



Subject benchmark statement

Architecture

**Draft for consultation
November 2009**

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Preface

Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of programmes in a specific subject or subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated.

This subject benchmark statement, together with others published concurrently, refers to the **bachelor's degree with honours**¹ and provides guidance for qualification at master's degree level².

Subject benchmark statements are used for a variety of purposes. Primarily, they are an important external source of reference for higher education institutions (HEIs) when new programmes are being designed and developed in a subject area. They provide general guidance for articulating the learning outcomes associated with the programme, but are not a specification of a detailed curriculum in the subject.

Subject benchmark statements also provide support to HEIs in pursuit of internal quality assurance. They enable the learning outcomes specified for a particular programme to be reviewed and evaluated against agreed general expectations about standards.

Subject benchmark statements allow for flexibility and innovation in programme design and can stimulate academic discussion and debate upon the content of new and existing programmes within an agreed overall framework. Their use in supporting programme design, delivery and review within HEIs is supportive of moves towards an emphasis on institutional responsibility for standards and quality.

Subject benchmark statements may also be of interest to prospective students and employers, seeking information about the nature and standards of awards in a given subject or subject area.

The relationship between the standards set out in individual subject benchmark statements and the requirements of professional, statutory or regulatory bodies will be a matter for individual HEIs to consider in detail.

This subject benchmark statement represents a revised version of the original published in 2000. The review process was overseen by the Quality Assurance Agency for Higher Education (QAA) as part of a periodic review of all subject benchmark statements published in this year. The review and subsequent revision of the subject benchmark statement was undertaken by a group of subject specialists drawn from, and acting on behalf of, the subject community. The revised subject benchmark statement went through a full consultation with the wider academic community and stakeholder groups.

QAA publishes and distributes this subject benchmark statement and other subject benchmark statements developed by similar subject-specific groups.

¹ Level 6 in *The Framework for higher education qualifications in England, Wales and Northern Ireland* (2008) and level 10 in the *Scottish Credit and Qualifications Framework* (2001).

² Level 7 in *The Framework for higher education qualifications in England, Wales and Northern Ireland* (2008) and level 11 in the *Scottish Credit and Qualifications Framework* (2001).

The Disability Equality Duty (DED) came into force on 4 December 2006 in England, Scotland and Wales. The DED requires public authorities, including HEIs, to act proactively on disability equality issues. The DED complements the individual rights focus of the Disability Discrimination Act and is aimed at improving public services and outcomes for disabled people as a whole. Responsibility for making sure that such duty is met lies with HEIs.

The Equality and Human Rights Commission has published guidance³ to help HEIs to implement the DED and provides illustrative examples on how to take the DED forward. HEIs are encouraged to read this guidance when considering their approach to engaging with components of the Academic Infrastructure⁴, of which subject benchmark statements are a part.

Additional information that may assist HEIs when engaging with subject benchmark statements can be found in the *Code of Practice (revised) for providers of post-16 education and related services*⁵ and also through the Equality Challenge Unit⁶, which is established to promote equality and diversity in higher education.

³ Copies of the guidance *Further and higher education institutions and the Disability Equality Duty, Guidance for Principals, Vice-Chancellors, governing boards and senior managers working in further and higher education institutions in England, Scotland and Wales*, may be obtained from www.dotheduty.org/sectoral-guidance.asp

⁴ An explanation of the Academic Infrastructure, and the roles of subject benchmark statements within it, is available at www.qaa.ac.uk/academicinfrastructure

⁵ Copies of the *Code of Practice (revised) for providers of post-16 education and related services*, published by the Disability Rights Commission, may be obtained from www.equalityhumanrights.com/uploaded_files/code_of_practice_revised_for_providers_of_post-16_education_and_related_services_dda.pdf

⁶ Equality Challenge Unit: www.ecu.ac.uk

Foreword

This is a major revision to the subject benchmark statement for architecture, published in 2000⁷. The 2000 benchmark statement covered the first degree only (known as Part 1). The 2009 benchmark statement is expanded from the original to include a description of the second stage of architecture education (known as Part 2). Reference is made to the jointly held criteria used by the Architects' Registration Board (ARB) (Appendix 1, page 13) and the Royal Institute of British Architects (RIBA) (Appendix 2, page 14) in qualification prescription and programme validation⁸ (for an explanation, see below). Details of the third and final stage of qualification as an architect (the professional examination, known as Part 3) are included in an appendix to the statement (Appendix 3, page 15).

The Architects Act 1997 gives the ARB responsibility for prescribing the qualifications and training required for entry onto the UK Register of Architects. The prescription of qualifications is central to ARB's strategic aims of protecting the consumer; supporting architects through regulation and delivering the Architects Act 1997. In carrying out its duty to prescribe qualifications, ARB publishes criteria which set out the minimum levels of knowledge, understanding and ability that students of architecture must acquire at key stages in the process of qualifying as an architect. These criteria form the basis upon which ARB makes decisions as to whether or not qualifications can be prescribed.

