

Faculties of Architecture

M.F.Th. Bax and H.M.G.J. Trum
Eindhoven University of Technology
Faculty of Architecture, Building and Planning
Eindhoven
The Netherlands

ABSTRACT

In order to be inscribed in the European Architect's register the study program leading to the diploma 'Architect' has to meet the criteria of the EC Architect's Directive (1985). The criteria are enumerated in 11 principles of Article 3 of the Directive. The Advisory Committee, established by the European Council got the task to examine such diplomas in the case some doubts are raised by other Member States. To carry out this task a matrix was designed, as an independent interpreting framework that mediates between the principles of Article 3 and the actual study program of a faculty. Such a tool was needed because of inconsistencies in the list of principles, differences between linguistic versions of the Directive, and quantification problems with time, devoted to the principles in the study programs. The core of the matrix, its headings, is a categorisation of the principles on a higher level of abstraction in the form of a taxonomy of domains and corresponding concepts. Filling in the matrix means that each study element of the study programs is analysed according to their content in terms of domains; the summation of study time devoted to the various domains results in a so-called 'profile of a faculty'. Judgement of that profile takes place by committee of peers. The domains of the taxonomy are intrinsically the same as the concepts and categories, needed for the description of an architectural design object: the faculties of architecture. This correspondence relates the taxonomy to the field of design theory and philosophy. The taxonomy is an application of Domain theory. This theory, developed by the authors since 1977, takes as a view that the architectural object only can be described fully as an integration of all types of domains. The theory supports the idea of a participatory and interdisciplinary approach to design, which proved to be awarding both from a scientific and a social point of view. All types of domains have in common that they are measured in three dimensions: form, function and process, connecting the material aspects of the object with its social and procedural aspects. In the taxonomy the function dimension is emphasised. It will be argued in the paper that the taxonomy is a categorisation following the pragmatistic philosophy of Charles Sanders Peirce. It will be demonstrated as well that the taxonomy is easy to handle by giving examples of its application in various countries in the last 5 years. The taxonomy proved to be an adequate tool for judgement of study programs and their subsequent improvement, as constituted by the faculties of a Faculty of Architecture. The matrix is described as the result of theoretical reflection and practical application of a matrix, already in use since 1995. The major improvement of the matrix is its direct connection with Peirce's universal categories and the self-explanatory character of its structure. The connection with Peirce's categories gave the matrix a more universal character, which enables application in other fields where the term 'architecture' is used as a metaphor for artefacts.

1 PROFILE OF A FACULTY (version 2002)

Matrix mediating between the content of a study program and the content of Article 3 of Directive 85/384/EEC (EC, 1985), for use by the Advisory Committee on Education and Training in the field of architecture (installed by the European Council on 10 June 1985), according to the decision of 24th February 1998, Brussels.

Version 2002 is a further elaboration of version 1998 by structuring the matrix according to the universal categories of Charles S. Peirce.

1.1 Foreword

At its plenary meeting on 4 and 5 March 1997 the Advisory Committee invited the Working Party 'Education' to start the 'Drafting of a matrix in which the content of a study program for a new diploma can be related to the context of Article 3 of Directive 85/384/EEC'.

The matrix is a reference that can help to 'State clearly the philosophy of the course and how it aims to satisfy the principles embodied in Article 3 and 4 of the Directive 85/384/EEC', as mentioned in the recommendation 'Model on the communication of a new -document XV/E/8479/2/95- all languages, of March 1997.

The matrix is an instrument for the Working Party 'Diplomas'. In the mandate of the Working Party 'Education' three elements can be discerned, which are elaborated in the sections 1.1 to 1.3: The content of Article 3 of Directive 85/384/EEC; The content of a Study Program; and The Matrix, relating both types of content.

1.2 The content of Article 3 of Directive 85/384/EEC

Already since 1991 in the Working Party 'Education' studies were made how to use Article 3 as a set of criteria for judgement. It was found out that, due to differences in culture and language, the various members of Article 3 could be interpreted in different ways, undermining as such the unifying purpose of the Article. Also a lack of consistency and specificity was found, making it difficult to use the paragraphs of Article 3 as a set of criteria for the judgement of Study Programs. That was the reason why in EC-document III/D/9125/89-EN 'Reflections and recommendations on Article 3' a first draft was made of a system of 'phenomena of architecture', which from a point of view of content was identical to Article 3 (See Annex). Later, these phenomena were identified as 'Concepts of Architecture'. In EC-document III/F/5175/1/92-EN 'The architectural concept: expanding on Article 3', these concepts were ordered in a taxonomy of concepts for the purpose of consistency, completeness and classification.

