

Forum on Sustainable Construction
Region of Ireland



European Charter on Sustainable Design
&
Construction

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Explanatory Memorandum

1. Suggested by an idea of Mr. Gerry Walker, Dublin Institute of Technology, during preparations for the first conference in Ireland on Sustainable Design and Construction, this European Charter is a natural and logical next step following the major study project, co-ordinated by Working Commission 82 of the International Council for Building Research, Studies and Documentation (CIB), which culminated in the recent production of **CIB Publication 225 - 'Sustainable Development and the Future of Construction'** .
2. The structure of the European Charter reflects the view that, fundamentally, Sustainable Construction is a response, in built form, to the concept of 'sustainable development' and its initial formal elaboration - the **Rio Declaration** of 27 Principles, and **Agenda 21** - both agreed in 1992 at Rio de Janeiro, Brazil. It is Sustainable Design, however, which will direct the future course of this innovative approach to construction.
3. During the completion phase of CIB Publication 225, problems arose when attempts were made to synthesize contributions from many different parts of the world. Is it yet possible, at this time, to reconcile and to fuse the following examples into a single understanding of Sustainable Construction ?
 - The conviction, in Japanese tradition, that buildings are temporary and are not meant to have a long life cycle ;
 - The desire, amongst the countries of Central and Eastern Europe, to catch up with the 'lifestyle' of Western Europe, whatever the costs to the environment and sustainability ;
 - The pressing demands of social justice in a country like South Africa, with the consequent enormous challenge of providing sufficient housing and infrastructural development for the majority population, while still conserving a strongly indigenous approach to architecture and methods of building ;
 - The typical pattern of construction in the European Union (E.U.), which typically involves a modification or alteration of the already over-developed 'built environment', within a 'natural environment' constantly under attack and straining for survival.

Rather than immediately trying to formulate a bland global model for Sustainable Design, more progress might be made, in the short term, if separate regional responses were to be developed for Africa, Asia, Europe, North America, etc., in order to ensure a greater degree of suitability to local needs, cultures and economies.

The E.U., because of a colonial history, its current highly evolved legal base underpinning an extensive array of policies and action programmes relating to energy, environmental and sustainable development concerns, and because of its specific commitments arising from the Kyoto Protocol of 1997, is well placed, and legally / morally obliged, to produce a first outline for one of these regional responses to the **Rio Declaration** and **Agenda 21** .
4. The European Charter on Sustainable Design and Construction, therefore, also comprises 27 Principles, which derive from a straightforward process
 - (i) each principle of the original Rio Declaration was closely examined, re-drafted to suit an E.U. context and, on the basis of existing Union legislation and international agreements and treaties to which it is a signatory, was strengthened considerably in expression (ordinary typeface) ~

where appropriate, a clause (bold typeface) relevant to sustainable planning, design and construction was added ;
 - (ii) unlike the Declaration, references to 'energy' were included in this document.
5. The Charter extols implementation, and the targeting / monitoring of 'real' performance.

European Charter on Sustainable Design & Construction

(Dublin, 1998-11-06)

Having met in Dublin from 5th.- 6th. November, 1998 ;

In co-operation with the Commission of the European Union, and the International Council for Building Research, Studies and Documentation (**CIB**) ;

Recognizing the integral and interdependent nature of the natural and built environments on this Earth, our home ;

Re-affirming the Declaration of the United Nations Conference on Environment and Development (**Agenda 21**), adopted at Rio de Janeiro on 14th. June 1992,

and striving to respond to it on matters directly concerning the design and construction of a sustainable built environment, capable of providing for responsible and environment-conscious human, social, cultural and economic progress ;

Mindful of the recent inclusions and amendments to the European Union (**E.U.**) treaties and certain other acts (see relevant extracts from the Amsterdam Treaty in Appendix I to this document) ;

Working towards the achievement of equality of opportunity for every person in the European Union, which in turn must lead to full social inclusion (see Guideline Framework in Appendix II to this document) ;