The criteria used by the ARB in prescription of qualifications have been agreed by the RIBA and are used through the work of its Validation Committee in enhancing the quality of architectural education and encouraging experimentation and innovation in programme content, delivery, and methods of learning and teaching. RIBA uses the validation process to stimulate critical self-analysis in schools of architecture in achieving their objectives.

The revised subject benchmark statement takes as its starting point the standards set out in the European Directive 2005/36/EC on the Mutual Recognition of Professional Qualifications⁹. Explanatory text to accompany each of the 11 standards specified by the Directive is taken from the criteria used by the ARB and the RIBA in prescription and validation in order to articulate the minimum levels of knowledge, understanding and ability that students of architecture must acquire at key stages in the process of qualifying as an architect (see above). In this way the requirements for qualification prescription and programme validation have been embedded into the subject benchmark statement.

HEIs may offer solely Part 1 of architecture education (referred to in this subject benchmark statement as the 'Interim Award') or may offer Part 2 (referred to here as the 'Final Award').

The revised subject benchmark statement for architecture has been developed by a review group drawn from and acting on behalf of the subject community (for membership see Appendix 4). Representatives from QAA, the ARB and RIBA were in

⁷ Originally published as the subject benchmark statement for Architecture, architectural technology and landscape architecture (2000)

⁸ At the time of writing, the subject community for Architecture was awaiting agreement on a revised version of the jointly held Criteria which were the subject of recent consultation closing on 11 May 2009 (see www.arb.org.uk/consultations/prescription_of_qualifications).

⁹ Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications (http://ec.europa.eu/internal_market/qualifications/future_en.htm)

attendance at meetings and commented upon all previous drafts. A previous version of the revised statement was subject to consultation over the course of May – July 2007, during which a number of comments were received from schools. These comments have been read and considered in preparing this most recent draft.

November 2009

1 Introduction

1.1 This subject benchmark statement describes the broad subject of architecture as both academic and vocational. The revision to the original statement, published in 2000, responds to the need for flexibility in the delivery of academic programmes driven by changes in the national and world economies and, in the interests of broadening access to higher education (HE) and professional qualification, the need to promote diversity in both modes of study and the ability of students to transfer between institutions, EU member states and other countries.

1.2 The benchmark statement published in 2000 described only the undergraduate award for architecture. This is the first stage of the typical education of an architect: a three-year undergraduate honours degree (BSc or BA) known as Part 1. Part 1 of architecture education is typically followed by 12 months of logged and monitored professional experience, known as the 'year out'. The year out is typically followed by a two-year qualification comprising a mixture of undergraduate and postgraduate learning, known as Part 2. Part 2 is typically followed by a further 12 months of logged and monitored professional experience and finally a professional examination (known as Part 3). The professional examination is not covered by the subject benchmark statement but a description is provided for reference in Appendix 3.

1.3 The subject benchmark statement describes Part 2 qualification as a level of attainment at master's level¹⁰. It notes that qualifications in architecture must maintain a balance between the theoretical and practical aspects of architectural training as expressed in the 11 succinct clauses contained in the EU Professional Qualifications Directive 2005 (Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualifications, article 46 1a-k). Architecture education culminating in the Part 2 qualification typically attracts a total of 600 credits¹¹ and while this may equate to five years of 120 credits each, HEIs may construct alternatives to enable flexibility in student learning.

1.4 All qualifications and programmes providing Parts 1, 2 and 3 are prescribed and validated by the regulatory and professional bodies. In order to be eligible for registration with the ARB and for membership of RIBA, candidates are required to demonstrate that they have been successful in both the academic parts (Parts 1 and 2) and the work experience with professional examination (Part 3).

1.5 The subject benchmark statement seeks to encapsulate the nature of a rich and diverse academic discipline. The statement is not intended to prescribe a curriculum, but rather describes the broad intellectual territory within which individual higher education institutions (HEIs) will locate their programmes of study in architecture.

1.6 While the benchmark statement is primarily intended to guide lecturers and programme leaders in the design and validation of academic programmes leading to professionally recognised qualifications in architecture, it will also be useful to those developing other related programmes and those providing Part 1 (referred to as the 'Interim Award') that may, or may not, lead to Part 2 (the 'Final Award') in architecture.

¹⁰ For guidance on academic levels, see *The Framework for Higher Education Qualifications in England, Wales and Northern Ireland* (FHEQ) (QAA, 2008) and in Scotland, *The Framework for Qualifications of Higher Education Institutions in Scotland* (QAA, 2001)

¹¹ For guidance on the use of credit, see the *Higher education credit framework for England: guidance on academic credit arrangements in higher education in England* (2008), the *Credit and Qualifications Framework for Wales* (2004) and the *Scottish Credit and Qualifications Framework* (2001).

