

Transforming Tradition

International Benchmarking of the Royal Danish Academy
of Fine Arts School of Architecture

Transforming Tradition

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Preface

Transforming Tradition is an international benchmarking of the Royal Danish Academy of Fine Arts School of Architecture (School of Architecture). The benchmarking has been conducted from April 2005 to February 2006 by the Danish Evaluation Institute (EVA) in cooperation with an international panel of experts and on request from the School of Architecture.

The benchmarking examines content and structure of the educational programme; it assesses how these are influenced by the management and organisation of the school, the qualifications of academic staff, quality assurance and internationalisation; and it accounts for strengths and weaknesses of the programme.

The panel of experts has experienced the international benchmarking process as an open and professional approach and a source of mutual inspiration for all the involved schools of architecture. The benchmarking method has been very relevant for reviewing the goals and results of the School of Architecture in the perspective of other traditions within this educational field.

The panel of experts and EVA expect the report to encourage the process of developing quality of teaching, organisation and strategy and stimulate internationalisation, and thereby to become a catalyst for *transforming tradition* at the School of Architecture.

Hans Beunderman
Chairman of the international expert-panel

Christian Thune
Executive Director

1 Introduction

This report presents the results of an international benchmarking of the Royal Danish Academy of Fine Arts School of Architecture (School of Architecture) in Copenhagen. The international benchmarking was conducted by The Danish Evaluation Institute (EVA) in cooperation with an international panel of experts within the field of architecture.

1.1 Background and purpose

The School of Architecture has signed a performance contract with the Danish Ministry of Culture covering objectives and requirements for the period 2004 – 2006. According to the performance contract the School of Architecture is obliged to carry out a benchmarking with leading, international schools of architecture. The School of Architecture has requested EVA to carry out the international benchmarking.

The benchmarking has a dual purpose. The benchmarking provides a comparative analysis of the quality of the educational programme at the School of Architecture. Furthermore, the benchmarking provides a report on the strengths and weaknesses of the educational programme with the purpose of stimulating continuous quality improvement.

In this context, the specific objectives of the international benchmarking are to:

- evaluate the educational programme at the School of Architecture
- examine the framework and structure of the educational programme
- examine the outcome of the educational programme
- account for strengths and weaknesses of the educational programme and draw up recommendations for improvements to the quality of the educational programme.

The benchmarking covers the following issues:

- mission, strategy and management
- programme content and structure
- examination and outcome

- teachers and research
- admission and critical mass
- quality assurance
- internationalisation
- facilities and economy.

The benchmarking focuses on education. It is thus important to stress that research is included in order to assess the *relation* between research and education, and *not* to assess research in isolation.

1.2 Benchmarking method

Benchmarking is a form of evaluation that involves systematic assessment and comparison on the basis of a quality norm, or benchmark, which can be used as a basis of comparison. Often, it is so-called best practice that is applied as the benchmark. Applying best practice means that individual organisations are measured in relation to comparable organisations that achieve the best performance.

The appointment of an international expert-panel ensures an external frame of reference in the benchmarking of the School of Architecture. The expert-panel represents three schools of architecture in Europe/USA that are considered to be of the highest quality, together with an international architectural office of high standard. The expert-panel deduces the quality norm, the benchmark, by determining criteria for quality in architectural education based on the panel's collective knowledge of architectural education. The criteria fulfil the aim of setting up a framework for defining the components of quality in architectural education (see appendix B for a full list of criteria).

All the criteria are relative in nature. They are open-ended demands that the School of Architecture satisfies to a certain extent. The purpose is to focus on *how* the school lives up to the criteria, rather than determining whether the criteria are fulfilled or not. In other words, the goal is to stimulate continuous quality improvement at the school, and not to compare the absolute quality of the School of Architecture with the benchmarking schools.

Summing up, the present benchmarking method does *not* imply a comparative study, where Danish and foreign programmes of architecture are reviewed and assessed simultaneously. The element of comparison is to be found in the reviewing process, with the specific tasks of the expert-panel being to:

- formulate the quality criteria for each aspect of the benchmarking
- assess the documentation provided by the School of Architecture

- assess how the school lives up to each criterion based on panel-member knowledge of their home schools
- draw up conclusions and recommendations.

