

**Balancing three dimensions in architectural research:
depth, breadth and length**

**An institutional analysis of research in architecture
in the UK higher education sector**

The Scottish Dimension

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Executive Summary

Aims and objectives

The main objective of the research project this report forms part of is to investigate to what extent innovation and excellence in research in architecture in the UK higher education institution (HEI) sector has been influenced by institutional factors, what these factors are, the nature of their influence and what can be recommended for an improved institutional context. The research will also provide an overview of architectural research across the UK, an overview that has not been compiled previously.

This report contains the findings from a stand-alone study covering all the Scottish schools of architecture, undertaken before the UK-wide research has been completed, with support from Edinburgh College of Art **eca** and the Royal Incorporation of Architects in Scotland RIAS. In addition to addressing the main objectives of the UK-wide research, this stand-alone study also aims to: (a) document recent and current research, and research development intentions, within all six Scottish schools of architecture, and (b) consider the potential and constraints of a specific Scottish dimension to research in architecture.

Methodology

This research is not meant to be comparative, but to build up a collective body of information and permit an overview of the research by, and in, the architecture schools in Scotland. The method comprises: background research of research in architecture schools, including literature and websites; confirmation of publicly available data on research in architecture schools through a survey targeting Heads of Schools; in-depth semi-structured qualitative interviews with key personnel involved in research within these schools; discussion of initial findings with representatives from schools of architecture and professional bodies; and publication of results with wide dissemination. This process has been monitored and guided by a Local Steering Group comprising local HEI institutions involved in architectural research and RIAS.

Key findings

The publicly available **data** suggests that the Scottish schools of architecture: (a) are more visually oriented in their focus than in the UK as a whole, probably due to their origins, although some schools have a built environment or social sciences/humanities focus; (b) have come into more direct contact with other disciplines due to major institutional changes in the general HEI environment, although this has not necessarily promoted cross-disciplinarity in research *per se*, but has brought pressure to bear on schools to achieve research recognition in order to access funding; (c) have a relatively strong breadth and depth of architectural research compared to architecture schools across the UK as a whole; but (d) have demonstrated a more “polarised” form of submission in the last Research Assessment Exercise, despite the breadth of research evidenced, and not to have achieved as high ratings as a significant number of other schools in the UK, although performing as well as, or better than, about half of the UK schools in total.

Analysis of the **interviews** shows general agreement that architecture is essentially cross-disciplinary in practice and this is reflected in education and professional standards. Architecture is also essentially cross-disciplinary in research but this is not promoted by the current research assessment process in higher education institutions, which tends to predominantly reward disciplinary depth rather than breadth. In addition, some key areas of architecture which are seen as fundamental to education and practice development – such as design and practice – have weakly defined assessment criteria in academic terms.

Overall research into focussed disciplinary areas within architecture in HEIs seems to be increasing in quantity and quality, although architecture is a relatively recent university-based discipline, and the academic research environment tends to promote further specialisation. However, the profession seems have lost some of its previous key role in coordinating the production of the built environment, which seems to be partially attributed to this more narrow focus in research as opposed to “problem-solving” research (whether pure or applied), which is seen to require a more holistic approach. Other actors in the construction process have advanced faster and in more diverse ways than architecture. Growing specialisation in research (“depth”), and limited support for the cross-disciplinary practice-oriented aspects of the subject in general (i.e. “breadth”), thus may lead to declining excellence over time (“length”).

The institutional context of architectural research in higher educational institutions (HEIs) has developed in fast changing broader contexts (with reference to both research funding and implementation), and these have tended to undermine more holistic approaches to the subject. As such, although such forces have promoted higher quantities and qualities of research within the various sub-disciplines, they seem to have led to an overall limitation in the nature and quality of endeavour in architectural research in more holistic terms. This study suggests that a more holistic institutional context needs to be deliberately promoted to ensure broader development of research in the subject area to ensure longer-term innovation, excellence and relevance in the profession. This, however, is as much an issue for professional bodies, industrial partners, and higher education funding bodies, as for the architecture schools.

Recommendations

Key recommendations from the study are as follows:

1. It is important to resolve how design- and practice-based research can be best assessed within the current research assessment parameters, as this has been addressed within other performance-based subjects and other areas of art and design. This needs attention by the relevant funding councils, although it is arguable that the architecture schools themselves should undertake such a review, with professional inputs.
2. Architecture schools and the profession should work together to develop proposals for making funding support for knowledge transfer more effective in architecture. These should address the issue of how research can be better disseminated, and how the professions and related industries can be involved in defining research agendas.
3. The relationship of research to practice and education in architecture – itself an obvious area of pedagogic research and educational development – needs to be dealt with by the institutions that review teaching assessment and research assessment. In this regard there needs to be a realistic assessment of the time needed for ongoing changes to take effect.
4. Funding councils should be open to consider ways to promote collaboration in research across academic institutions, as well as with professional and industrial partners. This is particularly important to promote international competitiveness, especially for smaller nations such as Scotland.
5. Closer collaboration in teaching and research in Scotland seems an obvious way forward. However, this should not necessarily be seen as only possible through institutional mergers or other structural changes. Establishing working networks through the Association of Scottish Schools of Architecture and the RIAS Committees for Education and Research and Development, can provide alternatives. In addition more city-based collaborations can be established, producing “networks of excellence” rather than mono-institutional “centres of excellence”, if these are actively encouraged by the funding agencies.

Acknowledgments

The UK-wide research is funded by the Edinburgh College of Art Research Board, and is being implemented with guidance from a Steering Group comprising representatives from Edinburgh College of Art, the University of Edinburgh, Heriot-Watt University and the Royal Incorporation of Architects in Scotland (RIAS). This stand alone report on Scottish schools of architecture has been prepared with the support of **eca** School of Architecture and RIAS.

This research would not have been possible without the support from Heads of School and other key members of staff at all six Scottish schools of architecture, who contributed their time and experience through responding to our survey, participating in the in-depth interviews, and providing helpful comments on the research project.

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The Scottish Dimension

Introduction

General research objective and background to the development of a specific Scottish dimension to the research

1.1. The main objective of this research project is to investigate to what extent innovation and excellence in research in architecture in the UK higher education sector has been influenced by institutional factors, what these factors are, the nature of their influence and what can be recommended for an improved institutional context. The research will also provide an overview of architectural research across the UK, an overview that has not been compiled previously. A summary version of the overall project objectives and method is attached in Appendix 1.¹

1.2. To undertake this research project **eca** established a Steering Group comprising representatives from Edinburgh-based academic institutions of relevance, and the Royal Incorporation of Architects in Scotland.² This Steering Group will provide guidance on *inter alia* the proposed objectives, method, progress, findings and dissemination. Concerning the method, for reasons of resources (funding and time), the in-depth qualitative research aspect of the project will be based on a sample of twelve of the thirty-six architecture schools in the UK, two of which will be selected from the six in Scotland.

1.3. RIAS indicated interest in a specific overview of the Scottish schools of architecture. **eca** School of Architecture and RIAS thus agreed to contribute to a stand-alone Scottish report, covering all the Scottish schools of architecture. This is the draft version of the report of this stand alone study, which has been completed before the general UK research has been completed, thus providing a pilot for the overall project in addition to a specific Scottish dimension to the research.

Objectives of the Scottish Dimension study

1.4. In addition to the findings of the main research, this study thus also aims to:

- a) Document recent and current research and research development intentions within all six Scottish schools of architecture:
 - to provide a “snapshot” resource for the profession; and
 - to act as a contribution to the evolving relationship between research and practice.
- b) Consider the potential and constraints of a specific Scottish dimension to research in architecture:
 - with an emphasis on the role of the architecture schools within this; and
 - with an emphasis on the role of the professional and governmental bodies in promotion of this.

¹ This project is funded by the **eca** Research Board and implemented by Head of the Architecture School in **eca**, Leslie Forsyth and **eca** Senior Associate Research Fellow, Dr Paul Jenkins, with inputs from researcher Dr Harry Smith.

² Edinburgh College of Art, University of Edinburgh, Heriot-Watt University and the RIAS

1.5. It is important to note that this research is not meant to be comparative, but to build up a collective body of information and permit an overview of the research by, and in, the architecture schools. As such it hopes to contribute to already existing dissemination of research as well as a collaborative discussion on the issues raised.

Specific research method and implementation

1.6. As with the main research project, this study was divided into five phases:

- i) Background research (via literature, websites and other relevant reports) of research in architecture schools;
- ii) Confirmation of publicly available data on research in architecture schools via postal survey responses from Heads of Schools (or their nominees);
- iii) In-depth semi-structured qualitative interviews with key personnel involved in research within architecture schools, and analysis of the responses;
- iv) Discussion of initial findings with representatives of the research bodies involved: schools of architecture and professional bodies;
- v) Publication of the results with wide dissemination (via reports, websites, journals and conferences).

In the case of the Scottish Dimension the only difference in method with the main study are:

- The inclusion of all six schools in iii) and
- The focus on Scottish institutions in iv)

1.7. Phases i) and ii) of the project commenced in mid-February 2004, with the first Steering Group meeting on 3rd March (objectives, definitions, method, dissemination). Phase iii) was commenced at the time of the second Steering Group meeting on 28th April (initial surveys, national sample, Scottish dimension). The remaining Scottish schools were interviewed by 7th May and this report submitted in the first week of June, including a presentation to the RIAS on 9th June, when all the schools had an opportunity to discuss the draft findings.³

1.8. In terms of the response, some schools have taken time in responding to the postal survey vis-à-vis data collection confirmation/additions, but those that have responded have strongly supported the research. All Scottish schools of architecture assisted willingly and openly with the interview work, and their availability, as well as their candid and informed responses, have been much appreciated, as this contributes to the strength of the overall research.