2 Nature and extent of architecture

2.1 The study of architecture draws on knowledge and skills from the natural and social sciences, mathematics, humanities and the creative arts. The discipline is concerned with the accommodation of human activity in the full range of natural, historical, social and virtual environments. The creative practice of design is the defining central focus of architecture education and scholarship. The varied and complex intellectual skills of design are fundamental to the conception, elaboration and production of the spaces, buildings, cities and landscapes that make up the built environment. Architecture education is therefore rich, varied and by definition interdisciplinary, involving intellectual and practical complexity. While architecture education must be concerned with the constraints of the physical world and historical and cultural dimensions, it must also constantly adapt to a changing social, economic and environmental context exemplified by climate change, globalisation, cultural diversity, artistic practices, information exchange and new social relationships.

2.2 The creative activity of design that lies at the core of architecture education is characterised by diversity of method, theoretical underpinning and aesthetic expression. The contested nature of design gives rise through debate to the advancement of the subject. Design is a complex process that brings together creative conception and highly pragmatic detailed development and is closely related to other important aspects of architectural study: technology and environment; cultural context; management, practice and law; and communication. It is, therefore, the interaction of ideas, intentions and operations that gives architecture its distinctive character and allows for the variety of university programmes. All of these programmes must reach the standards defined in this document and, in addition, programmes designed to deliver the Final Award (see 1.6) must provide 'the opportunity to pursue related, specialised and optional studies' (ARB) in order that students may gain a particular expertise relevant to professional architectural practice.

2.3 Students entering architecture programmes often have little experience of design or other subjects that contribute to architectural study at university. This has, however, many benefits. Students come to architecture education from a wide range of backgrounds, bringing with them the very diversity of disciplines and modes of inquiry that an architecture programme requires. In addition, many of those studying architecture do so with the intention of becoming a professional architect, or of pursuing a related career. However, the knowledge, understanding and skills that an architecture education imparts are broad, holistic and of value, and students often go on to work in many different fields.

3 Qualifications in architecture: validation, prescription and quality assurance

3.1 The subject of architecture is global. The knowledge and skills essential to its practice are similar across the world and practitioners are mobile. However, the practice of architecture and the function, status and title of the architect are defined nationally. There is, however, increasing recognition of the cultural and economic benefits of the mutual recognition of academic qualifications and professional status and the removal of barriers to international mobility.

3.2 The member states that make up the EU have adopted a system of mutual recognition of professional qualifications, which includes architecture, that is set out in the Directive 2005/36/EC. The *Architects Act 1997* has been amended to take into account the requirements of the Directive in the UK and the ARB is the UK's Competent Authority for Architects for the purposes of implementing and administering the Directive.

3.3 The ARB is required by the *Architects Act 1997* to maintain the UK Register of Architects and to prescribe qualifications for entry to the Register. In doing so, the ARB also ensures that such qualifications meet the requirements of the Directive. The Directive specifies minimum subject knowledge and skills (the 11 points of Article 46: section 5) and specifies a minimum duration of study for qualification as an Architect, requiring that 'training as an architect shall comprise a total of at least four years of full-time study or six years of study, at least three years of which on a full-time basis, at a university or comparable teaching institution' (Article 46, part 1). A more detailed account of ARB's procedures for qualification prescription may be found in the document on *Prescription of qualifications: ARB procedures* (ARB, 2004)¹².

3.4 The requirements of the RIBA for the validation of academic qualifications for membership are also fully consistent with the Directive. A detailed account of RIBA procedures for programme validation may be found in *RIBA Procedures for the Validation of UK Courses and Examinations in Architecture* (RIBA, 2005)¹³.

3.5 The academic qualifications that form part of architecture education and training are designed, delivered and quality assured by HEIs working within a national framework of qualification levels that applies to all subjects including architecture (the FHEQ (QAA 2008) and SCQF (QAA 2001)). HEIs produce programme specifications that describe the content of a particular programme, specifying the intended learning outcomes and how they may be achieved and demonstrated. In working with this subject benchmark statement, HEIs may wish to map the learning outcomes of their programme onto the benchmark standard set out in section 5 (page 8) (which takes account of the jointly held Criteria and requirements of Directive 2005/36/EC). The QAA produces guidelines for institutions in producing programme specifications and also audits the institution.

¹² Available at: www.arb.org.uk/templates/includes/qualifications/ARB-Prescription%20Procedures.pdf

¹³ Available at www.architecture.com/Files/RIBAProfessionalServices/Education/Validation/2007/UK%20Validation%20Procedures.pdf

4 Benchmark standard

4.1 Benchmark standards are identified for both the Interim Award and for the Final Award. HEIs will not necessarily offer both and should consult the appropriate section below when designing or reviewing their programmes.

4.2 For **both** the Interim Award and the Final Award, graduates are expected to be able to demonstrate that they meet the 11 points of Article 46 of Directive 2005/36/EC, expanded by text taken from the ARB/RIBA jointly held criteria for qualification prescription and programme validation (paragraph 4.5 below).