Understanding the importance of harmonizing language, concepts and terminology, in order to communicate more effectively with one another (see Vocabulary in Appendix III to this document) ;

Confirming that direct and meaningful consultation with people, partnership between all sectors of society, consensus, transparency and openness are essential elements in '**social wellbeing**' ;

Proclaiming that Sustainable Design, Construction / De-Construction and Maintenance is the necessary, suitable and practicable response, in built form, to Sustainable Energy-efficient Environment-friendly Development (**SEED**) ;

the following principles should be actively considered by the Institutions of the European Union and relevant authorities in each Member State, implemented, and monitored by means of benchmarking and the application of appropriate sustainability performance indicators

Principle 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Movement towards a 'person-centred' and 'socially inclusive' approach in the planning / design / construction of a built environment, i.e. placing real people, their needs and responsible desires at the centre of creative endeavours, should be encouraged and fostered by every key sector in society.

The method of work in the various processes of planning / design / construction should be widely multi-disciplinary. An active dialogue between practitioners, researchers and end-users, based on meaningful consultation, partnership, and consensus should become the standard.

Principle 2

Member States of the European Union have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources, pursuant to shared E.U. energy, environment and sustainable development policy goals - and the obligation to ensure that activities within their own jurisdiction, or control, do not cause damage to the environment of other Member States or countries / areas beyond the limits of E.U. jurisdiction.

Principle 3

A responsibility is attached to the right of development - it must be achieved in such a manner as to equitably meet the energy, environment and development requirements of present and future generations.

Sustainability of the 'built environment' can only be understood in relation to that of the 'natural environment' ; it involves, with precision and accuracy,

- (i) establishing limits on the capacity of the natural environment to sustain itself ;**
- (ii) stopping short of those limits, by a controlled factor of safety, in any further future modification or extension to the built environment ;**
- (iii) transforming the nature and course of human / social progress to become responsible and environment-conscious, i.e. sustainable development.**

Life cycle management should be fully integrated into the processes of planning / design / construction of the built environment. Life cycle assessment / analysis / appraisal of product and service systems used or consumed should involve an evaluation of 'energy cycle' costs, 'environmental impact', and 'sustainability' performance.

Principle 4

In order to achieve sustainable development, environmental protection and energy efficiency should constitute integral parts of the development process, and should not be considered in isolation.

Environmental protection and energy efficiency requirements should be integrated into the definition of all European Union policies and activities, and implemented at all levels of the E.U. - most particularly at local level.

Principle 5

Member States of the European Union should co-operate in the tasks of protecting human rights, eradicating poverty, and removing social inequality, as indispensable and necessary prerequisite steps to achieving sustainable development, in order to decrease disparities in standards of living and better meet the needs of all peoples in Europe.

The shared goal of Member States should be full social inclusion for every citizen of the E.U.

Principle 6

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, should be given special priority. E.U. policies and activities in the fields of energy, environment and sustainable development should address the interests and needs of all peoples in the world.

Principle 7

Member States of the European Union should co-operate in a spirit of global partnership to conserve, protect, heal and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, countries have common but differentiated obligations. Europe acknowledges the responsibility that it bears, in the international pursuit of sustainable development, as a result of the pressures its society has placed on the global environment over past centuries, and of the technologies and financial resources it now commands.

Understanding the fragility of the natural environment, and observing the vast expanse of existing development and waste already generated in the built environment, every alternative should be exhausted before intruding further into the natural environment.

All opportunities should be taken to heal previous injury to the natural environment ; initial damage repair by human intervention, sufficient only to promote natural self-healing, is a recommended course of action.

Adequate resources should be allocated by the European Union towards the proper disposal of nuclear wastes.

Principle 8

To achieve sustainable development and a higher quality of life for all peoples, Member States of the European Union should reduce and eliminate unsustainable patterns of production and consumption, and promote appropriate demographic policies.

