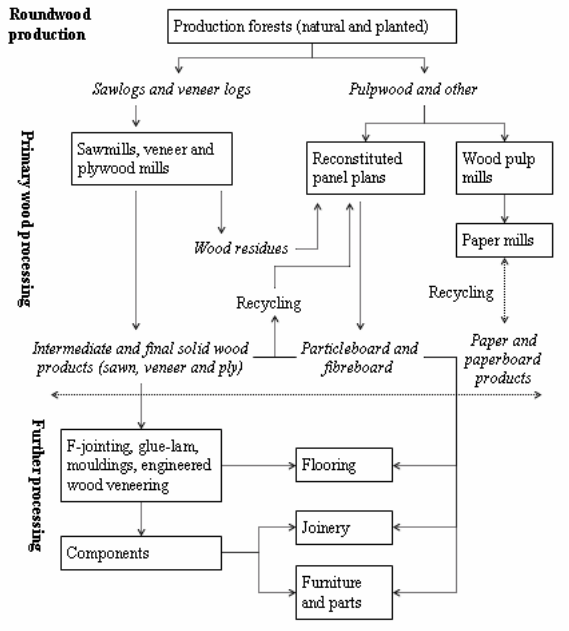
European Bank
for Reconstruction and Development

Sub-sectoral Environmental and Social Guidelines: Furniture and Fittings

PROCESS DESCRIPTION

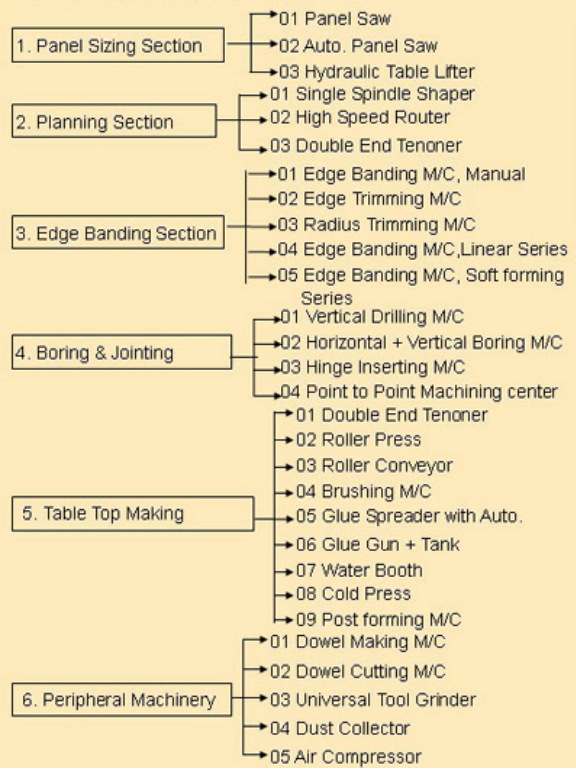
The manufacture of furniture and fittings from wood and wood based products involves the supply and storage of timber, carpentry, preservation of wood, bonding, gluing of wood and final assembly into finished products. This industry represents the downstream end of a supply chain that connects backwards to forestry operations, logging and wood processing, as shown below.



(Source: UNCTAD)

The furniture and fittings sector also uses materials other than wood, such as plastic, leather and metals. This paper does not cover the environmental and social risks associated with these materials. For an understanding of these risks Guideline notes covering these sectors should be consulted.

Although the process for conversion from wood products to furniture differs depending on the product in question, the diagram which follows gives an indication of the types of steps that might be involved in the furniture making process and the tools required.



(Source: Taiwan Turnkey Project)

KEY ENVIRONMENTAL, HEALTH AND SAFETY RISK/LIABILITY FACTORS

Sourcing of wood (illegal and unsustainable forestry practices, and biodiversity impacts)

The major environmental impacts associated with the furniture industry are the biodiversity and climate change impacts of wood sourcing, especially if unsustainable forestry operations are involved (such as illegal logging and clearing of natural growth forests). Chain of Custody assurances and sourcing from responsibly managed forests are important to mitigate risks to the company. Internationally recognised certification schemes such as the Forest

Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification schemes (PEFC) are valuable instruments to ensure sustainable sourcing and control risks.

