustainable principles such as The Natural Step.
- D** Identify **minimum infrastructure requirements** during the construction process with regard to waste water treatment, roads, electricity and freshwater supply.
- E** Provision should be made for **residential and business areas** that will be affected by the project by minimising the severance of local access routes, improving crossings and/or alternative access routes, maintaining temporary traffic diversions during the construction phase and establishing and enforcing safe speed limits.
- F** Specific **landscape and heritage features** requiring preservation should be clearly identified and appropriate measures and techniques put in place to ensure their protection. This is particularly important for sites that are environmentally or culturally sensitive.
- G** Aim to ensure **minimum clearance of vegetation**. Re-vegetation should take place as soon as possible and responsibility should be allocated to look after new planting on site.

⁶⁰ 'London Sustainable Construction Project: A scoping study', CRIA, Forum for the Future and The BRE Trust, 2004, www.lsx.org.uk



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- H** **Elevated boardwalks** should be built for workers to use before construction commences to minimise site disturbance.
- I** It will be important to source **materials** for the development that have minimal environmental impact, are produced locally, are appropriate for the area and are sufficiently durable for the task they are to perform. See **Sections 5.4 Materials and 8 Interior design**.
- J** Take care to order materials in the **correct amount**. Building materials that are left over at the end of a project usually find their way into landfill. When construction is complete, materials that have not been incorporated into the works can be put in a designated area outside the site compound, and the local community encouraged to come and take them free of charge, benefiting local people and saving unnecessary landfill.
- K** **Waste disposal facilities** will need to be provided to minimise the amount of roadside litter. Assurances should be obtained from the developer that any waste will be collected, segregated and properly disposed of in accordance with government regulations.

6.3 Recruitment, safety and training

- A** The **safety** of workers, site visitors and people in the surrounding community should be of paramount importance, yet it is traditionally an industry with a very poor safety record as thousands of lives are lost on construction sites worldwide each year. **Compliance** with the highest international health and safety standards is absolutely essential. For example, no one should be allowed on site unless they are wearing a hard hat.
- B** Select the construction team based on their **experience** of working in sensitive locations and ask for attainment of **standards** such as ISO14001 or EEBA Master Builder accreditation. In San Francisco, USA, for example, architects, building professionals, general contractors and specialist tradespeople who complete a course on green building methods and materials can attain NARI Certified Green Building Professional⁶¹ status.
- C** Ensure that the site is kept **tidy** at all times and that there are areas designated for waste separation, etc. This is an efficient practice and will improve site safety.
- D** In many countries, there is a **skills shortage** for competent builders and construction workers. In the UK alone, the industry requires 80,000 new recruits every year for the next five years.⁶² By training apprentices, the construction industry can provide young people with valuable skills for the future, bridge the skills shortage and improve standards. In many countries, grants and other financial incentives are available to encourage apprenticeship.
- E** The use of screens and fences around the site will provide **security** against inquisitive children and unwelcome intruders, while also protecting their **safety**.
- F** Construction companies should consider signing up to **voluntary schemes** such as Considerate Constructors,⁶³ which commits contractors to be considerate and good neighbours, as well as clean, respectful, safe, environmentally-conscious, responsible and accountable.

⁶¹ San Francisco Bay Area NARI (National Association of the Remodeling Industry), www.sfbanari.com

⁶² Construction Industry Training Board (CITB), www.citb.co.uk

⁶³ Considerate Constructors scheme, www.ccscheme.co.uk



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6.4 Minimising social impacts

- A** **Good communication** and feedback mechanisms are essential. Keep the local community fully informed on a regular basis. This should be done through public meetings and face-to-face contact, not just through leaflets.
- B** Keep to the **agreed hours of work** and inform neighbours if there is a need to exceed them. This will help to keep complaints to a minimum.
- C** Look after the **welfare of the construction staff**. Providing decent accommodation and good canteen facilities will help to maintain their well-being and motivation.
- D** Incorporate **appropriate local techniques and skills** and, where necessary, train local people in sustainable building techniques.
- E** Train construction crews to recognise **culturally important resources** and to consult project managers on how to mitigate adverse impacts.
- F** Reduce ambient **noise** through aesthetically-acceptable noise barriers, such as the placement of earth mounds or vegetation between the road and sensitive receptors.

6.5 Minimising environmental impacts on-site

- A** Screen the site from the outside to **minimise its visual impact**.
- B** Enter into a **formal contract** with a professional waste contractor that specialises in recycling.
- C** **Minimise the load on landfills** when demolishing existing structures. Establish the extent to which materials can be reused or recycled.
- D** **Provide incentives** to the workforce to sort and segregate waste and keep the site tidy and safe.
- E** Where space permits, erect **waste storage facilities** for separating, recycling and compacting waste, otherwise designate special areas.
- F** Maintain a clean site. Enforce **housekeeping** rules (but also reward and celebrate successes).
- G** **Limit storm water run-off** by minimising sealed areas and directing the run-off to settling basins prior to discharge to surface waters to prevent contamination. Ensure that ground-level walkways remain pervious.
- H** Ensure that the **ground** is not overly compacted or hardened in areas that will later form the gardens. Recover topsoil for reuse later on.
- I** Minimise use of **heavy mechanical machinery**.