With concern for the protection of indigenous architecture and methods of building, sustainable patterns of planning / design / construction of the built environment should be encouraged by means of

- (i) concerted programmes of awareness raising and education at all levels of the construction, agriculture, marine, transport and energy industries in Europe;**
- (ii) harmonized financial mechanisms and incentives in each Member State.**

Principle 9

Member States of the European Union should co-operate to strengthen capacity-building for sustainable development by improving scientific understanding through the exchange of information, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

Acknowledging our incomplete understanding of sustainable development, each Member State should establish a high level, cross-sectoral research group to examine the concept, and to suggest clear alternatives and make concise proposals with regard to implementation and monitoring strategies.

Each Member State should establish a 'Forum on Sustainable Construction' - to articulate the necessary, suitable and practicable response, in built form, to the concept of sustainable development. As our understanding of sustainable development evolves, so also should the nature of our response.

The smallest viable unit, with regard to concerted action in any of the above policy areas, is the 'region'.

Principle 10

Environmental issues are best handled with the participation of all interested citizens, at the relevant level. At European Union and Member State levels, each individual should have access to complete relevant information concerning the environment which is held by public authorities and institutions, including information on hazardous materials and processes in their communities.

Each individual has the right to participate in decision-making. Member States should facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings at all levels of the E.U., including redress and remedy, should be provided.

Principle 11

The European Union should properly enact, operate, monitor and control effective energy, environment and sustainable development related legislation. Standards, codes of good practice, and management objectives, priorities and systems should reflect the regional context to which they apply. E.U. standards, codes and systems may be entirely inappropriate, and of unwarranted economic and social cost in other regions of the world, particularly developing countries.

The E.U. should properly enact, operate, monitor and control effective health, safety and welfare related legislation ; the base concerning human health and safety, environmental protection and consumer protection, should be set at a high level, and should take account of any new developments verified by scientific fact.

Principle 12

Member States of the European Union should co-operate to promote a supportive and open international economic system which must lead to economic growth and sustainable development in all countries, in order to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination, or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the E.U. should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Principle 13

The European Union should develop law regarding liability and compensation for the victims of pollution and other environmental damage. The E.U. should also co-operate in an expeditious and more determined manner to elaborate further international law regarding liability and compensation for harm to human health and the adverse effects of environmental damage caused by activities within its jurisdiction, or control, to countries / areas beyond the limits of its jurisdiction.

Principle 14

Member States of the European Union should co-operate effectively to prevent the relocation or transfer outside an individual Member State, or the importation into any part of the E.U., of an activity or substance which causes environmental degradation or is found to be harmful to human health.

Principle 15

The precautionary approach should be widely applied by the Member States of the European Union. Where there is a potential for harm to human health, or serious or irreversible damage to the environment, lack of full scientific certainty should not be used as a reason for postponing practicable prevention measures or countermeasures.

Principle 16

Member States of the European Union should promote the internationalization of environmental costs and the use of economic instruments, taking into account that the polluter should, in principle, bear the cost of pollution, with due regard to public interest and health, and without excessive distortion to international trade and investment.

Principle 17

An environmental impact assessment should be undertaken for any proposed activity which is likely to have a significant adverse impact on the environment ; such an assessment should be subject to proper monitoring and control by competent authorities and institutions in the European Union.

All practicable means for an improvement in sustainability and energy efficiency, and the reduction and elimination of adverse effects on the environment, should be shown in an Environmental Impact Statement.

Principle 18

Member States of the European Union should immediately notify other Member States of any natural disasters or other emergencies which are likely to produce sudden harmful effects on human health, or on the environment of those States. A co-ordinated E.U. effort should be made to help States so afflicted.

E.U. resources should be directed towards effective management, monitoring, prevention and warning systems, particularly in the case of the fire safety of hazardous materials storage and processing.