Key findings from data collection

Note the data used in this section is summarised in a table in the Appendices.

Nature of institution

2.1 The six architecture schools in Scotland include one in a long-established university, two in universities established after 1960, one in a university established after 1992 and two

³ The interviews in England and Wales – to complete the national report sample – will be undertaken in June and July, with a draft report prepared by the end of July. It is hoped to hold a meeting of a National Reference Group in August or September, with publication of the report in September (2004) at the latest.

in art colleges (both considered Small Specialised Institutions⁴). This compares to five in long-established universities, six in universities established after 1960, seventeen in universities established after 1992 and five art colleges UK-wide. Thus while Scotland has all the HEI types as institutional locations for architecture schools, this is weighted to art colleges, as opposed to the post-1992 universities, which predominate in England.

2.2 Concerning the architecture school orientation, two are oriented to the built environment, three oriented to the visual arts and one is a social science/humanities oriented school. Again the national spread is represented, with the visual arts weighted more or less equal in importance to built environment, as in institutions in England.⁵ In general, therefore, Scotland has both a reasonably representative spread of institutional types (compared to the UK as a whole), albeit with more of an emphasis on the visual arts, and specifically two schools in stand-alone art colleges.

2.3 Most of the Scottish architecture schools go back to the foundation of architectural education in the UK in art and technology colleges or government schools of design dating from the late 19th century. The exception is the University of Edinburgh which, although a long established institution, created its architecture school in the 1950s. These origins of the schools are reflected in their predominant orientation, with Strathclyde and Aberdeen having a more technological focus and Edinburgh a more humanities/social science focus.

2.4 Most schools have gone through major institutional changes in recent years as higher education institutions re-structure. This re-structuring has generally been driven by overall pressures on the higher education environment, but has led to the conjoining of architecture education and research with allied disciplines, either directly (i.e. in the same school/department: Aberdeen) or indirectly (in a larger sub-HEI unit, e.g. faculty/school: Edinburgh, Strathclyde; or merging with a university: Dundee). The relatively unique UK institutional context for the two remaining art colleges (Edinburgh and Glasgow) has been recognised in their Small Specialised Institution status, albeit these are dependent on larger universities for validation and various forms of institutional merger have been discussed.

2.5 The nature of the re-structuring has brought architecture schools into direct contact with other disciplines in the HEI environment, however this seems to be primarily a management issue and not one which focuses strongly on promoting cross-disciplinarity per se. As such, while the institutional re-structuring has had a clear effect on schools, this is less to do with educational and research changes in architecture as a discipline *per se* and more to do with the external resource and operational climate. The main effect on research has been pressure to achieve research recognition to ensure funding, as evidenced in the interviews below.

Nature of research

2.6 In terms of the nature of research as evidenced in publicly available information, the Scottish schools all indicate a relatively strong breadth of research. Out of 7 areas of typical architecture research defined by the research team (design, technology, professional issues, history, conservation, theory and pedagogy), three had evidence of broad research interests (one had evidence of 6 research areas, two evidence of 5 research areas) and three reasonably wide interests (two evidence of 4 research areas and one evidence of 3 research areas). This places all the Scottish schools in the top half of the UK wide analysis concerning this type of evidence (of data collected so far). Concerning the depth of research, 4 of the Scottish schools are considered to have deep evidence of research (compared to 12 nation-

⁴ This is an institutional category established by the Scottish Higher Education Funding Council and includes 3 HEIs in Scotland, two of which are art colleges and one the Royal Scottish Academy of Music and Drama (RSAMD).

⁵ Other schools of the built environment exist in Scotland, although they do not provide training in architecture as a full accredited discipline.

wide) and the other two, limited evidence of depth in research (compared to 14 nation-wide), none having no evidence of research (as opposed to 7 nation-wide). There is thus also reasonable evidence of depth in research across the schools in Scotland.

2.7 In terms of submission and performance in the last Research Assessment Exercise, there was a clear polarisation between those which submitted to Unit of Assessment 33 (Built Environment), where 3 Scottish schools submitted, achieving grades 3b, 3a and 4; and those which submitted to Unit of Assessment 64 (Art and Design) which achieved grades 3b and two 4 ratings. Only one Scottish school submitted under Unit of Assessment 60 (History of Art, Architecture and Design), with a 3b rating. While the nature of submissions for Scottish schools directly reflects the visual arts orientation noted above, this differs from the nation-wide tendency.

2.8 Across the UK, 17 schools submitted under Unit of Assessment 33, 8 schools under Unit of Assessment 60, and 8 schools under Unit of Assessment 64. In addition 4 schools submitted in association with Unit of Assessment 34 (Town and Country Planning). Of these, 3 schools submitted under two Units of Assessment (usually 60 and 64, but also 33 and 34), and 2 schools under three Units of Assessment (33, 34 and 60). The Scottish schools thus demonstrated a more “polarised” form of submission with limited submissions across various Units of Assessment, despite the breadth of research evidenced.

2.9 In terms of ratings, across the UK the highest RAE scores in architecture schools were 5 ratings in Unit of Assessment 33 (Built Environment) – 3 schools; Unit of Assessment 60 (History of Art, Architecture and Design) – 1 school; and Unit of Assessment 64 (Art and Design) – 2 schools. A further 7 schools achieved 4 ratings in Unit of Assessment 33 (including 1 in Scotland); 2 schools achieving this rating in Unit of Assessment 60; and 4 in Unit of Assessment 64 (including 2 in Scotland). The Scottish schools thus did not achieve as high ratings as were achieved by a significant number of other schools in the UK across the board, although did as well as, or better than, about half of the UK schools in total.

Summary

2.10 Summarising the findings from the publicly available data (confirmed and/or amended by schools), there seems to be a tendency for the Scottish schools of architecture as follows:

- a) to be more visually oriented in their focus than in the UK as a whole, probably due to their origins, although some schools have a built environment and social sciences/humanities focus;
- b) to have come into more direct contact with other disciplines due to major institutional changes in the general HEI, although this has not necessarily promoted cross-disciplinarity in research per se, but has brought pressure to bear to achieve research recognition for funding within schools;
- c) to have a relatively strong breadth and depth of architectural research compared to architecture schools across the UK as a whole;
- d) to have demonstrated a more “polarised” form of submission in the last RAE, despite the breadth of research evidenced, and not to have achieved as high ratings as a significant number of other schools in the UK across the board, although performing as well as, or better than, about half of the UK schools in total.

Key findings from interviews

3.1 This section summarises the discussions during the in-depth interviews held with ten key members of staff at the six Scottish schools of architecture, typically Heads of School and/or Research. The interviews were semi-structured, thus allowing the interviewees to raise other related issues. The views presented here are those of the interviewees, though in a

synthesised format which provides an initial level of analysis, as well as ensuring interviewee anonymity.

Breadth, depth and length

The concept of architectural research: views of interdisciplinarity and their implications

3.2 The concepts of research in architecture schools are based on two differing points of view:

- architecture is a unique discipline and as such needs to develop a core research tradition, focussed on design and practice, which is different from other disciplines, although aspects of research will "borrow" from these - e.g. in methods – creating spin-off research into other areas. Creative action itself should be seen as a method in this approach, and recognised as such;
- architecture is essentially cross-disciplinary and naturally will entail a wide range of research approaches and methods, but needs the nature of practice-based research and its assessment to be better defined (including design as research) - as has happened in art & design and other performance based disciplines.

3.3 Architecture schools have over time focused more on development of teaching and related scholarly activity, and thus research has in the past been focused particularly in two areas, with a third developing more recently:

- that related to history, theory and cultural studies (recognised in RAE Unit of Assessment as History of Art, Architecture and Design but a relatively narrow field in architecture); and
- that related to the sciences - mainly physical, but also some social science focus (assumed to fit within RAE Unit of Assessment Built Environment, but more suited to certain subject areas than others).
- As Art and Design has refined its focus in research, and various architecture schools have institutional relations with schools/departments of art and design, this has led to an emerging option for locating architectural research under RAE Unit of Assessment Art and Design.

3.4 Some aspects of architectural research can thus find an institutional structure within which to be evaluated and funded, however this does not apply well to cross-disciplinary and practice-based research, and more specifically to design-based research, as the means for peer review of this in the case of architecture are unclear. The relatively recent status of architecture as a university-based discipline, together with the lack of engagement of architectural educators and professionals in the academic political field where the structures of what is accepted are defined, is considered to have contributed to this.

3.5 While the research did not necessarily focus on the UK-wide Research Assessment Exercise, this often dominated responses to interviews, with only a few institutions indicating that their research agendas were not dominated by this, although all asserted that the nature of the RAE was fostering depth over breadth in architecture. Most also considered this detrimental to professional practice as well as teaching, as is further explained below.

3.6 The poor results in architecture are seen as the biggest problem vis-à-vis research assessment in the past two assessed periods (RAE 1996, RAE 2000), and hence have affected core funding for over most of a decade, arguably the most formative period for architecture research development. This has led to debates and strategies on how assessment panels in funding institutions should be structured and who should be on these – e.g. possible representatives with professional (design) experience rather than the construction industry – as well as on what the panels should accept to review (see below). This situation structures perception of “risk” in adopting certain approaches to research, with decisions to “play the game” to some degree due to institutional pressures.

3.7 The reliance on the printed word and traditional stress on the academic press has marginalized the targeting of research dissemination in publications of professional relevance, as well as certain small-volume publications, or other vehicles (e.g. portfolios) for specialised areas such as building design. The academic publishing “machinery” (as with the gallery alternative) is seen to be adapted to depth at the expense of breadth in architectural research.