1.3 Methodological considerations of the expert-panel

As a premise of the benchmarking, it is essential for the expert-panel to stress that all its members are representatives of technical institutes, while the School of Architecture primarily views itself as an academy. This is important because the academy tradition is different from technical institutes in terms of mission, focus and teaching methods. In respect of the academy tradition, the panel finds it important to assess the goals of the School of Architecture and its ability to achieve these goals, instead of solely assessing the School of Architecture with reference to the panel's home schools. Thus the benchmarking also includes elements of fitness for purpose evaluation.

The expert-panel highlights that it is neither possible nor desirable for the expert-panel to sharply define a benchmark for good quality concerning the education of architects. The expert-panel stresses that there is no definitive way of educating architects. Based on their collective wide knowledge of education of architects, the aim of the expert-panel is to draw up recommendations for how to develop the School of Architecture with respect to its *own* educational traditions, rather than carrying out direct comparison with the technical schools of architecture the panel-members represent.

Finally, the expert-panel stresses focus on development rather than "revolution", meaning that the expert-panel does not consider it the purpose of the benchmarking to draw up recommendations for the restructuring of the school. The hope is that the benchmarking report will become a valuable instrument for the School of Architecture in the process of signing a new performance contract with the Ministry of Culture for 2007 – 2009 and for revising the strategy of the school.

1.4 Organisation

The members of the international expert-panel are:

- Dean, Professor Hans Beunderman, Technische Universiteit Delft, Faculteit Bouwkunde, the Netherlands (chairman of the panel)
- Professor Stanford O. Anderson, Massachusetts Institute of Technology (MIT), Department of Architecture, USA
- Rector, Professor Dietmar Eberle, Eidgenössische Technische Hochschule Zurich (ETH), Department of Architecture, Switzerland
- Architect Johan Celsing, Johan Celsing Arkitektkontor, Stockholm

Further details regarding the members of the expert-panel are provided in appendix A.

The expert-panel is responsible for the professional quality of the benchmarking, while EVA is responsible for the methodological quality and for writing the report. The project group at EVA comprises Evaluation Officer Camilla Bjerre Damgård (Project Manager) and Evaluation Assistant Louise Bunnage.

Apart from the site visit, the expert-panel and the project group have held a one day meeting in June 2005 and a two day meeting in October 2005. Further communication has been handled via e-mail.

1.5 Documentation

Two types of documentation form the basis of the benchmarking: the self-assessment report including supplementary documents, and the site visits.

1.5.1 Self-assessment

The School of Architecture has conducted a self-assessment, analysing strengths and weaknesses within the educational programme. The self-assessment process is designed to fulfil two distinct aims:

- to provide necessary documentation for the work of the expert-panel in connection with the site visit and reporting
- to motivate internal discussions on strengths and weaknesses related to the issues of the benchmarking and thereby stimulate the process of further improvement of the quality of the educational programme.

The self-assessment was carried out in accordance with a set of guidelines sketched by EVA. The questions in the guidelines were formulated in such a way that the answers would provide the panel with the necessary information for assessing the programme against the criteria. The information provided has mainly been of a qualitative nature, with some limited quantitative data. The self-assessment focuses on information at both the strategic level and the operational/practical level. The self-assessment report included reference to relevant documents such as: the strategy of the school; curriculum; ECTS-catalogue; research plan; performance contract; etc. The documents have been distributed to the expert-panel and EVA.

The self-assessment report has been produced by a self-assessment group of representatives from the relevant stakeholders, including management, academic staff, students and administrative staff.

The expert-panel and EVA find that the School of Architecture has carried out a very honest and sincere self-assessment report with good coherence between description and assessment. The report has been a valuable instrument in the process of preparing both the site visit and accomplishing the final assessment of the criteria. Together with the present benchmarking report, the self-assessment report seems a rewarding instrument in the process of further developing the quality at the School of Architecture.

1.5.2 Site visits

The expert-panel made two site visits to the School of Architecture:

- In June 2005, the expert-panel visited the ten study departments of the school focusing on the exhibitions of student work and the exhibition of the graduate projects including an oral presentation of three projects. The overall purpose of the visit was to assess the level of student work. Also, the visit served as a preliminary assessment of the school before being presented with the self-assessment report and the School of Architecture's own account of strengths and weaknesses.
- In October 2005, providing the expert-panel with an opportunity to elaborate on unclear and less substantiated sections of the self-assessment report. Also, the site visit served to validate the information provided in the self-assessment report. The visit comprised interviews with the self-assessment group, management, heads of departments and heads of institutes, academic staff, students and employers. Thus the interviews were used to clarify the opinions and perspectives of the different stakeholders in relation to the issues of the self-assessment.