Principle 19

Member States of the European Union should provide prior and timely notification, with complete relevant information, to other potentially affected Member States or to countries outside the E.U., on activities which may have a significant adverse transboundary environmental impact. Notifications should be at the earliest possible stage of an incident, and in good faith.

Principle 20

Women have a vital role in environmental management and development. Their full participation is essential to achieve sustainable development. The experience and wisdom of the elderly should be valued ; the abilities of every person should be cherished ; and the creativity, ideals and courage of youth should be mobilized to forge a European partnership in order to ensure a better future for all.

Principle 21

Local communities, and especially indigenous peoples and their communities, have a vital role in environmental management and development because of their knowledge and traditional practices. Member States of the European Union should recognize, duly support and celebrate their separate identities, cultures and interests, and enable their effective participation in the achievement of sustainable development.

Principle 22

The environment and natural resources of peoples under oppression, domination and occupation should be protected.

Principle 23

Warfare is inherently destructive of sustainable development. Member States of the European Union should respect international law providing protection for the environment in times of armed conflict, and co-operate in its further elaboration, as necessary.

The production, use, and supply of landmines or landmine technology should be prohibited by E.U. legislation. Appropriate resources should be allocated by the E.U. towards the clearance and proper disposal of existing landmines in the world.

The further spread of strategic / tactical nuclear weapons and weapons technology should be prevented under E.U. legislation. Appropriate resources should be devoted to the elimination and proper disposal of existing nuclear, biological and chemical weapons of mass destruction in the E.U.

Principle 24

Peace, responsible human / social development, environmental protection and energy efficiency are interdependent and indivisible.

Principle 25

Member States of the European Union should resolve their internal or external environmental or energy disputes peacefully, and by appropriate means, in accordance with E.U. law and the Charter of the United Nations.

Principle 26

Harmonized short, medium and long-term strategies in the policy areas of energy efficiency, environmental protection and sustainable development should be planned for implementation in the European Union over the following time frames :-

- (i) up to 2010 ; (ii) between 2011 and 2040 ; (iii) between 2041 and 2100.**

Such is the threat to quality of life and human progress caused by current environmental degradation, and such is the great timelag between implementation of corrective actions and resulting beneficial environmental impacts, that sustainability performance should be benchmarked at year 1990 in the Member States of the E.U.

Detailed performance indicators for all stages of design, construction / de-construction, maintenance and disposal should be used to target improvements in sustainability performance, verify target attainment, and continually re-adjust targets at appropriate intervals thereafter.

Principle 27

The European Union and its Institutions, relevant authorities of the Member States, and the peoples of Europe should co-operate, in a spirit of partnership and good faith, to fulfil the principles embodied in this Charter, and to further elaborate E.U. and international laws - in pursuit of **Sustainable Energy-efficient Environment-friendly Development (SEED)**.

Appendix I

Extracts from the E.U. Amsterdam Treaty

(97 / C 340 / 01)

Sustainable Development

Environment

Human Health

Statistics

Personal Data Protection

Anti-Discrimination

Amsterdam Treaty

Treaty of Amsterdam amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts, signed at Amsterdam, 2nd. October 1997.

(97 / C 340 / 01)

1. Sustainable Development

Replaced Article 2 of the TEC (Treaty establishing the European Community)

'The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing common policies or activities referred to in Articles 3 and 3a, to promote throughout the Community a harmonious, balanced and sustainable development of economic activities, a high level of employment and of social protection, equality between men and women, sustainable and non-inflationary growth, a high degree of competitiveness and convergence of economic performance, a high level of protection and improvement of the quality of the environment, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States.'

Replaced 7th. Recital of the Preamble to the TEU (Treaty on European Union)

'Determined to promote economic and social progress for their peoples, taking into account the principle of sustainable development and within the context of the accomplishment of the internal market and of reinforced cohesion and environmental protection, and to implement policies ensuring that advances in economic integration are accompanied by parallel progress in other fields.'

2. Environment

New Article 3c in the TEC

'Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities referred to in Article 3, in particular with a view to promoting sustainable development.'

