



Istituto Superiore per la Protezione e la Ricerca Ambientale  
Italian Institute for Environmental Protection and Research



# Development of European Ecolabel Criteria for Buildings

## Main Environmental Impacts of the buildings

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Development of European Ecolabel Criteria for Buildings  
Second Ad Hoc Working Group Meeting – Roma, October 28 2008

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## Action to reduce main impacts

- Minimize life cycle costs
- Reduce resource consumption
- Reduce resource waste
- Increase equipment and system efficiency
- Emphasize source and waste reduction
- Create healthy environments

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## Process Building

The process of building follows these phases:

- planning
- construction process
- maintenance and operational
- demolition and disposal

The process of creating a high-performance building is different from the conventional design/build process.

The challenge is to integrate environmental goals without compromising any of the project needs and objectives.



## Planning

### Objective

- improve site planning
- safeguard water and ensure its efficient use
- maximize energy efficiency
- conserve materials and resource
- ensure indoor environmental quality

### Benefits

- reduced energy and water use
- lower maintenance and capital costs
- less environmental impact and health
- higher employee productivity



## Construction process

The main impacts from the construction activities are:

pollution, noise, vibration, water quality, traffic flow, visual impacts for those residents and travellers.

### *Environmental impacts and risks*

#### **- Air quality**

- NOx and fine particulate from diesel engines
- dust
- visibility of stack emissions from off-road equipment
- cumulative effects of emissions from paint and other solvent

#### **- Water quality**

- dewatering and stormwater runoff



## Construction process

#### **- Solide Waste**

- quantity of materials disposed to landfills
- toxicity of some materials used in construction and related activities
- potential liability from contaminated soil
- provisions for recycling unused materials
- provisions for making use of materials with recycled content
- situations involving special regulatory considerations, including wetlands, endangered species
- potential for contamination from stored materials, spills
- preservation of vegetation, or revegetation, as appropriate



## Maintenance and operational

Specific elements of this phase include:

- **Heating, Ventilation, Air Conditioning Systems and Equipment**
- **Indoor Air Quality Systems and Equipment**
- **Cleaning Equipment and Products**
- **Materials**
- **Water Fixtures and Systems**
- **Waste Systems**
- **Landscape Maintenance**



## Demolition and disposal

The benefits from reducing the amount of waste include:

- **reduced waste disposal costs**
- **avoid landfill consumption quality**
- **preservation of environmental quality**
- **improved workplace safety and health**

Some examples of recyclable demolition materials:

- **Aluminum**
- **Other metals**
- **Wood**
- **Asphalt**
- **Concrete**



## Demolition and disposal

### *Reduction measures at the development/design stage*

Reduction of waste could be enhanced by:

- Encouraging building owners and developers to embrace the concept of waste minimisation and recovery resources
- Designing buildings to avoid waste wherever possible
- Designing structures to enhance the ability to deconstruct and dismantle rather than demolish
- Designing buildings to enhance their ability to be adapted for different uses
- Establishing a task force with representatives from recyclers, building materials manufacturers, building designers, and building/demolition contractors to investigate waste reduction measures and provide co-ordination across industry sectors
- Ensuring waste management issues are considered during the development process



## Demolition and disposal

### *Reduction measures during construction*

- Requiring Waste Management Plans as supporting documentation in the tendering process for any project
- Recycling and reuse proposals as criteria in the selection process for the awarding of contracts
- Nominating a person on site to be the Waste Management Officer and giving them the authority and accountability for ensuring cost effective results
- Including waste minimisation outcomes as key performance indicators to be reviewed at all site management meetings and evaluated at the end of the project
- Undertaking discussions with all suppliers to review ways of reducing waste
- Requiring construction material suppliers to take back surplus materials



# Demolition and disposal

## *Reduction measures during construction*

- Accurately estimating quantities excess materials being delivered to site
- Employing techniques so only the required materials arrive on the construction site at the appropriate time
- Matching the skips for recyclable products to the different stages of construction, thus optimising space
- Including waste management issues as a part of the building inspection/control and certification process
- Developing disposal procedures such as the type of containers to be employed, clear and appropriate signs, a suitable location for bins and stockpile sites and allocation of areas to place materials for recycling/reuse.