3.8 Concerning cross-disciplinarity, many respondents argued that breadth did not imply less depth, or less relevance of research. In fact too much depth without “joined up thinking” was argued to be less useful as research. This does not only refer to applied research, but also theoretical research. How cross-disciplinary – or even more limited inter-disciplinary⁶ – research gets promoted and evaluated is a key issue overall and one that affects architecture in particular (although not exclusively). There is a tendency to relegate practice-based research to other forms of assessment, e.g. knowledge transfer, but this is also not adequate.

The relationship between research and teaching in Schools of architecture

3.9 One of the reasons for the focus in architecture schools on scholarship has been the dominance until recently of the curriculum standards to meet professional accreditation. These entail a certain breadth of delivery, reflecting the cross-disciplinarity of architecture. However although all schools cover a similar range of subjects in a depth acceptable to the Architects Research Board, this does not mean they naturally have research capacities across this range, especially as the schools are relatively small in staff complement. In fact the stress in research is not on how this feeds into teaching, but into the specialised research outputs mentioned above, and as such research and teaching links are often not prioritised (except where these are characterised as pedagogic research).

3.10 The breadth of teaching is achieved by either i) a relatively compact permanent staff complement, or ii) a small permanent complement with a range of part-time teachers bought in. These latter can be specialists, some of whom may be academics from other institutions, some of whom will be practitioners. In some institutions the tendency is to increase the proportion of part-time staff as existing older permanent staff cohorts leave. Staff renewal policies now stress research activity, and the pressure for staff to undertake research seems to have led to some staff opting out. In scenario i) it is quite likely that a relatively high proportion of staff were recruited before the focus on research and these may have little experience of research, and concentrate on maintaining their links between teaching and relevant practice. In scenario ii) while this may be so of core staff, the part-time staff may be research active if otherwise academically based⁷, but the practitioner staff may again have limited research experience or focus. As such, although breadth is present in teaching, and this has strong links to practice, there are some structural difficulties in developing research activity across all staff.

3.11 The balance of practitioners on the staff is considered essential for a good professional education, as is the studio base for much teaching. In fact there is a trend to bring more subjects taught in the classroom into the studio, as well as research, as here cross-disciplinary activity takes place most obviously. However studio-based teaching is seen as requiring higher time commitments and clashes with the time demands of research (and other activities). An added complication here is the increasing administrative workload, some induced by institutional re-structuring (e.g. mergers and semesterisation).

3.12 The stress on research, with at the same time growing pressures from teaching quality assessment and professional accreditation panels, means that new staff need to have experience in a number of areas, including practice, as many schools want to keep this as a strong feature. It is becoming more difficult to find staff that can span these three areas and

⁶ Cross-disciplinarity is defined here as habitual inter-disciplinary activity.

⁷ i.e. they would be counted for in RAE by the other institution where they are also based

thus schools end up competing for personnel. While older staff find the balance of teaching, practice/studio and research difficult – especially research – younger staff can see that research activity is a more easily assessed route to promotion. As such architectural education is becoming more “professionalised”, with practitioners being squeezed out (or maybe into a secondary category of staff as noted above). One alternative – not necessarily seen as desirable – is accepting more part-time practice-based staff on teaching only contracts, thus accepting an implicit teaching/research divide.

3.13 This however would go against the potential some identified for teaching to be not only led by research, but research to be led by teaching. This is especially so in the higher levels of university education. At research degree level there is a perception that these two objectives can be better realised together, with the staff inputs being turned into assessable research outputs more clearly – however there are currently limited numbers of research students in most architecture schools. Here the introduction of PhD by practice may provide new routes to produce research, although the problems of definition mentioned above remain.

Institutional context

Institutional factors external to the schools of architecture

3.14 Research in architecture schools is a relative late comer for most of the schools in Scotland, and is usually driven by the institutional factors mentioned above at central HEI (i.e. University/College) level, where it is also expressed in institutional re-structuring (i.e. at school/department level). Although the nature of the type of institution at HEI level, and the nature of the institutional context for architecture within this (including re-structuring), has significance for how research has been developed in the past decade in the architecture schools, the dominant institutional influence on research is related to how these institutional structures have interpreted and passed on the pressures on HEIs from the various funding councils to the schools/departments of architecture (see below).

3.15 As mentioned above, this pressure tends to focus predominantly on the type of research defined in the RAE, with an emphasis on “traditional” written peer viewed academic outputs (i.e. journals or books depending on the subject area). To a lesser extent they also stress income-generation from research and research dissemination (i.e. knowledge transfer) objectives. On the other hand, as noted above, more traditionally research in the architecture schools has been focussed on history and the humanities, as well as scholarship. There has thus been a significant “gearing up” of all architecture schools to produce more research, as defined by the main research funding councils and funding bodies, particularly so since RAE2001 results.

3.16 This has been approached either by re-structuring through basing the architecture school in a wider school, or by collaboration within the institution across schools/departments. This latter is often difficult as departmental divisions may be difficult to overcome – e.g. different teaching structures and traditions, physical distance, as well as the disciplinary differences. The conjoining of departments/schools can assist with the first two, but not necessarily the last aspect, and in conjoined schools/departments there is still limited inter-disciplinarity in research. Intra-institutional underpinning of research is more likely therefore to come from the higher institutional level - i.e. university/college - and less from inter-departmental/school activity (see below for mechanisms).

3.17 Some architecture schools feel there is a “make or break” opportunity in the next RAE, as after this those with limited research will find it increasingly hard to access an important funding stream – this position often being reinforced at institutional level. The merging of architecture schools/departments with other schools/ departments – directly or under new intermediate school/department structures – has added pressures in a number of fields, not just research (i.e. also concerning teaching numbers and administrative workloads).

This has not induced more cross-disciplinarity, even in smaller institutions, as research depends on individual interest which cannot be forced from “above”.

Internal institutional factors

3.18 A key issue concerning the institutional influence on research is the way the pressure from the central HEI is passed on internally. In most cases there has been recognition of the need for some specific research development support in the early phases of consolidation, especially in HEIs which would not historically have a strong traditional research record. There is thus a certain bias in academic research to those HEIs where research has been a tradition for a long time – i.e. older universities as opposed to newer universities and art colleges. However these traditions generally stress depth over breadth.

3.19 The type of support for research development includes specific staff appointments in research directorship (as well as changes in Heads of School), development of school research strategies, availability of funds for kick-starting research, individual staff research review and mentoring, allocating of working time for research, and promotion of publication through mentoring and group/partnership working. There is a wide range of approaches with greater or lesser support from the HEI at central level, although this seldom influences the nature of research group formation. Paradoxically there may be less specific support in institutions where research is expected as part of the academic tradition – however stronger collegial support is more evident here.

Institutions versus individuals

3.20 The nature of architectural research in the schools depends largely on individual interests, with limited structuring into research groupings of a more directed nature. Where research groupings exist these are often based on individuals, but the institution may opt to consolidate these in expanding or replacing the “institutional capacity” over time.

3.21 Whereas individual interests are the bedrock for research development, a wide range of institutional “carrots” and “sticks” are increasingly being used to foster this (see above) and “package” this in research groupings. Unless the nature of the research is collaborative (as applied/contract research tends to be) this packaging still tends to be post-factum, and not all institutions see such grouping as important. The role of the studio as a mechanism for bringing research together is under-estimated in the current mechanism for identifying research interaction.

Change and balance

Ways forward for architectural research

3.22 The main issue is how architectural research is conceptualised and then how its essential cross-disciplinarity gets into the public domain and subsequently assessed. Related to this is the issue of how professionally oriented research is assessed – i.e. as research or “knowledge transfer”, and the relative weights of each of these. Thirdly is the issue of how research relates to education.

3.23 Concerning the first issue, all funding bodies need to have an appreciation that cross-disciplinary research – i.e. breadth - is more difficult to assess, but not any less important, than more traditional research. How to assess research across disciplines in general is an issue critical to architectural research, as is how design-related research (and design as research) can be defined and hence measured.

3.24 The suggestion in the recent SHEFC report for more collaboration in research in Scotland is seen as very welcome, as the alternative of a limited number of UK Centres of Excellence would probably submerge much of the Scottish institutional capacity being built up in research in this area. Scotland is the only part of the UK which has an architectural policy and as such should develop a clear policy and support mechanisms within this for research. Networks are better than centres for such collaboration.

3.25 Collaboration is also the means to wider applied research funding, as this requires more risk taking (e.g. tendering), which is very difficult for small schools/departments to undertake. Finding a mechanism for information exchange which can permit developing such collaboration without prejudicing possible competition is important. It is also important to ensure this is measured vis-à-vis knowledge transfer funding. Bigger institutional units do not necessarily lead to better research⁸, and anyway collaboration in applied research may well be with other disciplines and schools/departments, as well as with non-academic partners. In general, therefore, means to disseminate research interests in a wider way are needed.

3.26 Research needs to be based on creative and curious individuals, who need to have adequate resources and be stimulated by their peers. There are no easy answers to this as it means changing attitudes for some, although contextual change is bringing about professionalisation of architectural academics. However, increase in research-orientated staff needs to be balanced with meeting the demands of teaching for practice, and hence there is a need for more clarity on how research and teaching relate together rather than compete.

The relationship between architectural research in schools of architecture and professional practice

3.27 Various respondents indicated they felt the profession and the academy were being driven apart with increasing professional pressures for accreditation on teaching at the same time as different academic pressures on research development – and largely separate pressures on HEIs in general for more efficiencies and higher student intakes as well as other forms of income.