Declaration No. 12 to the Final Act

'The Conference notes that the Commission undertakes to prepare environmental impact assessment studies when making proposals which may have significant environmental implications.'

Replaced Paragraph 3 of Article 100a of the TEC

'The Commission, in its proposals envisaged in paragraph 1 concerning health, safety, environmental protection and consumer protection, will take as a base a high level of protection, taking account in particular of any new development based on scientific facts. Within their respective powers, the European Parliament and the Council will also seek to achieve this objective.'

3. **Human Health**

Replaced Article 129 of the TEC

' 1. A high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities. '

4. **Statistics**

New Article 213a in the TEC

- ' 1. Without prejudice to Article 5 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank, the Council, acting in accordance with the procedure referred to in Article 189b, shall adopt measures for the production of statistics where necessary for the performance of the activities of the Community.
2. The production of Community statistics shall conform to impartiality, reliability, objectivity, scientific independence, cost-effectiveness and statistical confidentiality ; it shall not entail excessive burdens on economic operators. '

5. **Personal Data Protection**

New Article 213b in the TEC

- ' 1. From 1st. January 1999, Community acts on the protection of individuals with regard to the processing of personal data and the free movement of such data shall apply to the institutions and bodies set up by, or on the basis of, this Treaty.
2. Before the date referred to in paragraph 1, the Council, acting in accordance with the procedure referred to in Article 189b, shall establish an independent supervisory body responsible for monitoring the application of such Community acts to Community institutions and bodies and shall adopt any other relevant provisions as appropriate. '

6. **Anti-Discrimination**

New Article 6a in the TEC

' Without prejudice to the other provisions of this Treaty and within the limits of the powers conferred by it upon the Community, the Council, acting unanimously on a proposal from the Commission and after consulting the European Parliament, may take appropriate action to combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation. '

Appendix II

Guideline Framework

Achievement of Equality of Opportunity & Social Inclusion
For Every Person in the European Union (E.U.)

Guideline Framework

Achievement of Equality of Opportunity & Social Inclusion For Every Person in the European Union (E.U.)

Direct and meaningful consultation with people, partnership between all sectors of society, consensus, transparency and openness are essential elements in 'social wellbeing'. Set out below are a number of areas which should be actively considered by the Institutions of the E.U. and relevant authorities in each Member State, implemented, and effectively monitored through the informed application of sustainability performance indicators

1. Empowering People for Participation in Society

- respecting autonomy and independence
- re-adjusting education and training programmes to facilitate participation
- re-adjusting welfare and other supports to facilitate participation
- moving towards a 'person-centred' approach in the design / implementation of support services
- mainstreaming
- ensuring seamless provision of services
- ensuring the principle of participation

2. Removing Physical Barriers to Participation

- viewing access / egress / evacuation and health / safety / welfare issues in the light of equality of opportunity and the right to participate
- developing effective legislation, standards (nationally transposed EN's), and technical guidance in order to eliminate all forms of barrier
- monitoring and controlling compliance with legislation
- moving towards a 'person-centred' approach in the planning / design / construction of a sustainable built environment

3. Opening Up Various Spheres of Society

- upholding the equal civic status of every person
- promoting employment for people as a key to social inclusion

4. Nurturing Opinion of the Public, Government Administrators, and Design Professions to be Receptive to 'Person-Centredness' of the Built Environment

