ELSEVIER

J. Construct. Steel Res. *Vol. 46, Nos. 1–3*, pp. 13–14, paper number 161, 1998

Printed in Great Britain
PII: S0143-974X(98)00053-4 0143-974X/98 $17.00 + 0.00

Development of an Environmental Research Strategy in Sweden

J. Anderson

Swedish Institute of Steel Corporation (SBI), PO Box 27751, SE-115 92 Stockholm, Sweden and Royal Institute of Technology, Department of Building Acoustics, SE-100 44 Stockholm, Sweden

Paper Number 161
Full paper on enclosed CD-ROM

Environmental development in Sweden is driven by the individual consumers, environmental authorities, organisations and the market. These also set pressure on the steel construction market. The construction industry considers the environmental issues as very important:

- Many companies have been or are on their way to being certified according to the environmental management system ISO 14000 and EMAS, the Eco Management and Audit Scheme.
- Most of the companies have environmental policies, strategy plans and present environmental annual reports.
- Many companies certificate their products according to labelling systems.
- All building material producers and contractors have voluntarily agreed to produce environmental fact sheets (according to ISO 14020, environmental labelling type II, III) for their products.

In 1995, SBI decided to start a programme for environmental research. The strategy included six steps: analysis of the situation, building up personnel resources, creating networks, executing research and building up facts, influencing codes and Dissemination of information. Our target group is the real decision makers: architects, contractors, design engineers, universities, etc. They have all a technical background and demand technical facts as a basis for decision.

We have now performed the programme. The knowledge about steel construction is today very good. Recently a national research programme excluded steel, as 'everything was already known about steel and the environment'.

Our research activities include LCA methodology (policy, guidelines, checklist, methodology), a large number of LCAs, labelling, indoor climate and ecological buildings.

The LCAs of building components include mineral wool, gypsum plaster boards, light-gauge steel studs, coated steel sheets and profiled steel sheeting. By co-operation with other organisations, SBI have LCA for hot rolled steel beams, hollow sections, welded steel beams (including the welding process), in-situ concrete decks and precast hollow core concrete elements.

The LCAs for complete buildings and bridges include office buildings with steel columns, steel beams and hollow core concrete slabs (slim floor system); apartment buildings with slim floor system, apartment buildings with light-gauge steel framing and finally two composite road bridges, including use and maintenance, production of the road and the traffic.

The project 'Ecological buildings' aims to describe functional requirements for construction and to analyse how light-gauge steel framing can fit into those requirements. With an ever increasing number of allergic and asthmatic persons, the indoor climate is very important. Thus, a project on indoor climate, measurements including magnetic and electric fields, was performed.

Our main channels for the dissemination of the environmental information are articles, publications, seminars, educational material, Internet (over 50,000 hits a month) and to respond on attacks and misinformation. By using recycled and recyclable material as steel in the constructions of today, we can secure the supply of raw materials as wood and gravel for other applications in the future. The use of steel helps us to maintain a high standard of living, while taking responsibility for the future generations.

KEYWORDS

Environment, steel, construction, implementation, LCA, life cycle assessment.