3.28 As to a role for the professions in research, if they do not contribute to research funding how can such a role be expressed? This is seen as important in relation to a “political” advocacy role for architectural research with the funding bodies, focussing on the essential creative problem-solving and cross-disciplinary nature of architecture and its importance, and hence the need to better assess and fund this – as is underway in England through CABE.

3.29 In addition there is a need for the professions, industry and other agencies related to architecture and construction to become more active in promoting research and development, and funding this. Now that architectural research is taking off there is a need to change the perception of the industry that architecture schools focus only on teaching.

Conclusions

Summary of findings in relation to research questions

Breadth, depth and length

4.1 To what extent is inter-disciplinarity important to architectural research development?

Architecture is generally agreed to be an essentially cross-disciplinary area, with prescribed teaching spanning across a relatively wide range of disciplines covering art and design,

⁸ Except when expensive infrastructure is required – usually not the case for architecture.

humanities, social and natural sciences. However, no one institution aspires to cover all of this breadth in the same depth in research, where this is dependent on a still relatively small research active cohort of staff. Although it is generally recognised that breadth of architectural research needs to be maintained across the profession, this is not something necessarily promoted by the schools themselves and may need more specific intervention from professional bodies.

4.2 How has research in architecture in the UK changed in relation to “breadth” and “depth” through time, with an emphasis on its development within higher educational institutions and in the past four decades?

Research *per se* has developed relatively recently in architecture, where the focus has been predominantly on professionally-orientated education and historical scholarship for a long time. The advent of university-based architectural education in the 1960s brought the possible growth of specific architectural research, however this was embedded more clearly in those universities with a longer period of establishment and clear research traditions, which tend to be social sciences and humanities oriented. This situation has led to most architecture schools only engaging in research relatively recently. In art and technology oriented institutions, research has developed in built environment issues in the last ten years, whereas in the visually oriented institutions, research is a more recent area of development.

Institutional context

4.3 How has the HEI organisational context for architectural research changed (research funding and implementation), with an emphasis on the past four decades?

The general changes in the higher education environment, leading to mergers and re-structuring of faculties, schools and departments, increasing student numbers vis-à-vis staff complements and teaching re-structuring (e.g. semesterisation), have all conditioned how architecture schools operate in general, including research activities. More specifically, however, within this the growing pressure for architecture schools to achieve funded ratings in the UK-wide Research Assessment Exercise has led to a strong tendency in research development with various internal strategies, including strong links to changes in staff profiles.

4.4 Have these changes in organisational context reflected and affected the conception and perception of architectural research, and if so, in what ways?

In general research development strategies in architecture schools seem to focus on depth in certain areas of architectural research, based largely on staff skills, and in certain disciplinary areas which are perceived as being more clearly assessed – leading to a tendency to polarise research in to Art & Design and Built Environment, with History of Architecture as a narrower and less opted for subject area.

4.5 To what extent have these changes been reflected in, or affected, the nature and quality of broad cross-disciplinarity in architectural research?

The areas of research which can be seen as deliberately promoting breadth – such as design and practice-based research or inter-disciplinary research – are in danger of being seen as “too risky” in relation to the assessment norms. This may lead to growing disciplinary depth but less cross-disciplinary linkages, possibly of less general application to the profession.

Change and balance

4.6 Can changes in institutional context promote broader developments in architectural research, and if so what is recommended?

While the main impact of institutional change in HEIs is to pressurise for structural changes in relation to teaching provision as much as research, there is significant pressure to be assessed at national funding levels in the RAE. As this is dominated by conventional research assessment, the most obvious change is for architecture schools and partner academic

institutions to better define the nature of what can be considered non-conventional research: i.e. design-based and practice-based research, as well as the inter-disciplinary areas of research. In addition it is necessary to ensure that cross-disciplinary and practice-based research activities are assessed as well for architecture as they should be for other disciplines (including performance-based disciplines).

4.7 Can such change contribute to ensuring broader and longer-term innovation and excellence to balance in-depth innovation and excellence?

While ensuring better balanced research assessment can ensure breadth as well as depth in architectural research, there also needs to be institutional encouragement for collaboration in research as no one institution can attain adequate depth across the essential breadth of architectural research. In addition there needs to be attention to how research is disseminated, and how (pure and applied) research agendas are defined vis-a-vis practice. This is increasingly supported by the professional bodies, which have begun to stress research and knowledge transfer as much as they have focused on education and practice in the past.

Findings in relation to research hypotheses

4.8 Architecture is essentially cross-disciplinary in practice and this is reflected in education and professional standards. Architecture is also essentially cross-disciplinary in research but this is not promoted by the current assessment process in higher education institutions which promotes disciplinary depth. In addition, key areas of architecture have weak assessment criteria in academic terms: design and practice – whereas they are seen as fundamental to education and practice development.

4.9 Research into focussed disciplinary areas within architecture seems to be increasing in quantity and quality, although architecture is a fairly recent university-based discipline, and the academic research environment tends to promote further specialisation. However, the profession seems to have lost some of its previous key role in coordinating the production of the built environment, which seems to be partially attributed to this more narrow focus in research as opposed to “problem-solving” research (whether pure or applied), which is seen to require a more holistic approach. As such other actors in the construction process have advanced faster and in more diverse ways than architecture. There seems to be some evidence that growing specialisation in research (“depth”), and limited support for the cross-disciplinary practice-oriented aspects of the subject in general (i.e. “breadth”), may lead to declining excellence, and relevance, over time (“length”).

4.10 The institutional context of architectural research in higher educational institutions (HEIs) has developed in fast changing institutional contexts (with reference to both research funding and implementation), and these have tended to undermine more holistic approaches to the subject. As such, although these forces have promoted higher quantities and qualities of research within the various sub-disciplines, these seem to have led to an overall limitation in the nature and quality of endeavour in architectural research in more holistic terms.

4.11 This study would appear to suggest there is a basis to claim that a more holistic institutional context needs to be deliberately promoted to ensure broader development of research in the subject area to ensure longer-term innovation and excellence. This, however, is as much an issue for professional bodies, industrial partners, and overall higher education funding bodies, as for the architecture schools.

Recommendations

5.1 Architectural research in universities across Scotland is fairly representative of that across the UK as a whole, albeit with an historical art college basis that is still evident in the emerging research focus. As such the resolution of how design- and practice-based research can be best assessed within the current research assessment parameters - as has been addressed within performance-based subjects and other areas of art and design - is of considerable importance. This needs attention by the relevant funding councils, although it is arguable that the architecture schools themselves should undertake such a review, with professional inputs.

5.2 Related to this, is the issue of how research can be better disseminated, and how the profession, and industries related to architecture, can be involved in defining research agendas. This does not mean necessarily an emphasis on applied research, as pure research is as important for professional and industrial development over time. The current parameters for "knowledge transfer" are not the best suited to promote this type of interchange, and again it is suggested that the architecture schools and profession work together to develop proposals towards making funding council support for knowledge transfer more effective in architecture.

5.3 The relationship of practice to education in architecture is well established, but the relationship of research to practice and education much less so. This, apart from being an obvious area of pedagogic research and educational development per se, needs to be dealt with by the agencies and bodies that review teaching assessment and research assessment mechanisms, and this situation is not unique to architecture. However as architectural research is a relatively new area in academia, the time for on-going changes to take effect needs to be realistically assessed. There is a danger that either a small group of research active architectural academics with adequate teaching/practice skills get head-hunted from institution to institution, or that a division arises between a growing cohort of more conventional full-time architectural teachers/researchers and previous established cohort of part-time academic/practitioners, which will further exacerbate existing divisions adversely affecting education, practice and research.

5.4 The current breadth in architecture is maintained by teaching institutions, although this does not necessarily mean breadth across research. If the structure of architectural education were to change with less emphasis on the required breadth in each institution, this could mean that architecture schools could begin to specialise in depth in certain areas in teaching and research. While this might avoid some of the dangers of splitting research and education, or education and research from practice, it could lead to an imbalanced provision overall – e.g. across Scotland – due to the current dominant visual orientation of schools.

5.5 The nature of the current academic research assessment mechanism is essentially competitive, as it is based on relative ratings and peer-group review – whether teaching or research quality. While collaboration in teaching is reasonably established, the research competition "rules" tend to undermine collaboration in academic research, which can be to the detriment of the body of architectural research overall, as no one institution can aspire to cover the essential breadth in sufficient depth. Again it is recommended that funding councils be open to consider ways to promote collaboration in research across academic institutions, as well as with professional and industrial partners. This is particularly important to promote international competitiveness, especially for smaller nations such as Scotland.

5.6 In general, for Scotland, with a small group of architecture schools grouped in four cities relatively close together (with other potential collaborating institutions nearby, whether academic or other), the potential for closer collaboration in teaching and research seems an obvious way forward. This, however, should not necessarily be seen as only possible in institutional mergers or subordination – establishing working networks through the Association

of Scottish Schools of Architecture and Royal Incorporation of Architects in Scotland, Committees for Education and Research and Development, can provide alternatives.⁹ In addition more city-based collaborations can be established – producing “networks of excellence” rather than mono-institutional “centres of excellence” – if these are actively encouraged by the funding agencies.

Paul Jenkins, Leslie Forsyth and Harry Smith
Edinburgh
03 August 2004

⁹ The Architects Professional Examination Authority in Scotland Ltd (APEAS), established by RIAS and ASSA, could be an example of such a network.

APPENDIX 1 – OVERALL PROJECT SUMMARY

Balancing three dimensions in architectural research: depth, breadth and length **An institutional analysis of research in architecture in the UK higher education sector**

Research objective

The main objective of this research proposal is to investigate to what extent innovation and excellence in research in architecture in the UK higher education sector has been influenced by institutional factors, what these factors are, the nature of their influence and what can be recommended for an improved institutional context. The research will also provide an overview of architectural research in UK which has not been compiled previously.