4.3 Graduates of the Interim Award should, in addition, be able to demonstrate the attributes identified in section 4.6, while graduates of the Final Award should be able to demonstrate the attributes identified in 4.7. A further specification for the Final Award is identified in section 4.8.

4.4 Generic guidance on distinguishing between different academic levels of award may be found in *The Framework for higher education qualifications in England, Wales and Northern Ireland* (2008) or the *Scottish Credit and Qualifications Framework* (2001).

4.5 Graduates of both the Interim Award and the Final Award should be able to demonstrate the following:

EU1 Ability to create architectural designs that satisfy both aesthetic and technical requirements

The graduate will have the ability to:

- prepare and present building design projects of diverse scale, complexity, and type in a variety of contexts, using a range of media, and in response to a brief;
- understand the constructional and structural systems, the environmental strategies and the regulatory requirements that apply to the design and construction of a comprehensive design project;
- develop a conceptual and critical approach to architectural design that integrates and satisfies the aesthetic aspects of a building and the technical requirements of its construction and the needs of the user.

EU2 Adequate knowledge of the histories and theories of architecture and the related arts, technologies and human sciences

The graduate will have an adequate knowledge of:

- the differing cultural, social, intellectual histories and theories and technologies that influence the conceptual design of buildings;
- building design projects which reflect the influence of history and theory on the spatial, social, and technological aspects of architecture;
- the application of appropriate theoretical approaches to studio design projects, demonstrating a reflective and critical appreciation of architectural culture.

EU 3 Knowledge of the fine arts as an influence on the quality of architectural design

The graduate will have knowledge of:

- the theories, practices and technologies of the arts and arts production, and the relationship of these to architectural design;
- the cultural relevance and impact of such work on architecture projects;
- the creative application of such work to studio design projects, both in terms of their conceptualisation and representation.

EU4 Adequate knowledge of urban design, planning and the skills involved in the planning process

The graduate will have an adequate knowledge of:

- theories of urban design and the future planning of communities;
- the influence on the contemporary built environment of the design and development of cities, past and present;
- contemporary planning policy and development control legislation, including social, environmental and economic aspects, and the relevance of these to design development.

EU5 Understanding of the relationship between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale

The graduate will have an understanding of:

- strategies for developing natural landscapes and civic spaces, and the need to reflectively consider appropriate scale in design proposals at local, regional and global levels;
- the impact of architectural design projects on the surrounding built environment, realised within relevant precepts of sustainable design;
- climatic design and the relationship between climate, form and construction, building users, and energy consumption.

EU6 Understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take account of social factors

The graduate will have an understanding of:

- the nature of professionalism and the duties and responsibilities of architects to clients, building users, constructors, co-professionals and society as a whole;
- the role of the architect within the design team and construction industry, recognising the importance of current methods and trends in the construction of the built environment ;
- the potential impact of building projects on existing and proposed communities.

EU7 Understanding of the methods of investigation and preparation of the brief for a design project

The graduate will have an understanding of:

- critically reviewing precedents relevant to the function, organisation, and technological strategy of design projects;
- appraising and preparing building briefs of diverse scales and types to define user requirements, and their appropriateness to site and context;
- the contributions of architects and co-professionals to the formulation of the brief, and the methods of investigation used in its preparation.

EU8 Understanding of the structural design, constructional and engineering problems associated with building design

The graduate will have an understanding of:

- the investigation and critical appraisal of alternative structural, constructional and material systems relevant to architectural design;
- strategies for building construction, and ability to integrate knowledge of structural theories and construction techniques;
- the physical properties and characteristics of building materials, components and systems, and the environmental impact of specification choices.

EU9 Adequate knowledge of physical problems and technologies and the function of buildings so as to provide them with internal conditions of comfort and protection against the climate

The graduate will have an adequate knowledge of:

- principles associated with designing optimum visual, thermal and acoustic environments;
- alternative systems for environmental comfort realised within relevant precepts of sustainable design, and ability to critically appraise these;
- strategies for building services in a design project, and ability to integrate an understanding of environmental theories and techniques.

EU10 The necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations

The graduate will have the skills to:

- critically examine the financial factors implied in varying building types, constructional systems, and specification choices, and the impact of these on architectural design;
- understand the cost control mechanisms which operate during the development of a project;
- prepare designs that will meet building users' requirements and comply with UK legislation and health and safety requirements, both during construction and occupation.

EU11 Adequate knowledge of the industries, organisations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning

The graduate will have an adequate knowledge of:

- the fundamental legal, professional and statutory responsibilities of the architect, and the organisations, regulations and procedures involved in the negotiation and approval of architectural designs, including land law, development control, building regulations and health and safety legislation
- the professional inter-relationships of individuals and organisations involved in procuring and delivering architectural projects, and how these are defined through contractual and organisational structures
- the basic management theories and business principles related to running both an architects' practice and architectural projects, recognising current and emerging trends in the construction industry.