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- J** **Control land drainage** to prevent water channelling and sediment transport by diverting flows from areas where soils are exposed, and/or by providing filter barriers or settling basins to remove sediment before the run-off is discharged to surface waters.⁶⁴
- K** **Culverts** should be provided as necessary to prevent the road from disrupting or radically changing the existing drainage regime.
- L** **Stabilise slopes** after excavation and **revegetate** cleared areas as quickly as possible. Replanted areas and ground that may be subject to erosion must be monitored and maintained at all times.
- M** **Avoid stagnant water** conditions over long periods.
- N** Include provision in roadways for **wildlife** bridges or tunnels at migratory route crossings, fencing and vegetation to prevent animal and vehicle collisions, and additional habitats and migration routes for local animals that may be displaced by the project.
- O** **Storage and liquid impoundment areas** for fuels, solvents, de-icing materials and waste products should be designed with secondary containment, such as dykes, to prevent the contamination of soils, groundwater and surface waters due to accidental spills or releases. They should also be sited to minimise potential risks from earthquakes, floods, windstorms and fires.
- P** **Pesticides, fertilisers and other maintenance chemicals** must be applied strictly according to the directives of the manufacturer, and used in compliance with government regulations. Preference should be given to natural soil improvers and pesticides over chemical compounds.
- Q** **Protect materials** that are delivered to the site prior to use.
- R** **Protect installed equipment** from accumulation of dust and debris. Enclose any open pipework and flush out the entire system upon completion. Replace and/or clean air filters in ventilation systems prior to handing over to the client.

6.6 Refurbishment

The same rules that apply to new building development also apply to many aspects of refurbishment and remodelling, such as:

- Procurement of materials and services.
- Selection of systems and fittings.
- Management of contractors on site.
- Noise and waste disposal issues.
- Commissioning.

In general these guiding principles should also help to guide the process of refurbishment along more sustainable lines. Since upgrading is a regular process occurring over many years, the hotel should aim to continuously raise environmental construction standards over time.

It is crucial to develop a management plan with an implementation strategy for the refurbishment. This should clearly set out the sustainability objectives for the project and identify chains of responsibility for implementation and monitoring.

⁶⁴ 'Pollution Prevention and Abatement Handbook: Part III Tourism and Hospitality Development', World Bank Group, September 2001, www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_ppah_wci_1319577543003



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- A** Select a **refurbishment team** that is experienced in identifying and managing green issues.
- B** Ensure that any potentially **harmful or hazardous materials** such as asbestos have been identified. Removal and disposal must be undertaken by professionals and appropriate time allowed for this.
- C** Plan for the **reuse and recycling** of removed furniture, fixtures and equipment (FF/E) and construction materials.
- D** Implement **rigid housekeeping** rules.
- E** Ensure that the hotel's **life safety systems** are not adversely affected by any work that is carried out.
- F** Comply fully with local **waste regulations** and use licensed waste hauliers.
- G** Use **locally available** materials. *See Section 5.4 Materials.*
- H** Use **local sub-contractors** where possible.
- I** **Protect existing and new equipment** from dust and debris and flush out duct and pipe systems prior to handover.



More information

A Guide to Managing Health and Safety In Construction

Health and Safety Commission, Construction Industry Advisory Committee, 1995
www.hsebooks.co.uk

Building a Better Quality of Life: A Strategy for More Sustainable Construction

UK Department for Trade and Industry, 2000
www.dti.gov.uk

Construction Industry Training Board (CITB)

www.citb.co.uk

Considerate Constructors Scheme

www.ccscheme.co.uk

Constructing Excellence

www.constructingexcellence.org.uk

International Labour Organisation Standards on Safety and Health

Conventions, Recommendations and Codes of practice for the establishment of international standards on labour and social matters.
www.ilo.org

London Sustainable Construction Project: A Scoping Study

CRIA, Forum for the Future and The BRE Trust, 2004
www.lsx.org.uk

Pollution Prevention and Abatement Handbook: Part III Tourism and Hospitality Development

World Bank Group, September 2001
www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_ppah_wci_1319577543003

Refurbishment and Upgrading of Buildings

David Highfield, Leeds Metropolitan University, 2000
www.brebookshop.com

The Construction Industry in the Twenty-first Century: Its Image, Employment Prospects and Skill Requirements

International Labour Organisation, 2001
www.ilo.org