See appendix C for the agenda of both site visits.

1.6 Introduction to the context of the School of Architecture

The purpose of this section is to give a short introduction to the history and the context of the School of Architecture. The school will be further described throughout the report.

The School of Architecture is one of the world's oldest schools of architecture. Founded in 1754 as The Royal Danish Painting, Sculpture and Building Academy, the purpose of the academy was to educate artists and craftsmen in the three disciplines. In the 1960's, the School of Architecture became an independent unit with its own management and achieved the status of an institution of higher learning, issuing a diploma equal to a university master's degree in architecture, while maintaining its artistic and professional status within the Royal Danish Academy of Fine Arts.

The Ministry of Culture lays down the overall regulations for the School of Architecture. The *Educational Act* determines the overall purpose of the school as that of providing artistically and scientifically based architectural education of the highest level, and of actively exercising artistic de-

velopment activities as well as carrying out scientific research. The Ministry of Culture lays down regulations for content and duration of the courses as well as for exams, admission, and for the management of the schools. The schools have a right to make statements about these regulations before they come into force.

The *Executive Order for Architectural Education* describes in further detail the legal framework and regulations of the School of Architecture, including overall strategies for the duration and contents of the bachelor and the master programmes and the directives and descriptions which must be included in the curriculum. In effect these regulations are guidelines, which the school elaborates on in its curricula and local regulations.

The School of Architecture offers one degree, with the possibility of specialising in different fields of architecture. The fields of study include: architectural design and restoration; urban and landscape planning; and industrial, graphic and furniture design. The education at the School of Architecture is organised within ten study departments which are supported by four research institutes. The institutes carry out research and development tasks within their fields, and are responsible for courses and consultant instruction relating to the foundational disciplines of architecture (see appendix D for an organisation chart of the School of Architecture).

The graduates of the School of Architecture find employment within a differentiated market, with the main employers being private architectural offices and regional authorities. The unemployment rate for architects is higher than the average unemployment rate for graduates from higher education. A recent survey carried out by the Ministry of Culture found that an average of 15% of graduates from the School of Architecture (1997-2001) were unemployed in 2002/03 (Kulturministeriets rektor: Beskæftigelsesrapport 2004, 2004).

1.7 Content of the report

This report is structured according to the focuses of the benchmarking. Each chapter contains a list of the criteria that have been formulated for the given focus area. The purpose of the report is not to provide a checklist to measure the degree to which the School of Architecture fulfils each criterion, but to touch upon the strengths and weaknesses of the school in each focus area. Therefore, each chapter also contains recommendations for improvement.

In addition to the introductory chapter 1, the report contains eight chapters.

Chapter 2 provides a summary of the main conclusions derived from the assessment of the school, and a listing of the most important recommendations.

Chapters 3 to 8 contain the analysis of each of the focus areas: mission, strategy and organisation; programme content and structure; academic staff; quality assurance, admission and critical mass; internationalisation; and finally economy and facilities.

In chapter 9, an overview of the recommendations is provided.

2 Summary

Introduction

The purpose of the benchmarking is to provide an analysis of the quality of the educational programme at the School of Architecture, and to account for its strengths and weaknesses.

The appointment of an international expert-panel ensures an external frame of reference in the review of the School of Architecture. The expert-panel represents three schools of architecture in Europe/USA that are considered to be of the highest quality and an international architectural office of high standard. The expert-panel deduces the quality norm, the benchmark, by determining criteria for quality in architectural education based on the panel's collective knowledge of standards and practice in architectural education.

The expert-panel stresses that all members are representatives of technical institutes, while the School of Architecture primarily views itself as an academy. This is important because the academy tradition is different from the tradition of technical institutes in terms of mission, focus and teaching methods. In respect of the academy tradition, the expert-panel finds it important to assess the School of Architecture's own goals and their ability to reach these, instead of solely assessing the school with reference to the panel-members' home schools.

Overall conclusions

The expert-panel finds that the School of Architecture is producing graduates of a high quality. It is an ambitious school with quite a long standing reputation and a great potential to hold a major position in the European landscape of architectural schools.