4.6 In addition to meeting the 11 points above, graduates of the **Interim Award** should be able to demonstrate:

- an ability to generate design proposals using understanding of a body knowledge, some at the current boundaries of professional practice and the academic discipline of architecture
- an ability to apply a range of communication methods and media to present design proposals clearly and effectively
- an understanding of the alternative materials, processes and techniques that apply to architectural design and building construction
- an ability to evaluate evidence, arguments and assumptions to make and present sound judgments in a structured discourse relating to architectural culture, theory and design
- an understanding of the context of the architect and the construction industry, and the professional qualities needed for decision making in complex and unpredictable circumstances
- an ability to identify individual learning needs and understand the personal responsibility required for further professional education.

4.7 In addition to meeting the 11 points above, graduates of the **Final Award** should be able to demonstrate:

- an ability to generate complex design proposals showing awareness of current issues and insights, and originality in the application of subject knowledge and, where appropriate, proposing new hypotheses and speculations
- an ability to evaluate and apply a comprehensive range of visual, oral and written communication methods to test, analyse and critically appraise design proposals
- an ability to evaluate the appropriate materials, processes and techniques that apply to architectural design and building construction, and integrate these into design proposals
- a critical understanding of how the boundaries of knowledge are advanced through research to produce clear, logically argued and original written work relating to architectural culture, theory and design
- an understanding of the processes of procurement, planning, construction and health and safety legislation that apply to building production

- an understanding of the problem solving skills, professional judgment, and ability to take initiative in complex and unpredictable circumstances appropriate to qualification as an architect.

4.8 Programmes leading to the **Final Award** should progressively build subject knowledge and enable the student to develop the necessary skills for entry to the architectural profession. Within the 600 credits leading to a Final Award, it is expected that:

- design will be weighted as a minimum of 50 per cent of overall assessed work
- the programme will provide opportunities to pursue related specialised studies.

5 Teaching, learning and assessment

Programme design and operation

5.1 Architects have a unique conceptual and integrative role in the making of buildings and places, working in cooperation with communities, clients and other professionals. The defining skill of the architect is design - the ability to conceive of, and elaborate on, physical artefacts that meet human needs and evoke aesthetic response. The extensive body of technical and cultural knowledge that is required to enable the architect to meet the pragmatic requirements of practice and to give designs cultural resonance complements this core skill.

5.2 Just as the practice of designing and making buildings revolves around the idea of the project, architecture education is typically based upon a sequence of design projects in which students integrate knowledge of the natural and social sciences, mathematics, humanities and the creative arts to satisfy particular requirements in a particular place. It is an established requirement that at least half of a programme leading to professional qualification should be devoted to design project work (see paragraph 4.8). While many aspects of the body of theoretical, historical, technical and professional knowledge required for effective practice may be effectively learned in the context of the design project, most programmes include a variety of subject-based courses that enable students to gain an understanding of the coherent nature of particular bodies of knowledge. Such courses may beneficially be shared by students of other professional and associated disciplines.

5.3 The early stages of an architecture education are concerned with the development of new intellectual frameworks, abilities, conceptions and values. Project work at this stage is commonly divided into small elements with regular assessment and feedback. As the student progresses, the level of complexity of each element of study increases.

5.4 Engagement with practice is essential to the education of the architect. Many teachers of architecture are also active in practice, and the contribution of visiting tutors and critics is invaluable. As previously discussed, monitored workplace experience is a prerequisite for ARB registration and RIBA membership. It offers students the opportunity to apply their skills and knowledge and to develop their understanding of practice, and the roles and responsibilities of architects and other professionals. A period of workplace experience may be a compulsory element of the academic programme or it may be a requirement for progression to the Final Award.

5.5 In addition to the professional requirements for students to engage in personal development planning during periods of workplace experience, architecture education promotes reflective practice through studio, tutorial and assessment processes. Students are encouraged to produce sketchbooks, learning journals or reflective diaries related to their work. The progressive assembly of an academic portfolio (comprising design project work, written and other assignments) represents an important aspect of personal development planning.

Teaching and learning

Design projects

5.6 Through a process of learning-by-doing, students develop the skills required to produce architectural designs, gain an understanding of the application of technical knowledge to design situations, and explore how theory and action inform each other.

5.7 The scale and subject matter of design projects is varied, but the general pattern is constant. Students respond (usually individually but sometimes in groups) to a brief or proposition. Ideas are developed using a variety of graphic and computer-based methods supported by discussion with tutors, fellow students and others. Proposals are presented using drawings, sketchbooks, physical models, computer models and digital images, often accompanied by explanatory text.

5.8 An important element of this method of learning and teaching is the verbal presentation and critique of work in a variety of settings ranging from individual tutorial to formal public review. Part-time tutors, visiting lecturers and critics play a key role in these settings, and the contribution of student peers to this educative process is also important.