Research premises

The research is premised on the following:

1. that research in architecture is essentially cross-disciplinary and while research into focussed disciplinary issues furthers specialised elements of the subject (i.e. “in-depth”), inter-disciplinary research is needed to further the more holistic advancement of the subject in general (i.e. “breadth”) as this affects excellence over time (i.e. “length”);
2. that the institutional context of architectural research in higher educational institutions (HEIs) has developed in changing institutional contexts (with reference to both research funding and implementation), however these have tended to undermine more holistic approaches and led to an overall reduction in the nature and quality of endeavour in architectural research in general terms, while certain specialised elements of this have developed and flourished;
3. that a more holistic institutional context needs to be promoted to ensure broader development of research in the subject area to ensure broader and longer-term innovation and excellence.

Research questions

The above issues give rise to the following specific research questions:

2. Breadth, depth and length:
 - 2.1. How has research in architecture in the UK changed in relation to “breadth” and “depth” through time, with an emphasis on its development within higher educational institutions and in the past four decades?
 - 2.2. To what extent is inter-disciplinarity important to architectural research development?
3. Institutional context¹⁰
 - 3.1. How has the HEI organisational context for architectural research changed (research funding and implementation), with an emphasis on the past four decades?
 - 3.2. Have these changes in organisational context reflected and affected the conception and perception of architectural research, and if so, in what ways?
 - 3.3. To what extent have these changes been reflected in, or affected, the nature and quality of broad inter-disciplinarity in architectural research?
4. Change and balance
 - 4.1. Can changes in institutional context promote broader developments in architectural research, and if so what is recommended?

¹⁰ This research takes a “new institutional” approach, where the importance of institutions as “mental models”, customs, habits etc. are analysed in addition to organisational structures, capacities and tendencies. This approach developed initially within economics (New Institutional Economy) and then was applied with a radically different orientation within other social sciences, such as sociology.

- 4.2. Can such change contribute to ensuring broader and longer-term innovation and excellence to balance in-depth innovation and excellence?

Research methods

In relation to the above, the following research methods are proposed:

- a) Literature review
 - Historical review of architecture research and the institutions within which this has been developed and implemented.
 - Overviews of the nature of recent architectural research in the UK and internationally.
- b) Analysis of public documentation (“grey literature” and websites)
 - Architectural research as described on HEI websites and other promotional material.
 - Architectural research positions published by other relevant bodies, such as professional bodies in the UK.
 - Policy documents and other publications of relevance to architectural research by research funding institutions.
- c) Survey work
 - Identification of key research institutions in architecture research in the UK, and especially Scotland, with identification of key personnel within these
 - Follow-up semi-structured interviews with key personnel identified above for in-depth assessments and/or further information.
- d) Reference groups
 - Local Steering Group, comprising representatives from local HEI institutions involved in architectural research (Edinburgh College of Art, Edinburgh University, Heriot-Watt University and Royal Institute of Architects in Scotland) for monitoring of progress and facilitation of research, as well as guidance.
 - National Reference Group, comprising an invited selection of key researchers in architecture in HEIs in the UK, as well as professional institutes, previous research assessment panels and funding bodies. This is envisaged to meet once towards the end of the research in an “Expert Workshop” format when provisional findings will be discussed.
- e) Dissemination
 - A full report of the research will be published by Edinburgh College of Art and advertised via the ECA research website.
 - A paper (or papers) based on this report will be prepared and submitted to relevant journals for publication.
 - A possible national conference will be discussed with key institutions, based on the findings of the report, but not funded under this project. This would have the objective of producing a book which would document architectural research in UK HEIs (illustrating these through case studies), as well as identifying key issues for architecture research development and means to further these.

Research Summary

Three main streams of architectural research have developed over time:

- a) One which is more “traditional” and focuses on reflective practice, which is perhaps closest to the art/profession basis for cognate area and the articulated best by Donald Schön;
- b) One (also with strong roots in tradition) which reflects the role of architecture in production of the built environment, and more oriented to physical and environmental aspects of the subject;
- c) One which developed from the 1950s, achieving recognition in the 1960s, which sites architecture within the social science traditions.

These three streams are reflected the institutional context for architectural research, with research taking place within art colleges, technically oriented higher educational institutions

and university faculties of social science¹¹. As a representation of this, currently ARB accredited architecture schools in the UK are found in schools/departments/ faculties of visual arts, design or technology (19), social or environmental sciences (5) and built environment or engineering (12).

Representing the range of research, identified research groups in architectural and other HEI institutions fall into the following broad areas within architecture:

- Building and urban design;
- History and conservation;
- Technology and managerial/professional issues
- Pedagogy and theory.

However inter-disciplinary research areas include (not exclusively):

Architecture and art	Architecture and property management
Architecture and interior design	Architecture and engineering / building
Architecture and the environment/landscape	Architecture and urban studies
Architecture and planning	Architecture and cultural studies

This breadth of focus, essential inter-disciplinarity, and institutional diversity provides both a rich seam for research development, but one which seems to have encountered difficulties in institutional support. There would appear to be evidence in the RAE 2000 submissions and results of the difficulties that the lack of clear means of assessment for the subject, and hence funding, has created. As a measure of this, of 50 or so HEIs with architectural departments or which made architecture-related research submissions in the RAE, 35 of these submitted under Unit of Assessment UoA 33 (Built Environment); 12 under UoA 60, History of Art, Architecture and Design; and 13 under UoA 64 (Art and Design).

If architecture has suffered in the results of the Research Assessment Exercise 2001, this is likely to have a damaging effect on the continued development of architectural research as HEIs re-structure to reflect funding sources. This runs contrary to the declared increased need and opportunity to provide such architectural innovation and services, based on robust evidence, to business, government and social actors, both in the UK and globally as part of the “knowledge economy”. In effect the inter-disciplinary nature of much architectural research and the streamlining of essential government support for research are at odds with each other. The creation of the new Arts & Humanities Research Council provides an important opportunity to raise the profile of architectural research in a broader field to a level commensurate with other related cognate areas, such as social and physical sciences and thus redress some of the perceived depth over breadth imbalance and provide a more secure basis for longer term research development.

This research thus intends to review the current breadth and depth of architectural research within its institutional context and assess whether there is a perceived need for institutional change and if so what this might be. The research interprets “institutions” as being both organisational structures and also mental models which underpin cultural modes of action – as in new institutionalist research paradigm. It will thus investigate the constraints and opportunities that architectural institutions and researchers in HEIs face in the current institutional context in the UK and how these perceive this can and should develop.

The nature of the research is not only for longer term underpinning of excellence, but also has considerable significance as HEIs begin to gear up for the next round of research assessment. As such it will investigate the institutional context and perceptions in HEI funding structures and also within the relevant professional bodies.

Dr. Paul Jenkins, Senior Associate Research Fellow, Edinburgh College of Art, Nov 2003

¹¹ For example Edinburgh represents all three in the School of Architecture (Edinburgh College of Art), the Architectural Engineering and Urban Studies Programmes in the School of the Built Environment (Heriot-Watt University) and the Architecture Department (Edinburgh University) – although not necessarily closely mapped exactly to the three areas mentioned above.

APPENDIX 2 – UK ARCHITECTURE SCHOOLS SUMMARY DATA

Note: the data included in this table was extracted from publicly available sources and may differ in detail or characterisation at school level.

	Institutional context							Nature of research										RAE 2001								
	Location	HEI Type			School location			Categories										Strong	Limited	None	33	5	34	3a	64	5
		old	> 1960	> 1992	art	Built Env	Visual Art	Soc Science/ Humanities	Design	Tech	Prof	Hist	Cons	Theory	Ped	Characterisation										
Bath, University	England		1			1		x	x								1		33	5						
Birmingham, University of Central England	England			1		1		x	x	x			x	x			1		33	2	34	3b				
Brighton, University	England			1			1	x								1								64	5	
Bristol, University of West of England	England			1		1		x									1				34	3a				
Cambridge, University	England	1						x	x	x	x	x				1		33	4	34	5					
Canterbury, University	England				1		1	x									1						60	3a		
Huddersfield University	England			1			1	x									1						60	2		
Leeds Metropolitan University	England			1			1	x									1	33	3b	34	3a					
Leicester, De Montfort University	England			1			1	x	x	x	x	x			x	1		33	4							
Lincoln University	England				1		1	x									1							64	4	
Liverpool University	England	1				1		x	x		x					1		33	3b	34	3a					
Liverpool, John Moores University	England			1			1	x									1	33	3b	34	3a					
London, Architectural Association	England			1			1	x									1									
London, Royal College of Art	England				1		1	x									1						60	3a	-64	5
London, South Bank University	England			1		1			x	x								33	3b	34	4					
London, University of Greenwich	England			1			1	x									1	33	3b							
London, University College	England	1				1		x	x	x						1		33	4							
London, University of East London	England			1			1	x									1							64	4	
London, University of Kingston	England			1			1	x	x								1						60	4	64	4
London, University of North London	England			1			1	x	x								1	33	3a							
London, University of Westminster	England			1		1		x	x	x						1					34	3a				
Manchester Metropolitan University	England			1			1	x									1						60	4	64	3a
Newcastle University	England		1					x	x	x						1		33	4	34	5	60	3b			
Nottingham University	England		1						x								1	33	4							
Oxford Brookes University	England			1		1		x	x	x				x	1			33	4	34	4	60	3a			
Plymouth University	England		1					x	x			x	x			1						60	5	64	3a	
Portsmouth University	England			1		1		x	x								1							64	3a	
Sheffield University	England	1						x	x	x	x		x	x	1			33	5	34	5					
Aberdeen, Robert Gordon University	Scotland			1		1		x	x	x		x				1		33	3b							
Dundee University	Scotland		1				1	x	x		x	x	x			1					34	3b			64	4
Edinburgh College of Art	Scotland				1		1	x			x	x					1				34	4			64	3b
Edinburgh University	Scotland	1						x	x	x	x	x	x		1			33	3a							
Glasgow, Mackintosh School of Art	Scotland				1		1	x			x		x	x		1								64	4	
Glasgow, University of Strathclyde	Scotland		1			1		x	x	x	x	x				1		33	4	34	3a					
Cardiff University	Wales	1				1		x	x	x	x		x			1		33	5	34	5*					
Belfast, Queens University	N Ireland	1				1			x	x	x		x			1		33	2	34		3b				