Soil and Groundwater Contamination

Processing of the materials used in furniture and fittings can involve using hazardous substances including a wide range of preservatives, biocides, pesticides, dyes, heavy metal additives, tanning agents, degreasing and cleaning agents, blowing agents, formaldehyde, solvents, adhesives and flame retardants. These may cause contamination during transport, storage, handling and use phases. In addition, when products are sent to landfill at end-of-life these chemicals may leach into the soil.

Local regulations may ban the use of certain chemicals used in furniture manufacture, for instance chemicals that may contain high concentrations of hazardous elements such as arsenic, cadmium, chromium or lead. These elements could cause severe harm if they entered ecological systems through the process of bio-accumulation.

Storage of Oils and Chemicals

Typically the chemicals used at furniture manufacturing sites will include resins and adhesives such as urea formaldehyde and phenol formaldehyde, oils (fuel and lubrication) and drums of assorted additives, solvents, wood treatment chemicals, hardeners, wax emulsions and fungicides. Secondary containment should be installed for all bulk storage vessels to reduce the risk of ground contamination and pollution of surface waters.

Wood waste

Wood waste in furniture production contributes to air pollution (particulate matter) and to the unsustainable use of timber. Wood waste includes sawdust and end pieces of wood, particle board, and various types of fibreboard. Waste is created by inefficient sawing of wood, as well as improper storage practices. Inadequate drying of wood can cause boards to split, reducing their usefulness. Improvements in these areas of operation can reduce costs and environmental impacts. For instance, dry wood residues can be bonded together with a synthetic resin to form particleboard. As a last resort, scrap may be used as a fuel source (laminated materials should be avoided as the glue may form toxic emissions).

Health and Safety

Chemicals

Fumes (indoor and outdoor) arising from chemical use at furniture and fittings manufacturing sites (e.g. resins and varnishes, and volatile organic compounds in solvents) may have health impacts (such as skin and respiratory conditions). Adequate ventilation and fume extraction must therefore be provided, as well as appropriate respiratory protective equipment. Dust suppression through air filtration may also be required. Solvents and flammables should be stored separately from main work areas, and these areas should be provided with effective fire prevention and fire fighting equipment. Chemical fumes as well as soil and water contamination could have impacts on local communities as well as employees.

Dust

The impacts of dust depend on the fineness (grain size and grain size distribution) and quantity involved. The inhalation of wood dust, particularly hardwood dust, can result in the absorption of harmful substances found in

wood, which in turn can lead to serious illnesses (the severity of the illness would depend on the chemicals used to treat the wood, which might be carcinogenic for instance).

Noise

Noise is caused by the mechanically driven transport (such as truck engine noise), cutting, shaping, joining and dust extractor installations in the furniture sector. Noise may pose health and safety problems for the workers. To understand the actual impacts on workers a consideration of the frequency, intensity and protective equipment provided needs to be made. Noise may also disturb local communities that live close to the site or along transport routes.

Physical injury

Injuries may be sustained through the use of machinery, especially saws, lifting of heavy loads, improper storage, transport accidents, and general slips, trips and falls. Manual handling of heavy equipment and loads can lead to muscle sprains, back injuries and even fractures. Accidents can occur during operation and maintenance of equipment, timber stacking and storage, and warehousing/logistics. Woodworking employees can suffer from the following serious injuries: lacerations, amputations, severed fingers, and blindness.

KEY SOCIAL, LABOUR AND COMMUNITY RISK/LIABILITY FACTORS

Labour standards

Labour standards may be formal, such as national level regulation and international agreements, or informal, expressed through norms and values. In addition fair wages and working hours and acceptable decent working conditions should be expected.

Labour standards should apply to the company's own employees as well as to all contractors and sub-contractors engaged. In addition, labour standards should be expected to be enforced by key suppliers.

Community engagement

Apart from the environmental impacts of the company's operations on local communities, there are also significant social and economic impacts, which might be positive or negative. The degree of these impacts would depend largely on the size of the operation and its relationship with the local community (for instance, percentage of workforce that is local to the region).

To mitigate the negative impacts companies should conduct stakeholder engagement exercises regularly and in particular before opening a new facility. Good practice would include communicating the outcomes of such deliberations and action plans, and planning for site closures or translocations if any.

OTHER POTENTIAL SOCIAL, LABOUR AND COMMUNITY ISSUES

Upstream supply chain risks

Labour standards and human rights violations in the company's supply chain can impact its ability to continue to serve discerning markets. Customers and consumers increasingly expect responsible sourcing from suppliers. It is therefore incumbent upon furniture making companies to ensure that ethical practices are followed all through their supply chains. This may be ensured by working with suppliers who demonstrate similar values and principles and through audits.