A Concept is defined as a guiding and inspiring image and notion of the built environment; a generic representation or generator of design, as a partial representation of the co-ordinated formal, functional and temporal constituents of a systematic, consistent and complete representation of a building system in each phase of its development during a

decision making process; primarily functionally expressed; subject of a field of knowledge in research, teaching and design.

Level 2	I Concepts of Value	II Concepts of Approach	III Concepts of Scale	IV Concepts of Context	V Concepts of Function
Level 1	0.Architecture 1.Culture	2.Profession 3.Science 4.Aesthetics	5.Form 6.Time	7.Sociology 8.Economy	9. Usability 10. Stability 11.Makability

The 12 Concepts of level 1, ordered in 5 Concepts of level 2, in the 1998 version of the matrix, are now reduced to 9 Concepts, ordered in 3 Concepts of level 2.

It is obvious that the Concepts of Form and Time can be eliminated as separate concepts, because they are by definition active in each concept. The same regards the Concept of Architecture, which is a synthesis of all lower level concepts. In the same way the Cultural Concept may be considered as the synthesis of the Aesthetic, the Scientific and the Ethical (Professional) Concept in a level 2, Cultural Concept. At the same time, for reasons of systemic representation a Physical Concept has to be added to the Concept of Economy and Sociology, constituting a second level Environmental Concept. The Concepts of Stability, Makability and Usability are maintained and form the level 2 Material Concept.

The old Concepts, numbered 0 to 11, ordered in 5 levels, maintaining their content, are reordered in 9 new Concepts, ordered in 3 levels. Study of the pragmatistic philosophy of Charles S. Peirce made clear that the 3 concepts on each level are manifestations of his universal categories: Potential, Actual and Intentional (Bax et al, 2000). The Concept of Stability and the Physical and Aesthetic Concept are manifestations of a Potential capacity. The Concept of Makability, Economy and the Scientific Concept are manifestations of an Actual capacity, and the Concept of Usability, Sociology and the Professional Concept are manifestations of an Intentional capacity of an artefact. This property makes it possible to represent the taxonomy in the format of a matrix. The, level 2, Material, Environmental and Cultural Concepts define the indices of the rows, numbered 1, 2 and 3, and the Categories Potential, Actual and Intentional define the indices of the columns, numbered by their categorical value 1, 2 and 3. So, each field in the matrix is coded from 1.1 to 3.3.

Concepts	Potential (1)	Actual (2)	Intentional (3)
Material (1)	Stability (1.1)	Makability (1.2)	Usability (1.3)
Environmental (2)	Physical (2.1)	Economic (2.2)	Sociological (2.3)
Cultural (3)	Aesthetic (3.1)	Scientific (3.2)	Professional (3.3)

The Concepts are considered to be subjects in a field under control by a group in an organisation, which is coined as a Domain. Domains are subject of Domain theory, a pragmatistic, interdisciplinary theory of research, design and learning.

A Domain is defined as: a disciplinary controlled 3-dimensional space of knowledge and meaning related with an artefact; with Form, Process and Function as dimensions, in which respective articulations in Levels, Phases and Performances are matched in order to establish a structured, architectural space for the determination of the relative position,

interfaces and interactions of parties and roles in interdisciplinary, participatory processes. Form, Process and Function and their articulations, just like the triads of Concepts, are considered to be manifestations of Peirce's universal categories as well, but on a higher level of abstraction. The triads form hierarchically ordered threefold systems, in which Form conditions Process, etc., which operate together in an organic whole, and in which the elements of the triad define each other in an interrelational cyclic way; properties which are indicated as of triarchical nature. The categories recur on each level in a triarchical representation of an artefact in such a way that each element of a triad becomes a triad again on a lower level, forming a hierarchical ordered taxonomy of sub domains. E.g. the Physical Domain consists of 3 sub domains: the Domains of Stability, Makability, and Usability, just like the Domains of Economy and Sociology, etc. These are the faculties of Architecture.