- awareness raising and education

Appendix III

Vocabulary

Useful Terms & Definitions

- Adaptability :** The extent to which a building, or a building component, is designed when new, or capable of being easily modified at any later stage, to meet the changing living or working needs of the broad average of potential occupants, who may be disabled or able-bodied.
- Buildability :** The extent to which the design of a building facilitates ease of construction, subject to the overall requirements for the completed building.
(CIRIA-GB)
- Built Environment :** Anywhere there is, or has been, an intrusion or intervention by a human being in the natural environment.
- Construction Works :** Any building or civil engineering works.
(EU Directive 89/106/EEC)
- Cost Effectiveness :** To achieve a defined objective at the lowest cost, or to achieve the greatest benefit at a given cost.
(IEC Treaty, 1994*)
- Dimensional Co-Ordination :** A convention on related sizes for the co-ordinating dimensions of building components and the buildings incorporating them, for their design, manufacture, assembly and/or installation.
(ISO 1791)
- Disabled :** Those people, of all ages, who are unable to perform, independently and without aid, basic human tasks or functions because of physical, mental or psychological impairment, whether of a permanent or temporary nature.
- This definition is derived from / based on the World Health Organization's definitions (1980) of 'impairment' and 'disability' only.
- The term **disabled** includes
- wheelchair users ;
 - people who experience difficulty in walking, with or without aid, e.g. stick, crutch, calliper or walking frame ;
 - the elderly (people over the age of 60 years) ;
 - the very young (people under the age of 5 years) ;
 - pregnant women ;
 - people who suffer from arthritis ;
 - the visually impaired ;
 - the hearing impaired ; and
 - people who panic in a fire situation or other emergency ;
 - people who suffer incapacitation as a result of exposure, during a fire, to poisonous or toxic substances, and/or elevated temperatures.

Economically Reasonable Working Life :

(EU Directive 89/106/EEC)

(i) The working life is the period of time during which the performance of the works will be maintained at a level compatible with the fulfilment of the Essential Requirements.

(ii) An economically reasonable working life presumes that all relevant aspects are taken into account, such as

- costs of design, construction and use ;
- costs arising from hindrance of use ;
- risks and consequences of failure of the works during its working life and costs of insurance covering these risks ;
- planned partial renewal ;
- costs of inspections, maintenance, care and repair ;
- costs of operation and administration ;
- disposal ;
- environmental aspects.

Energy Cycle :

(IEC Treaty, 1994)

The entire energy chain, including activities related to prospecting for, exploration, production, conversion, storage, transport, distribution and consumption of the various forms of energy, and the treatment and disposal of wastes, as well as the decommissioning, cessation or closure of these activities, minimizing harmful environmental impacts.

Environmental Impact :

(IEC Treaty, 1994)

Any effect caused by a given activity on the environment, including human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interactions among these factors ; it also includes effects on cultural heritage or socio-economic conditions resulting from alterations to those factors.

Human Health :

A state of physical, mental, psychological, social, cultural and economic wellbeing.

Improving Energy Efficiency :

(IEC Treaty, 1994)

Acting to maintain the same unit of output (of a good or service) without reducing the quality or performance of the output, while reducing the amount of energy required to produce that output.

Life Cycle :

(EN ISO 14040)

Consecutive and interlinked stages of a product (and/or service) system from raw material acquisition or generation of natural resources to the final disposal.

Life Cycle Assessment :

(EN ISO 14040)

Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product (and/or service) system throughout its life cycle.

Life Cycle Impact Assessment :

(EN ISO 14040)

Phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts of a product (and/or service) system.

Life Cycle Interpretation :

(EN ISO 14040)

Phase of life cycle assessment in which the findings of either the inventory analysis or the impact assessment, or both, are combined consistent with a defined goal and scope in order to reach conclusions and recommendations.

Life Cycle Inventory Analysis :

(EN ISO 14040)

Phase of life cycle assessment involving the compilation and quantification of inputs and outputs, for a given product (and/or service) system throughout its life cycle.

Performance :

(EU Directive 89/106/EEC)

Performance is a quantitative expression (value, grade, class or level) of the behaviour of a works, part of the works or product, for an action to which it is subject or which it generates under the intended service conditions (for the works or part of the works) or intended use conditions (for products) .

Safety :

(ISO/IEC Guides 2 & 51)

Freedom from unacceptable risk of harm.

SEED :

Sustainable , Energy-efficient , Environment-friendly Development.