APPENDIX 3 – SCOTTISH ARCHITECTURE SCHOOLS COMPENDIUM DATA¹²

Robert Gordon University – Faculty of Design & Technology – Scott Sutherland School

Institutional context

The Scott Sutherland School was formed by the amalgamation of the School of Construction, Property and Surveying and the Scott Sutherland School of Architecture. It is part of the Faculty of Design & Technology, within Robert Gordon University. It forms part of a post 1992 new university, whose origins can be traced back to 1750. The other schools in the Faculty are the School of Computing, the School of Engineering and Gray's School of Art. The fact that the school is the result of an amalgamation is reflected in the wide range of courses on offer, beyond the scope of Architecture. For example, undergraduate degrees are offered in Building Surveying, Construction Management and Civil Engineering, among others. The orientation of the department is considered as "built environment".

Students and staff

The School has students at undergraduate, diploma, masters and research level. The school has a relatively small number of postgraduate students, particularly at research level (only 2). As with undergraduate courses, there is also a range of taught postgraduate courses, of which PgDip/MSc in Advanced Architectural Studies/Architectural Studies is only part, the other courses focusing mainly on construction, property and management aspects of these. The School has a very large cohort of full-time academics (46 including research staff), qualified in different disciplines and covering a wide range of fields of expertise. Eleven are in senior positions (i.e. Head of School, Professor, Reader, Senior Lecturer). Most of the full-time staff are lecturers, but there is also a strong contingent of research-focused staff, with 5 Research Fellows and 5 Research Associates. The breadth of areas of expertise covered by staff is evident in the range of research groups (see below).

RAE 2001 submission

Robert Gordon University submitted architecture-related research under UoA 33 (Built Environment), achieving a score of 3b with less than half of all staff returned as research-active. The research groups that were returned – Sustainable Housing, Materials Conservation and Waste, and Design Development and Evaluation – had a strong technological/professional emphasis, though also addressing aspects of design to some extent.

Current research activity

The School's strong focus on technology and professional issues is evident in the array of research groups and projects, of which 11 are listed on the School's research webpage. Research at the Scott Sutherland School focuses on the interface between people and the built environment, especially regarding housing, and has an emphasis on the physical product. The school's stated policy is to pursue problem-oriented, solution-focused research, which necessitates a high degree of interdisciplinarity and interaction between individuals, academic disciplines and research groups. The School's research groups are involved in projects with funding from a variety of sources, including Research Council (EPSRC), national government (DTI) and European Union funds. In undertaking projects the School engages in a variety of partnerships with other faculties within the university, with other universities both nationally and internationally, and with industry. Overall there is a medium range of breadth of research and strong evidence of depth of research in architecture.

¹² The following compendium summarises information publicly available on the six architecture schools in Scotland, based on institutional websites and professional institution reports, confirmed by "postal" data confirmation. Each school has a one page description and a data table. The schools are presented in alphabetical order.

INSTITUTION	Aberdeen, Robert Gordon University Faculty of Design & Technology Scott Sutherland School of Architecture	
HEI HISTORY	Gray's School of Science & Art (1885) merged Robert Gordon's Hospital, later College (1750/1881) to form Robert Gordon's Technical College 1903, later RG Institute of Technology 1965 and RB Univeristy 1992.	
SCHOOL HISTORY	The Scott Sutherland School was formed by the amalgamation of the School of Construction, Property and Surveying and the Scott Sutherland School of Architecture (initially formed 1956?)	
NATURE	Post-1992 HEI Visual Arts	
MAIN EMPHASIS	Design, Technology & professional, conservation Strong evidence of research activity in architecture	
STUDENTS	full-time	part time
	280	
ugrd	230	
pgrad (Part II)	45	
pgrad (Masters level)	3	
pgrad (research)	2	
STAFF	46	
Professors	4	
Readers	1	
Senior Lecturers	6	
Lecturers	25	
Research Fellows	5	?
Research Associates	5	
RAE SUBMISSION	33 - Built Environment	3b
	Research active staff	14
	Non-research active staff	17
	Research Group A	Sustainable Housing
	Research Group B	Materials Conservation and Waste
	Research Group C	Design Development and Evaluation
RESEARCH PAGES	http://www.rgu.ac.uk/sss/research/page.cfm?page=2539	
RESEARCH GROUPS	Greenspace	Building and urban design
	Streetscapes	Building and urban design
	Overcoming Client and Market Resistance to Prefabrication and Standardisation in Housing	Technology/professional issues
	Towards a Generic, Competency-Based Performance Management Framework For UK Construction Occupations	Technology/professional issues
	Aberdeenshire Sustainability Research Trust: Testing Environment Friendly Housing Layouts	Technology/professional issues
	Best Practice in the Specification and Procurement of Sustainable Hardwood Construction Products (EPSRC)	Technology/professional issues
	Smart Homes Research Group	Technology/professional issues
	Masonry Conservation Research Group	Technology/professional issues
	The Use of Dynamic Insulation for combined heat recovery and ventilation in buildings	Technology/professional issues
	The LIFE CYCLE COSTING research group	Technology/professional issues
	Ecological Design Group	Technology/professional issues

University of Dundee – Faculty of Duncan of Jordanstone College – School of Architecture

Institutional context

The School of Architecture in Dundee forms part of the Faculty of Duncan of Jordanstone College, which is described as a Faculty of the Visual Disciplines and includes also the Schools of Fine Art, Design, Television and Electronic Imaging. The history of the Faculty goes back to the opening of the Technical Institute in 1888, which in 1911 became the Dundee Technical College & School of Art. In 1975 the Duncan of Jordanstone College of Art became independent from the Technical College, and a year earlier the University of Dundee had created a Faculty of Environmental Studies which validated the degrees of the School of Architecture from the inception of the College. In 1994 the College became a Faculty of the University of Dundee. The School of Architecture is therefore sited within a post 1960s new university, but has its institutional roots a 19th century art & technology context. The orientation of the department is considered as “visual arts”.

Students and staff

Within the Faculty, the School of Architecture’s teaching provision focuses on courses leading to training and professional accreditation of architects, offering no courses in related disciplines. The courses range from undergraduate to MArch (with professional and non-professional routes). In addition, recognising increasing specialisation, the School is introducing a range of Masters level courses jointly covering Architecture and related subjects, and drawing on expertise elsewhere in the College and in other Faculties – e.g. Regeneration, Conservation and Sustainability, or Architecture and Engineering. Currently there are around 300 students undertaking the range of undergraduate and postgraduate courses. As elsewhere in the Faculty MPhil or PhD research degrees are on offer by the School of Architecture and there is the possibility of undertaking these through either practice-based or dissertation-based research.

The School has 22 full-time and part-time members of staff, as well as part-time subject lecturers from architectural and other professions, and from other Departments. Six are in senior positions (i.e. Head of School, Research Professor, Readers and Senior Lecturers). Core staff cover a wide range of specialised fields, reflecting the syllabus that the School delivers (covering construction, structures, environmental science, urban design, history & theory, professional & management issues, etc). A large proportion of staff’s time is devoted to studio-based teaching, and there appear to be no exclusively research-focused staff.

RAE 2001 submission

The RAE submission from the School of Architecture was subsumed in the wider submission from the Faculty of Duncan of Jordanstone College, under UoA 64 (Art & Design), achieving a score of 4. The submitted research groups were mostly concerned with the visual arts, though covering aspects of practice (including technology) and theory, and divided into the following groups: Digital Technology; Industry and the Public Sector; Contemporary Practice; Coastal/Indigenous Cultures; and Critical, Historical and Theoretical Debate. Staff active in the School of Architecture were returned under all these groups, though in small numbers.

Current research activity

The key areas of research interest among school staff are embodied in three key research groupings: the Architectural Theory Group, the Ecological Design Unit, and the Lightweight Structures Unit. These groupings show that research interests within the School go beyond the visual arts, to encompass a range of fields including: Architectural History and Theory; Educational Theory; Urban, Landscape and Regeneration Studies; Sustainable Design; and Lightweight Structures. This breadth is achieved partly through collaboration with other academic and research institutions mainly nationally but also internationally, as well as with other Departments within the University (e.g. Civil Engineering), and pursuit of inter-disciplinary research is encouraged. There is a focus on the process of design and innovation as research, but research is not confined to this approach. Overall there is a wide range of breadth of research and evidence of depth of research in architecture.