In this way the content of Article 3 of the Directive is reformulated as a taxonomy of Domains (and corresponding concepts), in this context with an emphasis on the Function/Performance Domain, corresponding with the 3x3-matrix of Concepts, as mentioned above, but with reference to the Form/Level, and the Process/Phase Domain. The 2-dimensional matrix is, for operational reasons, rendered in a 1-dimensional, linear form of the heading of a new type of matrix, the matrix of a Study Program.

1.3 The content of a Study Program

The content of a Study Program of a Faculty of Architecture is found in the Study Guide. The program mostly is divided in study cycles or years, e.g. leading to a bachelors or a master degree, which are completed with an examination. In the program, Elements can be discerned which are characterised by a Subject, a status like Compulsory, Optional, or Basic Sciences, a didactically defined form, like Lectures, Projects or Practical Study, etc. Program elements are parts of a Study Program, hierarchically arranged in Series and Clusters, which make the Study Program transparent. This form of arrangement forces to a generalisation of the educational objectives at stake which brings the content of the Study program and the content of Art. 3 on a comparable level of abstraction. A subject, like 'Building Details' can be taught and learned in various forms, like Lectures, etc., it may be Compulsory, etc. and be a part of a Series, which belongs to the domain of a department or chair of the faculty.

A Program Element has a position in a program in a specific Cycle, Program Cluster or Program Series and is measured in hours. Study Guides mostly refer to Teaching Hours, fixed in the time schedule of the study program. In 1987, within the frame work of the ERASMUS-program and later the SOCRATES-program, the European Commission decided on the implementation of the European Credit Transfer System (ECTS) in order to enhance the exchange of students and teachers between Member States. In that system is chosen for Study Hours, expressed in so called ECTS. 60 ECTS correspond with one year of study. The number of Study Hours is the summing up of Teaching Hours and Self Study

Hours, including examination. In most Study Programs each didactical form, like Lectures, is characterised by a fixed ratio between teaching and self study hours. Now that in 2002, the use of study hours in study Programs is general accepted practice, the matrix can be further simplified and a direct relation can be made with the requirements of Article 4 of the Directive with respect to the duration of the study.

1.4 The matrix relating both contents

The matrix focuses on learning activities, but always on a triarchical way related to research and design activities. The matrix visualises the relation between content according to Art.3 (section 1.2) with the content of a Study program (section 1.3) in a comprehensive and transparent way. The columns of the matrix refer to the content of Art.3, and the rows of the matrix refer to the content of a Study Program. The intersection of columns and rows define fields, which have to be filled in with numbers of hours. The total number of hours of a program element in a row of the matrix has to be split up in parts, corresponding with the columns of the matrix and so with the content of Article 3, expressed in the 9 Domains. In this way the content of a study program is brought in relation with the content of Art.3, which is the purpose of the matrix as a tool for the judgement of study programs

1.4.1 Columns of the matrix

The columns of the matrix are headed by four rows. The first row indicates the architectural Domain heading the complete matrix; the second row renders the subdivision in a Form, a Process and a Function Domain, the third row renders the subdivision of Function following the indices of the matrix, presented in section 1.2: Material (1), Environmental (2), and Cultural (3), as Domain Level 1, and the fourth row indicates the subdivisions on Domain Level 2, from 1.1 to 3.3. In the fourth row an indication is given of the sub-divisions of the Form Domain in compositional levels like Urban, Building and Element Level, functioning as an indication of levels of abstraction concerned with knowledge and of the sub-divisions of the Process Domain in phases of the development of an object, corresponding with the levels in the educational taxonomy of Benjamin Bloom: knowledge, understanding and capability (terms used in Article 3 of the Directive), or on a higher level, preferable Analysis, Synthesis and Evaluation. The heading of the matrix represents the content of Article 3 as follows:

Architectural Domain				
Form Domain	Process Domain	Function Domain		
(Levels)	(Phases)	1. Material Performance	2. Environmental Perform.	3. Cultural Performance

Urban	Element Building	Evaluation Synthesis Analysis	1.1 Stability	1.2 Makability	1.3 Usability	2.1 Physical	2.2 Economic	2.3 Sociologic	3.1 Aesthetic	3.2 Scientific	3.3 Professional
-------	---------------------	-------------------------------------	---------------	----------------	---------------	--------------	--------------	----------------	---------------	----------------	------------------

1.4.2 Rows of the matrix

The rows of the matrix are intersected by two wide columns, corresponding with levels of generalisation for the presentation of the Study Program. The left column is named 'Program Clusters' and the right one 'Program Series and Elements'. The right column contains the lowest, most detailed levels: the names of Series of Program Elements. The highest level, in the left column, contains the name of Clusters of Program Series.