Sustainable Development :

(Bruntland Report, 1987)

Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.

An improved definition of 'sustainable development' must also embody the following concepts.....

- the place of human beings in the environment, and the relationship between both ;
- the nature of human, social, cultural and economic development, their current imbalances and inequities, and their future course ;
- the healing of existing injury to the natural environment.

Sustainable Construction :

(CIB/W82 & TG16)

The creation and responsible maintenance of a healthy built environment based on resource efficient and ecological principles.

Sustainable Design :

The art and science of the design, supervision of related construction / de-construction, and maintenance of sustainability in the built environment.

The definition of 'sustainable design' embodies the following concept

- 'person-centred' design , i.e. that design process which places real people at the centre of creative endeavours and gives due consideration to their health, safety and welfare in the built environment - it includes such specific performance criteria as a sensory rich and accessible (mobility, usability, communications and information) environment, fire safety, air, light and visual quality, protection from ionizing and electromagnetic radiation, thermal comfort (EN ISO 7730) , unwanted or nuisance noise abatement, etc.

an important 'person-centred' design aid is the questionnaire survey, carried out by an independent, competent, non-threatening individual, and which comprises both open and closed format questions.

Sustainable Engineering :

The application of scientific principles to relevant aspects of sustainable design.

Welfare :

A general feeling of health and happiness.

Standards & Additional Reference Documents :

ISO 6707-1 : 1989

Building and civil engineering - Vocabulary. Part 1 : General terms.

ISO 6707-2 : 1993

Building and civil engineering - Vocabulary. Part 2 : Contract terms.

EN ISO 14040 : 1997

Environmental management - Life cycle assessment - Principles and framework.

E.U. Council Directive 85/337/EEC , of 2nd. June 1985, on the assessment of the effects of certain public and private projects on the environment.

E.U. Council Directive 89/106/EEC , of 21st. December 1988, on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products.

E.U. Council Directive 89/391/EEC , of 12th. June 1989, on the introduction of measures to encourage improvements in the safety and health of workers at work.

E.U. Council Directive 92/43/EEC , of 21st. May 1992, on the conservation of natural habitats and of wild fauna and flora.

E.U. Council Regulation (EEC) No. 1836/93 , of 29th. June 1993, allowing voluntary participation by companies in the industrial sector in a Community eco-management and audit scheme.

E.U. Council Directive 96/29/Euratom , of 13th. May 1996, laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation.

Sustainable Development and the Future of Construction - CIB Publication 225

International Council for Building Research, Studies and Documentation (**CIB**). Report. CIB Working Commission 82 : Futures Studies in Construction. The Netherlands. May, 1998.

UNFCCC - The Kyoto Protocol : 1997

Agreed at the 3rd. meeting of the Conference of the Parties (COP 3) to the United Nations Framework Convention on Climate Change. Kyoto, Japan. December, 1997. This Protocol sets legally binding targets for different regions of the 'developed world' to limit emissions of an aggregate of six more greenhouse gases : CO₂, CH₄, N₂O, PFC's, HFC's, and SF₆.

Helsinki Declaration on Action for Environment and Health in Europe

World Health Organization, Regional Office for Europe. 2nd. European Conference on Environment and Health. Helsinki, Finland. 20th.- 22nd. June, 1994.

International Charter for the Conservation and Restoration of Monuments and Sites

International Council of Monuments and Sites (**ICOMOS**). Venice, Italy. May, 1964.

International Charter for the Protection of Indigenous Architecture and Methods of Building

Conscious of the meaning of 'environmental impact', it was agreed at a meeting of **CIB/TG16** in Paris, on 11th. June 1997, that work should commence on this proposed Charter. Possible sponsorship of the document by the United Nations will be explored.

*** International Energy Charter Treaty**

Lisbon, Portugal ; December, 1994. Official Journal of the European Communities (**No. L 380**). Office for Official Publications of the European Communities. Luxembourg. 1994.