5.9 While academic studio projects share some general characteristics with professional project work, they vary widely in length, focus and subject matter. Each project is designed to fit into a coherent sequence that runs throughout a validated programme of study. Sometimes a project seeks comprehensive and detailed responses, at other times a project may address broad conceptual issues or focus on matters of detail.

5.10 There is never a single correct answer in design. Students' responses are likely to be unique and individualistic, owing as much to interpretation and intuition as to a logical process or established practice. In many cases, the initial response is the generation of a further set of questions.

5.11 In formulating their proposals, students will be engaged in a process of research, interpretation, proposition, reflection, critical analysis and synthesis, and will take into account site and cultural context, user needs, philosophical values, economics and technical resolution. The inherent complexity and open-ended nature of design requires students to make a considerable investment in the time devoted to project work.

Other methods

5.12 While the design project is central to architectural learning (as in other creative disciplines), other pedagogical methods are essential to the development of the knowledge and skills required in the practice of architecture.

5.13 Some aspects of architectural knowledge, including history, theory, legislation, the regulatory system and principles of structure, environmental science and construction, may best be learned through coherent linear or block courses based on structured reading, lectures and seminars.

5.14 Research and writing skills are essential to professional practice, and courses throughout include elements aimed at developing students' abilities in these areas, including essay and report-writing assignments. It is a requirement that all students

undertake a dissertation, which is a specialised research study or other analytical and structured piece of writing.

5.15 Interactive computer-based study is increasingly available to support the development of skills and knowledge. Group work is an important means of developing team-working skills that are essential in practice. Live project work that gives students experience of working closely with clients and users and develops team-working skills is also an important aspect of some architectural programmes.

5.16 Study visits in the UK, elsewhere in Europe and further afield offer students an invaluable opportunity to experience a wide range of architecture and contrasting cultural contexts. Visits to construction sites complement more formal teaching.

Environment and resources

5.17 Design project work is generally considered by teachers and practitioners to be the most effective means of learning the essential skills of architectural design. Closely associated with the recognition of the design project as the core learning experience is the idea of the design studio. Artists and architects have often chosen to work in large well-lit rooms with large tables for drawings and models, and this prototype was consequently adopted as the preferred learning and teaching environment.

5.18 The word studio means much more in architecture education than a convenient workroom. It evokes an image of creative cooperative working in which the outcome: the architectural design and the educational benefit in terms of skill development, is greatly superior to that which could be achieved by the individual student working alone.

5.19 Implicit in this view of studio teaching is the very direct relationship between student and tutor involving frequent one-to-one and small group tutorials. It is resource-intensive in terms of physical space as well as staff time. Ideally, studios should be purpose-designed with good natural lighting, extensive pin-up surface and large floor areas to accommodate appropriate furniture. To be fully effective, studio space should be dedicated to architectural teaching and students who should have access to it for long periods of intense cooperative activity and peer learning. There is a strong correlation between consistent participation in the life of the studio and the quality of designs produced by students and, consequently, the acquisition of design skills.

5.20 The studio is the setting for the creation, display and discussion of design work in individual and group tutorials as well as in more public reviews. In addition, the studio is increasingly used as a setting for the learning and teaching of theoretical, historical, professional and technological aspects of architecture. It is generally recognised that the existence of convenient and accessible studio space makes a decisive contribution to the specific and intensive qualities of architecture education and professional culture, and that the studio is essential to the maintenance of the integrity and strength of the discipline of architecture.

5.21 Although traditional drawing skills remain important in the development of design abilities, computer-aided design (CAD) techniques are essential in the development and presentation of design work. The rapid development of information and computer technology in architectural and construction practice presents a challenge to HEIs, which need to be able to offer facilities comparable to those that students will work with in practice. They need access to up-to-date software, to the

high specification hardware needed to run complex graphic and analytical programmes, and to high quality, large format printers, plotters and 3-D output devices.

5.22 Well-equipped workshops that allow the construction of physical models and full size mock-ups are a critical resource for architecture education. The availability of well qualified technical support staff is essential for the efficient and productive use of computer facilities and workshops.

5.23 Architecture students require a comprehensive on-site collection of technical literature, statutory instruments and standards as well as an up-to-date library of books and journals.

Assessment

Assessment of design work

5.24 The regular formative review of students' design project work is an important part of the learning process. At the end of a project, and sometimes at intermediate stages, each student presents his or her work to an audience of fellow students, tutors and visiting critics. Feedback may be given to students in a variety of forms.

5.25 In many cases, all students present actively participate in the discussion and feedback. The regular review of student work in a public arena is important in the development of self-reflection, a key skill in the acquisition and application of all architectural knowledge.

5.26 The summative assessment of design work is carried out by multiple assessors at project reviews and/or at a separate portfolio review. While summative assessment should be based on clear and explicit criteria, the marking process relies heavily on the expert judgments of discerning markers and examiners.