In the matrix two extra columns give space for references to codes in the Study Guide and References to Form and Status of Study Elements. The matrix is designed in such a way that it is easy to make use of a computer spreadsheet program to make the necessary calculations.

In most Study Programs a fixed and a variable part in the study program exists. The fixed and compulsory part is what all students have to study and the variable part depends on preferences of the students related with their personal talents and aspirations. The matrix can be filled in for a study program, followed by the majority of the students, e.g. 60% of the students' population. Another possibility is to introduce a Cluster 'Optional' which groups all optional study elements. In the last case a reference has to be given to the variable part of the study program and average numbers of hours have to be calculated and filled in the matrix.

In most Study Programs a cluster 'Basic Sciences' has to be introduced for Elements like Mathematics, Languages or Philosophy as a part of a general education in the framework of a University bound program, which are neither directly nor indirectly relatable to a Domain.

An important element for the judgement of a Study Program is the articulation in Cycles. Cycles, in most Study Programs, correspond with a year or a number of years in a study program finished with an examination. An open row with a heading like 'First Cycle', etc. structures the matrix in this respect.

1.4.3 Basis of the matrix

The basis of the matrix is the summing up of information, divided in three categories: Types of Content, Types of Form and Types of Status. It is possible to increase the number of types.

The Types of Content (Domains and Basic Sciences): the summing up of the content of the study program in the various columns and the calculation of the part (in percentages) each Domain takes in the totality of the Study Time of the Study Program provides a range of numbers. This range is the most global expression of a 'Profile of a faculty' in relation with Art.3 of the Directive.

The Types of Form show a differentiation in three categories: Lectures, Projects and Practical Study. The Types of Status show a differentiation in the categories: Compulsory, Optional, and Basic Sciences. Other Types may be a differentiation in terms of Levels or Phases. It may be clear that the ordering of the basis may show some variation, according to specific circumstances.

1.5 Filling in the Matrix

Only the columns 1.1 to 3.3 of the Functional Domain are filled in with study Hours. The columns of Form and Process domain are filled in as well, but only with an indication of Level and Phase of the Study Element. Filling in may take place on Program Element Level, Series or Cluster Level, indicated respectively as PL1, PL2 and PL3, and on Domain Level 1 or 2, respectively DL1 and DL2. So, there are 4 formats for filling in the matrix that make sense: Format A: the combination PL1 & DL1; Format B: PL2 & DL1; Format C: PL2 & DL2, and possibly Format D: PL3 & DL2. In order to fill in the Matrix in Format B to D, it is recommended to start with the filling in of a more detailed Matrix in Format A.

Filling in the columns of the matrix on the detailed level is the most elaborate, but also the most informative and awarding way to provide information. In test cases this level of filling in the matrix provided faculties and schools of architecture with valuable clues for making their Study Program more complete and consistent. Filling in the matrix on the asked for level is a mere aggregation of the content already filled in on the lower levels.

2 APPLICATIONS

After some tests in 1992 the matrix was applied officially the first time in a procedure of periodical testing of Dutch architectural study programs against the criteria of the Law concerning the title of Architect in 1995. Six Study programs, one of a University type and five of a Professional type, were analysed and represented in the form of the Matrix. It was interesting to note that the process of analysis - because of the structure of the matrix - led to keys for improvement of the some programs. In 1998 the Advisory Committee, after a troublesome and lengthy discussion of three years, the matrix played a decisive role in the approval of the Italian diploma 'Ingegneria Edile/ Architetto'. In 2000 the matrix supported decision-making in the case of the (EFTA) diploma Fachhochschule Liechtenstein, outside the area of the European Community (EC). Matrix-analysis of the Study program leded recently (2002) to a strongly improved and finally to an EC-approved modification. In 2002 three Norwegian (also EFTA) diplomas of a University, a Professional and an Artistic type were analysed and approved. Interesting in that case was that for the first time it proved to be possible to fill in the matrix without any support from the author. This might be considered a proof for the completeness, consistency and transparency of the matrix together with its explanatory texts and references. Finally, a

Spanish diploma (Segovia) was put to a test; the process is still going on, and the matrix plays a clarifying role in the sometimes-troublesome discussions on the European level.