FINANCIAL IMPLICATIONS

Regulatory compliance

There are costs associated with ensuring compliance with regulatory requirements. This might involve the costs of purchase and installation of equipment (for dust control for instance) and the costs of training employees and management (including the cost in time). Regulatory requirements are associated with the following:

- Emissions and Discharges – There may be requirements for Volatile Organic Compounds (VOC) emission control at furniture manufacturing sites, particularly those using large quantities of solvent based varnishes, paints and other coatings.
- Dust and Noise Abatement – Dust and noise emissions may be costly to abate. Furniture manufacturing sites may be required to reduce noise and dust emissions in order to comply with local and national regulations. The installation of additional dust cyclones and filters as well as acoustic boards and sound barriers may incur substantial costs.
- Fire/Explosion Hazard –Significant capital expenditure may be required to install adequate fire/explosion prevention and protection measures.

ENVIRONMENTAL, HEALTH AND SAFETY IMPROVEMENTS

Companies can implement improvements to better manage the environmental and health & safety risks of their business. Examples of such improvements are given below.

Environmental

- Upgrade storage areas to allow for proper containment of accidental spills and leakages including the provision of bunding for bulk storage tanks;
- Develop procedures for the handling and storage of hazardous chemicals;
- Assess environmental impacts on soil and water regularly;
- Review timber sources on a regular basis to ensure that sustainable sources are being used; source from certified suppliers (e.g. FSC or PEFC certified);
- Use less toxic and persistent chemicals and additives; for instance, ensure that the following are not used during the production process (arsenic, cadmium, chromium, copper, lead, mercury);
- Implement measures to minimise wood wastage;
- Consider measures to improve energy efficiency and intensity (for instance by switching to renewable sources of energy); monitor and report energy use and carbon emissions (with targets);
- Identify and address the impacts of the transportation methods used;
- Implement an environmental management system (certified to an international standard such as ISO14001).

Health and Safety Improvements

- Ensure safe machine use by:

  - Providing personal protective equipment (PPE) to staff;
  - Ensuring that all machinery is maintained regularly

- Provide Local Exhaust Ventilation, suitable vacuum cleaners for wood dust and respiratory protective equipment;
- Reduce injuries sustained through manual handling by:
  - Training staff in manual handling;
  - Setting workbenches and machine tables at a comfortable height;
  - Storing tooling next to the machine to reduce carrying distance where possible;
- Reduce the impacts of noise pollution by:
  - Using noise enclosures where practicable, and maintaining them in good condition;
  - Using low-noise tooling where possible;
  - Providing suitable hearing protectors for staff and training on proper use;
- Ensure safe vehicle use by:
  - Ensuring that fork-lift trucks are maintained and inspected regularly;
  - Ensuring that trucks are operated only by approved and trained staff;
  - Ensuring that only authorised personnel are allowed in yards for deliveries and dispatch.
- Control the risk of injury or property damage caused by electrical equipment by :
  - Regular inspection, maintenance and upgrade of electrical systems;
  - Ensuring that no personal electrical appliances, e.g. toasters or fans, are allowed.
- Consider implementing a Health and Safety management systems, certified to a recognised standard such as the Occupational Health and Safety Assessment Series OHSAS 18001 and the International Labour Office ILO-OSH 2001 systems.

SOCIAL, LABOUR AND COMMUNITY IMPROVEMENTS

Social and Labour

- Implement a formal code of business conduct, which outlines the principles by which individual employees and the organisation must conduct themselves;
- Ensure fair wages in line with national law and sector standards average;
- Develop a policy covering labour practices for contractors and sub-contractors;
- Develop a policy to ensure labour standards and human rights are respected upstream along the supply chain;
- Develop a whistleblowing policy to allow anonymous reporting of any ethical violations without fear of repercussion.

Community

- Plan regular consultation sessions with local communities to understand on-going impacts (positive and negative);

In addition, best practice would include:

- Investment in local infrastructure (such as roads, hospitals, schools etc.);
- Local skills development and capacity building.