INSTITUTION	Dundee University Faculty of Duncan of Jordanstone College of Art and Design School of Architecture	
HEI HISTORY	University College, Dundee was founded 1881, 70 year relationship with the University of St Andrews, became an independent university in 1967, in 1994 merged with Duncan of Jordanstone College of Art.	
SCHOOL HISTORY NATURE	New university (post 1960s) Visual arts	
MAIN EMPHASIS	Design, History & Conservation, Technology, Theory Strong evidence of research activity in architecture	
STUDENTS	full-time	part-time
	256	
ugrd	180	
pgrad (Part II)	76	
pgrad (Masters level)		
pgrad (research)	2	
STAFF	19	
Professors	1	
Readers	2	
Senior Lecturers	2	
Lecturers	5 (+ 9 Teaching Fellows)	
Research Fellows		
Research Associates		
RAE SUBMISSION	64 - Art and Design	4
	Research active staff	58
	Non-research active staff	11
	Research Group A	Digital Technology
	Research Group B	Industry and the Public Sector
	Research Group C	Contemporary Practice
	Research Group D	Coastal/Indigenous Cultures
	Research Group E	Critical, Historical and Theoretical Debate
RESEARCH PAGES	http://www.dundee.ac.uk/djcad/research/research.php	
RESEARCH GROUPS	Centre for Analytical Research in Architecture	Theory
	Architectural History	History and conservation
	Lightweight Structures	Technology/professional issues
	Ecological Design	Technology/professional issues

Edinburgh College of Art – School of Architecture

Institutional context

Edinburgh College of Art (eca) was founded in 1906 by the Corporation of Edinburgh, with support from the Scottish Education Department, which in 1909 authorised the College to award Diplomas in four visual arts disciplines, one of these being Architecture. In 1935 a Diploma in Town and Country Planning was introduced. In 1968 a joint Faculty of Environmental Studies was established with Heriot-Watt University, comprising Architecture and Town and Country Planning, to which Landscape Architecture was added in 1974. A second joint faculty, Art and Design, was formed in 1986. Heriot-Watt University became the degree awarding body, although Edinburgh College of Art became an independent institution in 2002 and the validation process is due to change to the University of Edinburgh University. Architectural training was already undertaken in the predecessor institutions to Edinburgh College of Art. The School of Applied Art, which in 1892 had broken away from the Trustees Academy School of Art (established in 1760), had already established a reputation as a school of architecture before it re-amalgamated with the Trustees Academy to eventually become Edinburgh College of Art. The School of Architecture at eca therefore has a long tradition oriented to the visual arts and is based in an independent arts college, though its degrees are awarded by a university.

Students and staff

The School has students at undergraduate, diploma, masters and research level. The school has 252 students undertaking courses leading up to RIBA Part II. Beyond the Diploma level, the School offers 3 paths to an MArch, through taught course specialisms in Urban Design and Conservation, as well as a general March in architecture, with some 35 students. It also offers higher research degrees with a relatively large cohort of PhD students (10 currently) and wide range of research, including a focus on Islamic architecture and urban design. As elsewhere in the college it is developing the PhD by practice as a route.

The School has a cohort of 13 full-time and 5 part-time permanent staff, supplemented by a similar number of part-time teaching staff brought in from practice or specialists other academic institutions. 5 are in senior positions (i.e. Head of School, Professor, Reader, Senior Lecturer).

RAE 2001 submission

The School of Architecture's research was submitted in RAE 2001 under UoA 60 (History of Art, Architecture & Design) where it achieved a 3b rating, but also in a secondary way associated with that from the school of art and design under UoA 64 (Art & Design), which achieved a 4 rating. There were no specific Research Groups submitted for architecture research.

Current research activity

The school's staff have not all been considered research active previously but are currently developing a variety of research projects ranging from aspects of building and urban design (including an international focus), conservation and history, art and architecture, perception of architecture and pedagogy. These are focused through four broad research groups: Urban design and sustainability, Art and architecture, History and conservation, and Pedagogy, with architectural practice informing various of these groups.

INSTITUTION	Edinburgh, College of Art	
HEI HISTORY	School of Architecture Founded in 1906 by the Corporation of Edinburgh (based on the Trustees Academy School of Art established in 1760). In 1909 authorised to award Diplomas in four visual arts disciplines, one of these being Architecture. In 1968 a joint Faculty of Environmental Studies was established with Heriot-Watt University, comprising Architecture and Town and Country Planning. Edinburgh College of Art became an independent institution in 2002	
SCHOOL HISTORY	The School of Applied Art had already established a reputation as a school of architecture before it re-amalgamated with the Trustees Academy to eventually become Edinburgh College of Art. The School of Architecture at eca therefore has a long tradition oriented to the visual arts and is based in an independent arts college, though its degrees are awarded by a university.	
NATURE	Art college Visual arts	
MAIN EMPHASIS	Design, History & conservation Limited evidence of research activity in architecture	
STUDENTS	full-time	part-time
	305	
	ugrd	206
	pgrad (Part II)	62
	pgrad (Masters level)	26
	pgrad (research)	11
	STAFF	18
Professors	1	
Readers	1	
Senior Lecturers	3	
Lecturers	11	
Research Fellows	1	
Research Associates	1	
RAE SUBMISSION	64 - Art and Design	3b
	Research active staff	3.4
	Non-research active staff	1
	Research Group A	x
	Research Group B	x
	Research Group C	x
RESEARCH PAGES	http://www.eca.ac.uk/eca.html	
RESEARCH GROUPS	Design focus, no research groups specified	History and conservation

University of Edinburgh – School of Arts, Culture and Environment – Department of Architecture

Institutional context

The Department of Architecture at the University of Edinburgh forms part of the recently established School of Arts, Culture and Environment, which also comprises the former Departments of Archaeology and History of Art, as well as the former Faculty of Music. Though within a long-established university that was founded by Royal Charter in 1582, the Department of Architecture is of relatively recent creation, having been established in 1953 under the direction of the university's first Professor of Architecture, Sir Robert Matthew. Throughout its history the Department has sought to bring together the tradition of architecture (as a cross-disciplinary discipline including art, science and profession) with established academic traditions. This is reflected in its teaching links with other Departments such as Civil Engineering, Geography, Economic and Social History, Fine Art and Music. It is thus considered to be a Unit with a social science and humanities-based orientation.

Students and staff

The School has students at undergraduate, diploma, masters and research level. The main undergraduate courses are geared towards professional accreditation of architects: MA(Hons) in Architectural Design and MArch (Design), with an MArch (Digital Design) now available). However, an MA(Hons) in Architectural History, the first undergraduate degree in this discipline available at a British University, and an MA(Hons) in Architectural Studies, intended to encourage academic specialisms other than design and to reward academic excellence, are now available. The latter specialised courses involve collaboration with other university departments, a trend also happening with the developing postgraduate courses towards degrees in MSc/Dip in Design and Digital Media, MSc in Sound Design and MSc in Advanced Architectural Design and a joint BEng/MEng in Structural Engineering with Architecture (in collaboration with Civil Engineering at the University of Edinburgh. Besides a substantial amount of undergraduate and Masters-level students, totalling over 300, there is also a relatively large cohort of 15 students undertaking postgraduate research degrees (MPhil and PhD). Supervised research programmes focus on five areas: Architectural History, Building Technology, Sustainable Architecture, Architectural Computing and Architectural Design. Research students edit an annual journal, Edinburgh Architecture Research, which includes papers by students and staff.

The Department has 17 full-time staff comprising 10 senior staff (Professors, Readers and Senior Lecturers). Between 30 and 40 part-time staff, mainly from practice, also contribute to teaching. There are 4 full-time researchers in the Department. A wide range of disciplines is represented in teaching staff, supplemented by teaching inputs from other departments on the specialised courses.

RAE 2001 submission

The Department of Architecture submitted its research to RAE 2001 under UoA 33 (Built Environment), returning a significant majority of its staff and achieving a 3a rating. In the previous RAE round, research activity was configured into 5 Research Groups: Design, History, Computing, Technology and Sustainability.

Current research activity

All academic staff are assumed to be research active, with current research activity focused on four core areas: Architectural Computing, Architectural Design, Architectural History and Building Technology. In addition, the Department established the Patrick Geddes Centre and the Percy Johnson Marshall Collection, both important collections of archival material, now managed by the University Main Library. The breadth of research undertaken in the Department is reflected in the diversity of funding sources for research projects, including EPSRC, the Getty Grant Program, AHRB, former ARCUK, DTI and industry. In addition, collaboration takes place with other units, departments, universities and industrial organisations – e.g. the Human Communications Research Centre, Imperial College, the universities of Liverpool, Nottingham and East London amongst others, industrial organisations such as the Steel Construction Institute and TRADA, etc. Overall there is a wide range of breadth of research and strong evidence of depth of research in architecture.

INSTITUTION	Edinburgh University School of Arts, Culture and Environment Architecture	
HEI HISTORY	Established as University 1582	
SCHOOL HISTORY	Architecture department was established under Sir Robert Matthew over forty years ago	
NATURE	Long established university Social sciences/humanities	
MAIN EMPHASIS	Design, History & conservation, Technology & professional, Theory Strong evidence of research activity in architecture	
STUDENTS	full-time	part-time
	361	
	ugrd	
	300	
	pgrad (Part II)	
	61	
pgrad (Masters level)		
29		
pgrad (research)		
15		
STAFF	17	40
Professors	4	
Readers	1	
Senior Lecturers	7	
Lecturers	5	
Research Fellows		
Research Associates	4	
RAE SUBMISSION	33 - Built Environment	3a
	Research active staff	12.5
	Non-research active staff	1
	Research Group A	Design
	Research Group B	History
	Research Group C	Computing
	Research Group D	Technology
	Research Group E	Sustainability
RESEARCH PAGES	http://www.caad.ed.ac.uk/research/index.html	
RESEARCH GROUPS	Architectural Design	Building and urban design
	Architectural History and Theory: Italian Renaissance architecture, the history of Scottish architecture, European Modernism, the history of Architectural Technology, Film and Architecture, Architectural Theory, Architecture and Politics	History and conservation
	Building Technology: inter-relationship between the design, manufacture and performance of building systems and components	Technology/professional issues
	Architectural Computing	Technology/professional issues; Building and urban design

Glasgow School of Art – Mackintosh School of Architecture

Institutional context

The Mackintosh School of Architecture is sited within the Glasgow School of Art (GSA), one of the few remaining independent art colleges in the UK, founded in 1845 as one of the first Government Schools of Design, and currently the second largest art and design higher education community in the UK. Architecture has been taught at the GSA since the middle of the 19th century, when its first professor was Eugène Bourdon, trained at the Paris École des Beaux-Arts. Degrees are awarded by the University of Glasgow, which is a long-established university, founded in 1582. Teaching at the Mackintosh School is focused on providing professionally accredited courses for architects, but it also collaborates with the Departments of Civil Engineering at the Universities of Glasgow and Paisley, offering courses to engineering students as part of their degrees in Engineering with Architecture. The orientation of the schools is considered as “visual arts”.