It may be expected that the matrix will become an instrument of increasing importance, more specifically in a period of expansion of the European Community, introducing East European Countries. It will become increasingly difficult for the Advisory Committee to fulfil its main task 'to help to ensure a comparably high standard of education and training for architects throughout the Community' (Article 1 of Council Decision of 10 June 1985). All above-mentioned applications concern the Matrix version 1998; version 2002 is considered to be an improvement of the first one, restructuring the elements of the first one in a more open way.

The matrix may be regarded as a useful instrument, but may be considered as well as an expression of an underlying theory. This theory is the earlier mentioned Domain theory, an interdisciplinary theory of design, in which the notion of 'domain' is defined as a synthetic notion, integrating a material, an organisational and a procedural object in one conception. This notion, as we see it, is the theoretical expression of John Habraken's notion of 'natural which was the underlying concept for the activities of the SAR in the sixties and seventies of the previous century (Bosma et al., 2000). Concepts as 'urban tissue', 'supports', and 'infill' may be considered as domains. This notion of domains was also the leading concept for policy, planning and design of the Faculty of Architecture of Eindhoven University of Technology, at least up till 1996, integrating the organisation of the faculty in chairs and departments, and the programming of research, design and learning in one educational framework. In this way Domain theory structured the 'Theory of a Faculty' as an implicit concept, 'guiding and goading' its development since 1968. Whereas the term 'faculty', according to the Webster' Dictionary denotes as well an inherent capability, power or function of a body, its competence, the faculties of a Faculty (as an institution) may be ordered conform the ordering of domains. It is also in this alternative way that meaning is given to the title of this paper 'Faculties of Architecture'.

3 REFERENCES

- EC (1985), *Council Directive of 10 June 1985 on the mutual recognition of diplomas, certificates and other evidence of formal qualifications in architecture, including measures to facilitate the effective exercise of the right of establishment and freedom to provide services*, Council of the European Communities (85/384/EEC), Brussels.
- Bax, M.F.Th., H.M.G.J. Trum and D. Nauta jr (2000), Implications of the philosophy of Ch. S. Peirce for interdisciplinary design: developments in domain theory, *Design and Decision Support Systems in Architecture*, Proc. 5th Int. DDSS Conf., Nijkerk , The Netherlands, August 22-25, 2000, ISBN 90-6814-111-2, pp. 25-46.

Bosma, K., D. van Hoogstraten, M.Vos (2000), *Housing for the millions: John Habraken and the SAR (1960-2000)*, NAI publishers, Rotterdam, ISBN/ISSN 90-5662-178-5, 375 p.

ANNEX 1 Matrix

MATRIX RELATING THE CONTENT OF A STUDY PROGRAM WITH THE CONTENT OF ARTICLE 3 (DIRECTIVE 85/384/EEC) VIA DOMAINS OF ARCHITECTURE AS AN INSTRUMENT FOR THE ADVISORY COMMITTEE ON TRAINING AND EDUCATION IN THE FIELD OF ARCHITECTURE