Assessment of other work

5.27 Other elements of the programme are assessed using methods of formative and summative assessment appropriate to HE. Programmes are expected to include substantial requirements for written texts at all levels, ranging from notation on drawings to report writing and scholarly dissertations.

5.28 Besides a range of practical and academic skills, architecture graduates are expected to display commitment, artistry, personal expression, imagination and creativity.

Appendix 1: The Architects' Registration Board (ARB)

The Architects Registration Board (ARB) was established by an Act of Parliament, the Architects Act, in 1997. The ARB is the independent statutory regulator of all registered architects within the UK.

The ARB's duties and responsibilities for regulating architects are set out in the Act. The key duties and responsibilities are to:

- keep an up-to-date register of architects
- decide what qualifications are needed to become an architect
- set standards for education and professional practice
- investigate complaints about an architect's conduct or competence, and
- make sure that only people on the register use the name 'architect'.

The ARB website is regularly updated and contains all current information for architects, members of the public and students of architecture. The website contains the current list of all Schools of Architecture that offer ARB-prescribed qualifications as well as the up-to-date Register of Architects.

The ARB's Criteria for qualification prescription at Part 1 and Part 2 are embedded within the subject benchmark statement, but the ARB Procedures for Prescription are available from the ARB's website at www.arb.org.uk.

Appendix 2: The Royal Institute of British Architects (RIBA)

The Royal Institute of British Architects is the UK membership body for architecture and the architectural profession. It provides support for over 40,000 members worldwide in the form of training, research and technical services, publications and events and, through its validation programme, sets academic standards for the education of architects both in the UK and overseas. The RIBA hosts many exhibitions and lectures and is home to the British Architectural Library. Annual schemes recognise outstanding architecture, including the work of students, and culminate in the President's Medals and Stirling Prize, among many other prestigious awards, prizes, scholarships, and bursaries.

The RIBA Validation Criteria are embedded in the subject benchmark statement, but the RIBA Procedures for UK Validation, and International Validation, are available through their website at www.architecture.com.

Appendix 3: The Professional Examination (Part 3)

Context

Candidates wishing to sit the Professional Practice Examination in Architecture (Part 3) are normally required to have successfully completed a recognised qualification at Part 1 and Part 2 level, or their equivalent recognised examinations. In addition, candidates are required to have completed the relevant professional practice experience before undertaking the Examination.

Each candidate's experience of learning and development in professional practice will differ, depending upon the type of project, type and location of practice, and management processes undertaken. It is essential to recognise that the preparation for the Examination should be approached in a structured way, as will continuing professional development (CPD) after registration as an architect.

The candidate should manage the relationship between professional experience, academic study and CPD to provide coverage of the Criteria, presenting a critically reflective academic portfolio that complies with the requirements of the professional studies adviser or course provider. To meet the Criteria, the candidate's experience should include evidence of technical and commercial leadership, self-management, professional competence and integrity. A successful candidate should also be able to demonstrate authorship, knowledge, effective communication skills, and reasoning and understanding, in relation to all issues within the ARB/RIBA Criteria outlined below.

Criteria

1 Professionalism

A successful candidate will be able to demonstrate overall competence and the ability to conduct them self with integrity, in the ethical and professional manner appropriate to the role of architect. The candidate will have the skills necessary to undertake effective communication and presentation, organisation, self-management and autonomous working. The candidate will have a clear understanding of the architect's obligation to society and the profession, and a sufficient awareness of the limits of their competence and professional experience to ensure they are unlikely to bring the profession into disrepute.

Demonstration of an understanding of the following will contribute to the criterion being met:

- 1.1 Professional ethics
- 1.2 The architect's obligation to society and the protection of the environment
- 1.3 Professional regulation, conduct and discipline
- 1.4 Institutional membership, benefits, obligations and codes
- 1.5 Attributes of integrity, impartiality, reliability and courtesy
- 1.6 Time management, recording, planning and review to assure competence
- 1.7 Effective communication, presentation, confirmation and recording
- 1.8 Ability to negotiate effectively and adapt to changing circumstances
- 1.9 Autonomous working and taking responsibility within a practice context
- 1.10 Continuing professional development

2 Clients, users and delivery of services

A successful candidate will be able to demonstrate understanding of the range of services offered by architects and the provision of those services in a manner prioritising the interests of the client and other stakeholders. The candidate will have the skills necessary to provide a competent service, either singly or as part of a team, including understanding of client needs, appropriate communication, programming, coordination and competent delivery. This will be supported by knowledge of the briefing process, forms and terms of appointment, the means of professional remuneration, the execution of appropriate programmed and coordinated project tasks and associated legislation.