ENVIRONMENTAL, HEALTH AND SAFETY ACTION PLAN

Environment

- Source from sustainably managed forests (international timber certification schemes such as FSC or PEFC);
- Implement a programme to;
    - monitor and reduce impacts associated with dust, noise, odour, hazardous chemicals use;
    - reduce impacts associated with transportation, warehousing and logistics;
    - monitor and reduce impacts associated with waste streams and waste-to-landfill.

Health and Safety

- Develop a formal Health and Safety policy;
- Maintain a schedule to track training given to workers and managers on safety policy and procedures;
- Develop Key Performance Indicators (KPIs) for Health and Safety measures with monitoring, reporting and target setting;
- Encourage a culture of 'safety first' through communication from the top;
- Incentivise a culture of safety by linking H&S performance to reward structures.

SOCIAL, LABOUR AND COMMUNITY ACTION PLAN

An action plan should address all of the important improvement areas and have timelines and owners set against each. The action plan would include the following:

- Development of a code of business conduct
- Enforcement of best-practice labour standards (for employees, contractors and sub-contractors)
- Implementation of a process for community engagement
- Consideration of the wider socio-economic impacts (job creation, infrastructure development) – for example using the WBCSD Measuring Impact Framework.

GUIDE TO INITIAL DUE DILIGENCE SITE VISITS

Environmental, Health and Safety

- Check whether the company has procedures in place for ensuring the origin of timber and for working with suppliers to eliminate/limit hazardous chemicals used in their products;

- Check the status of environmental permits at the site, to include discharges to air and water, disposal of waste and noise;

- Check whether the site has any outstanding fines, or a record of poor relationships with environmental regulators;

- Check the historical and current use of the site and the surrounding area to assess the potential for contamination to give rise to cost or liability;

- Check for signs of ground contamination from chemicals stored and used at the site, for example looking for stained earth/concrete, dead vegetation near storage containers and production areas, and the integrity, condition and age of storage tanks;

- Are chemicals stored appropriately and checked for compatibility, for example chemicals contained separately on a concrete floor within a bunded area?

- What is the standard of housekeeping on site? Look for evidence that the walking and working surfaces are kept clean and dry;

- Check whether general health and safety precautions are being taken. This would consider:

    - Whether staff are wearing appropriate personal protective equipment

    - Whether appropriate signage is present around the site warning of health and safety dangers

    - Whether equipment shows signs of wear and tear

- Check how waste is handled on site – especially hazardous waste. Does the site use a licensed waste contractor or incinerate/bury waste on site? Can management provide evidence of waste transfer notes indicating the location of final waste disposal?

- Have there been any recent (within the last three years) incidents on site such as serious injuries, fires / explosions, spills (Check the accident and near miss figures at the site, contact the local fire department and local environmental authorities). Is there insurance in place to cover such incidents?

- Have the premises been inspected recently (within the past 2 years) by the regulatory authorities for health, safety and environment?

Labour issues

- Check that labour standards, contracting and remuneration are in line with national law and are consistent with the average for the sector;

- Check that hours worked, including overtime, are recorded and that staff have received written details of hours worked and payment received;

- Has the Company received inspections from the local labour inspectorate in the previous three years? Have these resulted in any penalties, fines, major recommendations or corrective action plans?

- Does the organisation have a grievance mechanism which allows employees to raise workplace concerns?

- Are employees free to form, or join, a workers' organisation of their choosing?

Community engagement

- Is there a policy and process for regular consultation with local community representatives?

- Is there a policy to prioritise community concerns and integrate into management decisions?

- Is there a process to communicate progress to local communities and other relevant stakeholders (such as local government authorities, NGOs etc.)?

REFERENCES AND ADDITIONAL SOURCES

International Labour Organization declaration
http://www.ilo.org/declaration/thedeclaration/lang--en/index.htm

UN Global Compact http://www.unglobalcompact.org/

The Forest Stewardship Council http://www.fsc.org/

The Programme for the Endorsement of Forest Certification schemes (PEFC) http://www.pefc.org

The World Business Council for Sustainable Development (WBCSD)
http://www.wbcsd.org/

Wood processing and furniture making: cleaner production fact sheet
http://www.usaid.gov/our_work/environment/compliance/ane/ane_guidelines/woodandfurniture.pdf

Example H&S risk assessment for wood working company
http://www.hse.gov.uk/risk/casestudies/pdf/woodworking.pdf

Taiwan Turkey Project – Office making plant
http://turnkey.taiwantrade.com.tw/en/Content.aspx?ID=67