NAME OF PROGRAM				ARCHITECTURE													
NAME OF INSTITUTION				FACULTY OF ARCHITECTURE, BUILDING AND PLANNING, TUE, THE NETHERLANDS													
NAME OF AUTHORITY				PROF. X													
				ARCHITECTURE													
				FORM (levels)	PROCESS (phases)			FUNCTION (performances)									
Domain Level 2		DL2		Urban	Element	Analysis	Synthesis	Evaluation	3. Material Domain			2. Environmental Domain		1. Cultural Domain		Total	
Domain Level 1		DL1							3.1 Stability	3.2 Marketability	3.3 Usability	2.1 Physical	2.2 Economic	2.3 Sociologic	1.1 Aesthetic		1.2 Scientific
Study Program Clusters	Study Program Series & Elements	Ref. Form	Ref. Level														
FIRST CYCLE OF STUDY PROGRAM (E.G. BACHELORS)																	
Cluster A (Compulsory) PL3				(Fields filled in for reference only)				(Hatched field is filled in with Study Hours: Teaching Hours plus Self Study Hours)									
	Series B		PL2														
	Element B1	Lect.	PL1														
	Element B2	Exer.	PL1														
	Element B3	Proj.	PL1														
	Series C		PL2														
	Element C1	Lect.	PL1														
	Element C2	Exer.	PL1														
	Element C3	Proj.	PL1														
	Etcetera																
Cluster D (Optional) PL3																	
	Series D		PL2														
	Element D1	Lect.	PL1														
	Element D3	Exer.	PL1														
	Element D5	Proj.	PL1														
Cluster F (Practical Study) PL3																	
	Series G	Proj.	PL2														
Cluster E (Basic Sciences) PL3																	
	Series F		PL2														
	Element F1	Lect.	PL1														
	Element F2	Lect.	PL1														
Total Study Hours Cycle 1																	
SECOND CYCLE OF STUDY PROGRAM (E.G. MASTERS)																	
Cluster G (Compulsory) PL3																	
	Series H		PL2														
	Element I1	Lect.	PL1														
	Element I3	Exer.	PL1														
	Element I5	Proj.	PL1														
	Series J		PL2														
	Element J1	Lect.	PL1														
	Etcetera																
Cluster K (Optional) PL3																	
	Series L		PL2														
	Element L1	Lect.	PL1														
	Element L2	Exer.	PL1														
	Element L3	Proj.	PL1														
Cluster M (Practical Study) PL3																	
	Series N	Proj.	PL2														
Cluster O (Basic Sciences) PL3																	
	Series P		PL2														
	Element P1	Lect.	PL1														
Cluster Q (Compulsory) PL3																	
	Final Project	Proj.	PL1														
Total Study Hours Cycle 2																	
Types of Content																	
Total Study Hours Cycle 1 and 2																	
% Domains	Level 1		DL1														100%
% Domains	Level 2		DL2														100%

Types of Form % Lectures % Exercises & Projects % Practical Study	
--	--

Types of Status % Compulsory % Optional % Basic Studies	
--	--

ANNEX 2 Terminology in the matrix

MATRIX RELATING THE CONTENT OF A STUDY PROGRAM WITH THE CONTENT OF ART.3, DIRECTIVE 85/384/EEC

Content of Study Program in 3 optional levels

- Program Level 1 (PL1) Program Elements of Study Guide, expressed in Study Hours (Teaching hours plus Self Study Hours), summing up to Program Level 2 (Series).
- Program Level 2 (PL2) Program Series, expressed in Study Hours, summing up to Program Level 3 (Clusters).
- Program Level 3 (PL3) Program Clusters, expressed in Study Hours, in a Program Cycle frame.

Content of Art. 3 in 2 optional levels of Concepts

- Domain Level 1 (DL1) Domain 1.1 to 3.3, summing up to Domain Level 2.
- Domain Level 2 (DL2) Domain 1 to 3,

Presentation of Study Program in exemplary Formats

- Format A Program Level 1 (in PL2 and PL3 frame), and Domain Level 1 (in DL2 frame).
- Format B Program Level 2 (in PL3 frame), and Domain Level 1 (in DL2 frame),
- Format C Program Level 2 (in PL3 frame), and Domain Level 2,
- Format D Program Level 3, and Domain Level 2

DOMAINS OF ARCHITECTURE

With reference to EC-documents: 'Directive 85/384/EEC, Art.3', and 'Reflections and Recommendations on Article 3, III/D/9125/89-EN' further explained in 'The Architectural Concept: expanding on Article 3, III/F/5175/1/92-EN'.

Domain: a disciplinary controlled 3 dimensional space of knowledge and meaning related with an artefact; with Form, Process and Function as dimensions, which respective articulations in Levels, Phases and Performances are matched in order to establish a structured, architectural space for the determining of the relative position, interfaces and interactions of disciplines in interdisciplinary, participatory processes; the substance of each Domain is determined by a Concept, in connection with its organisational aspects and procedural aspects.

Concept: Guiding and inspiring image and notion of built environment; a generic representation or generator of design, as a partial representation of the co-ordinated formal, functional and temporal constituents of a systematic, consistent and complete representation of a building system in each phase of its development in a decision making process; primarily functionally expressed; subject of a Domain.