Demonstration of an understanding of the following will contribute to the criterion being met:

- 2.1 Types of clients, their priorities and the management of the relationship
- 2.2 Briefing, organising and the programming of services appropriate to appointment
- 2.3 Architects' contracts, terms of engagement, scope of services and relevant legislation
- 2.4 Warranties and third party rights
- 2.5 Communication, progress reporting and the provision of appropriate and timely advice
- 2.6 Budget and financial awareness and cost monitoring or control
- 2.7 Responsibility for coordination and integration of design team input
- 2.8 Invoicing, payment of fees and credit control
- 2.9 Intellectual property rights and copyright law
- 2.10 Duty of care, professional liability, negligence and professional indemnity

3 Legal framework and processes

A successful candidate will be able to demonstrate understanding of the legal context within which an architect must operate and the processes undertaken to ensure compliance with legal requirements or standards. The candidate will have the skills necessary to positively interact with statutory and private bodies or individuals, and competently deliver projects within diverse legislative frameworks. This will be supported by knowledge of the relevant law, legislation, guidance and controls relevant to architectural design and construction.

Demonstration of an understanding of the following will contribute to the criterion being met:

- 3.1 The relevant UK legal system, civil liabilities and the laws of contract and tort (delict)*
- 3.2 Planning and conservation acts, guidance and processes
- 3.3 Building regulations, approved documents or standards, guidance and processes
- 3.4 Land law, property law and rights of other proprietors
- 3.5 Terms within construction contracts implied by statute
- 3.6 Health and safety legislation and regulations
- 3.7 Statutory undertakers and authorities, their requirements and processes
- 3.8 Environmental legislation and sustainability
- 3.9 Historic buildings, heritage and culture
- 3.10 Accessibility and inclusion legislation

* Scotland

4 Practice and management

A successful candidate will be able to demonstrate understanding of the business priorities, required management processes and risks of running an architectural practice, and the relationship between the practice of architecture and the UK construction industry. The candidate will have the skills necessary to engage in business administration and ability to resource, plan, implement and record project tasks to achieve stated goals, either individually or within a team. This will be supported by knowledge of the nature of legal business entities, office systems, administration procedures and the relevant legislation.

Demonstration of an understanding of the following will contribute to the criterion being met:

- 4.1 The role of architectural practice in the construction industry
- 4.2 External factors affecting construction and practice at national and international levels
- 4.3 Practice structures, legal status and business styles
- 4.4 Personnel management and employment-related legislation
- 4.5 Practice finance, business planning, funding and taxation
- 4.6 Marketing, fee calculation, bidding and negotiation
- 4.7 Resource management and job costing
- 4.8 Administration, quality management, quality assurance systems, recording and review
- 4.9 Staff development, motivation, supervision and planning
- 4.10 Team working and leadership

5 Building procurement

A successful candidate will be able to demonstrate understanding of UK construction and contract law, construction procurement processes and the roles of built-environment professionals. The candidate will have the skills necessary to plan project-related tasks, coordinate and engage in design team interaction, execute effective contract communication and resolve construction-related challenges and disputes. This will be supported by an understanding of contractual relationships, the obligations upon an architect acting as contract administrator, job-related administrative systems and the management of projects in the context of the candidate's professional experience.

Demonstration of an understanding of the following will contribute to the criterion being met:

- 5.1 Procurement methods, including for public and larger projects and relevant legislation
- 5.2 The effect of different procurement processes on programme, cost, risk and quality
- 5.3 Collaboration in construction and provisions for team working
- 5.4 Tendering methods, codes, procedures and project planning
- 5.5 Forms of contract, design responsibility and third party rights
- 5.6 Application and use of contract documentation
- 5.7 Roles of design/construction team members and their interaction
- 5.8 Duties and powers of a lead consultant and contract administrator

- 5.9 Site processes, quality monitoring, progress recording, payment and completion
- 5.10 Claims, litigation and alternative dispute resolution methods

Appendix 4: Membership of the review group for the subject benchmark statement for architecture

Iain Borden	University College London
Caine Crawford	ARCHAOS (National Student Architectural Society)
Judi Farren-Bradley	Kingston University
Katharine Heron (Chair)	University of Westminster
J Low	Birmingham City University
Richard Parnaby	University of the West of England
David Porter	Glasgow School of Art
Andy Roberts	The Higher Education Academy Subject Centre for Education in the Built Environment (CEBE)
Richard Saxon	Building Design Partnership and RIBA
In attendance:	
Laura Bellingham	QAA
Chris Cross	Standing Conference of Heads of Schools of Architecture (SCHOSA)
Emma Matthews	ARB
David Gloster	RIBA
Sarah Lupton	ARB
Mike Starling	ARB

Appendix 5: Membership of the original benchmarking group for architecture

Details below appear as published in the original subject benchmark statement for Architecture, architectural technology and landscape architecture (2000).

Ms A Boddington	University of Brighton
Mr D Clews	University of North London
Professor D Dunster (Chair)	University of Liverpool
Dr M Fraser	Oxford Brookes University
Professor J Low	University of Central England in Birmingham
Professor S Spier	University of Strathclyde