Students and staff

The School has students at undergraduate, diploma, masters and research level. The school has 355 students undertaking courses leading up to RIBA Part II. Beyond the Diploma level, the School offers two paths to an MArch, one taught (with specialisms in Urban Design, Urban Building, CAAD, and Energy & Environmental Studies) and another by research, for which supervision in a wide range of topics is offered (architectural design, history and theory of architecture, architecture and urban conservation, urban design, history and theory of the city, environmental performance of buildings, and computers in architectural design). It also offers a PhD programme, for which the Glasgow School of Art has four types of submission: portfolio with documentation, portfolio with a written commentary, portfolio and a dissertation, and written thesis. PhD students are, however, intermittent, and normally undertaken by students who stay on after completing a taught postgraduate course.

The School has a very small cohort of full-time staff (?), supplemented by part-time teaching staff brought in from practice, as well as by a range of visiting lecturers, artists and critics. The school's teaching staff, though small in numbers, covers a wide range of specialist subject areas, and is considered largely research active (about 80%). Senior positions at the School include a Head and Deputy Head of School, Head of Undergraduate Studies, Senior Researcher, Research Developer, Learning and Teaching Co-ordinator, and an Academic Support Manager – two of which are Professors.

RAE 2001 submission

The Mackintosh School of Architecture's research was submitted in RAE 2001 together with that from the other schools within the Glasgow School of Art, under UoA 64 (Art & Design), achieving a score of 4. The School of Architecture's research was represented in 5 of the 8 research groups that were included in the RAE submission: Cities and Environments; Design; Digital Visualisation and Interaction; Educational Theory and Practice; and Historical and Critical Enquiry.

Current research activity

There is a dedicated science-led 'green' research unit within the school – MEARU (Mackintosh Environmental Architecture Research Unit) – which was established in 1993 with funding from SHEFC and has been self-financing since 1997. This Centre has established a track record in the fields of passive solar design and participatory design, and has collaborated with other institutions such as the Building Research Establishment and Napier University. In addition, the School of Architecture has research clusters around the following topics: housing and urban design; 3D simulation; architectural history; architectural practice; and pedagogy. Overall there is a limited evidence of breadth but evidence of depth of research specifically in architectural design.

INSTITUTION	Glasgow University Glasgow School of Art Mackintosh School of Architecture	
HEI HISTORY	Founded in 1845 as a Government School of Design.	
SCHOOL HISTORY	Architecture has been taught at the GSA from the middle of the 19th century	
NATURE	Art college	
	Visual arts	
MAIN EMPHASIS	Design, History, Theory, Pedagogy Limited evidence of research activity in architecture	
STUDENTS	full-time	part-time
	355	
	ugrd	328
	pgrad (Part II)	27
	pgrad (Masters level)	
	pgrad (research)	
STAFF	No data supplied	
	Professors	
	Readers	
	Senior Lecturers	
	Lecturers	
	Research Fellows	
	Research Associates	
RAE SUBMISSION	64 - Art and Design	4
	Research active staff	66
	Non-research active staff	24
	Research Group A	Cities and Environments
	Research Group B	The Decorative Arts
	Research Group C	Design
	Research Group D	Digital Visualisation and Interaction
	Research Group E	Educational Theory and Practice
	Research Group F	Fine Art
	Research Group G	Historical and Critical Enquiry
	Research Group H	Principles of Drawing
RESEARCH PAGES	http://www.gsa.ac.uk/gsa.cfm?pid=239	
RESEARCH GROUPS	Mackintosh Environmental Architecture Research Unit	Building and urban design
	Cities and Environments	Building and urban design
	Design	Building and urban design
	Historical and Critical Enquiry	History and conservation

University of Strathclyde – Faculty of Engineering – Department of Architecture

Institutional context

The Department of Architecture (until recently “Architecture and Building Science”) is part of the Faculty of Engineering within the University of Strathclyde. It therefore forms part of a post 1960s new university (Royal Charter granted in 1964), though the origins of the university go back to 1796, and the Department of Architecture is considered one of the first schools of architecture in the UK. The Faculty of Engineering is the largest in Scotland and highly research active, covering all major engineering areas in nine departments, ranging from Bioengineering to Naval Architecture and Marine Engineering. The institutional context is reflected not only in the undergraduate degrees on offer (including BEng and MEng in Building Design Engineering as well as BSc in Architectural Studies), but also in the areas covered in research (see below) and in access to funding sources (e.g. EPSRC). The orientation of the department is both built environment and art and design.

Students and staff

The School has students at undergraduate, diploma, masters and research level. The school has a large number of postgraduate students – over 100 including Diploma level, of which 10 are undertaking MPhil/PhD research courses. There is a range of specialised taught postgraduate courses: Advanced Architectural Design, Computer Aided Building Design, Urban Design, Integrated Building Design, Construction Management and Construction Innovation. Research and other postgraduate study is consolidated in a Graduate School, which comprises six research units (see below). MPhil and PhD degrees are awarded for traditional academic theses, and recent completions cover a range of topics: CAAD, energy modelling, aesthetics, architectural history, building performance and evaluation methods, and housing design in underdeveloped countries. Professional accreditation of courses is provided not only by RIBA, but also by the Chartered Institute of Building and the Royal Institution of Chartered Surveyors.

The School has a large cohort of full-time academics (27 including around 10 research staff), covering a wide range of fields of expertise. Nine are in senior positions (i.e. Head of School, Professor, Reader, Senior Lecturer). In addition approximately 30 part-time studio design tutors are employed from practice. Most of the full-time staff are lecturers, with a few staff dedicated exclusively to research (3 Research Fellows and 2 Research Associates). The breadth of areas of expertise covered by staff is evident in the range of research units (see below).

RAE 2001 submission

Strathclyde Department of Architecture has traditionally achieved good results in the RAE, scoring 5 in the 1992 national assessment of research, and 4 in both the 1996 and 2001 RAE rounds. One of its units in particular, ABACUS, was flagged as equivalent of 5* in both exercises. In the 2001 RAE the Department made its submission exclusively under UoA 33 (Built Environment), returning three fifths of its staff as research active.

Current research activity

The School's current research activity at present continues to be channelled through the six research groups which were also units submitted for the 2001 RAE. Four of these were already in place for the 1996 RAE: the Architecture and Building Aids Computer Unit (ABACUS); the Urban Design Studies Unit (UDSU); the Safety and Environmental Management Unit (SEMU); and the Production of Architecture, Theory and History unit (PATH). Two new ones were added pre-2001 RAE: the Centre for Environmental Design and Research (CEDAR) and Design Process and Construction Management (DPCM). The technical focus of some of the research groups allow the Department to engage in a considerable amount of contract research, with the Graduate School having an average annual contract research turnover of £400,000 per annum. Funding sources include EPSRC, AHRB, SHEFC, Scottish Enterprise, Silicon Graphics and Strathclyde European Partnership. Overall there is evidence of breadth of research *and* evidence of depth of research in architecture.

INSTITUTION	Glasgow, University of Strathclyde Faculty of Engineering Department of Architecture	
HEI HISTORY	1796 Anderson's University became Royal Technical College 1910, later merged with the Scottish College of Commerce and shortly afterwards, in 1964 was granted the Royal Charter and became the University of Strathclyde.	
SCHOOL HISTORY		
NATURE	New university (post 1960s) Built environment	
MAIN EMPHASIS	Design, Urban Design, Managerial & Professional, History & conservation Strong evidence of research activity in architecture	
	full-time	part-time
STUDENTS	452	
ugrd	350	
pgrad (Part II)	82	
pgrad (Masters level)	10	
pgrad (research)	10	
STAFF	27	
Professors	4	
Readers	0	
Senior Lecturers	5	
Lecturers	13	Studio design tutors: approx 30
Research Fellows	3	
Research Associates	2	
RAE SUBMISSION	33 - Built Environment	4
	Research active staff	15
	Non-research active staff	9.3
	Research Group A	ABACUS
	Research Group B	DPCM
	Research Group C	PATH
	Research Group D	CEDAR
	Research Group E	SEMU
	Research Group F	UDSU
RESEARCH PAGES	http://www.strath.ac.uk/architecture/research/index.html	
RESEARCH GROUPS	UDSU: Urban Design Studies Unit - urban rehabilitation, renewal and restructuring	Building and urban design
	PATH: Production of Architecture, Theory and History	History and conservation
	CEDAR: Centre for Environmental Design and Research - deleterious effects many buildings are generating.	Technology/professional issues
	SEMU: Safety and Environmental Management Unit - health, safety and environmental management	Technology/professional issues
	ABACUS: The Architecture and Building Aids Computer Unit - use of computers in architecture	Technology/professional issues