Architectural Domain: domain containing concepts dealing with the built environment as an *organic whole*: a self-evident entity, expressing its meaningful, well balanced integrity in a natural way, based on a stylistic principle integrating and controlling the complexity of its parts.

Form Domain: domain containing concepts ordered in terms of a scale of hierarchical composition levels: e.g. Urban, Building and Component levels.

Process Domain: domain containing concepts ordered in terms of a scale of temporal phases of development: e.g. Analysis, Synthesis and Evaluation.

Function Domain: domain containing concepts ordered in terms of a scale of performances, according to Peirce's categories of Potential (1), Actual (2) and Intentional (3).

1. Material Domain

1.1 Domain of Stability: domain dealing with concepts of the built environment as a sustainable *structure* or installation, creating stability in order to control spatial, material and climatological conditions with respect to maintenance, safety and reliability, based on principles of applied mechanics, physics, (micro) biology and chemistry.

1.2 Domain of Makability: domain dealing with concepts of the built environment as a *work* in terms of production and construction process with respect to labour, material, equipment and its management with respect to materialisation.

1.3 Domain of Usability: domain dealing with concepts of the built environment as a facility or *accommodation* with respect to its performance in relation with human and social needs and behaviour on a physical, physiological (climate) and psychological (ambience) level, as is expressed in a brief.

2. Environmental Domain.

2.1 Physical Domain: domain dealing with concepts of the built environment as a material object, expressed in terms of *time/space*, meeting utility, stability and makability requirements.

2.2 Domain of Economy: domain dealing with concepts of the built environment as a *capital* in terms of investment and exploitation, in terms of financing, subvention, fiscal and assurance aspects, and its position on a market.

2.3 Domain of Sociology: domain dealing with concepts of the built environment as a *realm* of social groups or institutions with a mandate for control of space and material with regard to change, maintenance and security.

3. Cultural Domain.

3.1 Aesthetic Domain: domain dealing with concepts of the built environment as an object of perception, form and its behaviour in time, an object of *art*; a concrete, direct and sensory experience of harmony, fulfilment and beauty.

3.2 Scientific Domain: domain dealing with concepts of the built environment as a *model*, representing knowledge and information and, referring to theoretical and methodological principles or structures which explain, predict and guarantee adequate functioning of the built form, according to social, cultural and technological sciences, including physics, chemistry and mechanics, related to architectural design.

3.3 Professional Domain: domain dealing with concepts of the built environment as a design *task* or instruction, organising, co-ordinating and managing the activities of agents inside and outside the office, contributing and participating in a multidisciplinary design team resulting in a strategic plan, according to ethical and professional codes, laws and conventions, making use of adequate media for presentation and representation of building design and design technology.

ANNEX 3 Text of Article 3 of Directive 85/384/EEC

(with reference to the codes of the Domains)

Education and training leading to diplomas, certificates and other evidence of formal qualifications referred to in Article 2 shall be provided through courses of studies at university level concerned principally with architecture. Such studies shall be balanced between theoretical and practical aspects of architectural training and shall ensure the acquisition of:

1. an ability to create architectural design that satisfy both aesthetic (3.1) and technical requirements (1.2),
2. an adequate knowledge of the history and theories of architecture and the related arts (3), technologies (1.1, 1.2) and human sciences (1.3, 2.2 en 2.3),
3. a knowledge of the fine arts as an influence on the quality of architectural design (3.1),
4. an adequate knowledge of urban design, planning and the skills involved in the planning process (3.3, Form),
5. an understanding of the relationship between people and buildings (1.3), and between buildings and their environment (Form), and the need to relate buildings and the spaces between them to human needs and scale (1.3, Form),
6. an understanding of the profession of architecture and the role of the architect in society (3.3), in particular in preparing briefs (1.3) and take account of social factors (2.2),
7. an understanding of the methods of investigation (3.2) and preparing of the brief (1.3), for a design project,
8. an understanding of the structural design (1.1), constructional and engineering problems (1.2) associated with building design,
9. an adequate knowledge of physical problems and technologies (2.1) and of the function of buildings so as to provide them with internal conditions of comfort and protection against the climate (1.3, 1.1),
10. the necessary design skills to meet building users' requirements (1.3) within the constraints imposed by cost factors (2.2) and building regulations.
11. an adequate knowledge of the industries, organisations, regulations (3.3) involved in translating design concepts into buildings and integrating plans into overall planning.