The potential of the school is first and foremost expressed by the students and teachers who feel strongly about the school and show a high degree of commitment with regard to its development. Secondly, the school has a clearly formulated strategy focusing on the important elements of development. Thirdly, the excellent facilities on campus provide good conditions for realising the strategy of the school. Last but not least, the expert-panel considers the academy tradition a

key asset of the school; that being the focus on the aesthetic of architecture, the tutorial instruction at the drawing board, and the democratic managerial tradition.

However, there is also a need of transforming the academy tradition so that it matches the future demands of internationalisation and the labour market, and so that the school can take advantage of the knowledge, abilities, and experience available at the school.

Generally, the decision-making procedures of the school lack clarity and transparency. Consequently, it is hard to see who has the authority to make decisions on specific issues. The lack of transparency leaves room for heads of departments/institutes to act as autonomous leaders of their own "schools". Therefore the development of the department is not necessarily coherent with the general strategy of the school, resulting in fragmented *schools within the school*. In other words, the rector has the formal power, but suffers from a lack of legitimacy and shared ownership within the departments.

Communication between the different levels of the school is substandard, particularly communication between rector and heads of departments/institutes and communication among the heads of departments/institutes. Today, heads of departments/institutes do not possess a formalised seat in the executive bodies of the school. However, they meet regularly with the rector to discuss issues relating to education and research. The meetings remain informal, although they are of great importance for the implementation of strategy and management decisions. The consequence is a lack of coherence and ownership in relation to the strategy of the school and suboptimal knowledge exchange.

A general observation is that the difference between bachelor and master level is somewhat unclear. Progression seems first and foremost to be artistic in nature. The tradition of 'learning by doing' permeates the school's culture. There is no strong tradition for obtaining knowledge by reading, learning a specific syllabus or doing written assignments related to the foundational disciplines of architecture. Thus the impression is that the School of Architecture has not yet harvested the fruits of the newly implemented 3+2-structure.

The academic staff is dominated by architects. This domination makes it difficult to realise the goal of reinforcing the interplay with other disciplines than architecture, and it reduces the profitability of being challenged by other academic traditions. Another issue is limited transparency regarding responsibility, which affects the clarity of who is in charge of hiring staff. The result is an incoherent recruitment policy, e.g. resulting in temporary staff being hired on a very short term basis for the purpose of taking care of drawing board instruction.

Central recommendations of the expert-panel

Reinforce transparency, responsibility and communication

The responsibility of the rector, heads of departments/institutes and the executive bodies of the school must be clarified. The relationship between the rector and heads of departments/institutes should include direct and formal terms of reference for the heads.

It is emphasised that strengthening the transparency of decision-making does not necessarily imply an intensification of "government from the top" but rather a clarification of the democratic managerial tradition of the school.

Reinforce implementation of the 3+2-structure

The general introduction to the disciplines and methods of architecture should be strengthened within the first two years of the bachelor programme.

This would serve as a subtle basis for choosing which department to specialise in. After the third year the students would have to specialise in one of the departments. According to the expert-panel, two years would be sufficient time for the students to develop a specific attitude towards a particular architectural discipline. In that sense the 3+2-structure might strengthen the tutorial training, since the master's level would be more focused and the students more prepared for it. This would in turn bring the School of Architecture more in line with the Bologna goals.

More compulsory courses in foundational disciplines

The allocation of ECTS-points for the first and second year should be changed from the present 48/12 ratio between, respectively, project work and foundational disciplines to a ratio of at least 30/30. More assignments or examinations in connection with the compulsory courses should be implemented so that the balance between knowledge and practice is ensured.

The expert-panel sees a special need for strengthening the general academic competences, such as the ability to handle and reformulate complex problems and search for solutions, the theory of ideas, project management, etc. In that way, the graduates would be "educated for life".

Secure the knowledge base of education

The interplay between departments and institutes should be improved.

Research is an essential form of education. To some extent the school seems to struggle with a culture that defines knowledge as an opposing factor to art and creativity. The expert-panel strongly disagrees with this point of view which can be expressed by paraphrasing Karl Popper: "... pure observational knowledge, unadulterated by theory, would, if at all possible, be utterly barren and futile" (Conjectures and Refutations: 1963, p. 23). This implies that you cannot un-

derstand the world around you without relating it to something else. Therefore the interplay between departments and institutes should be improved.

Change the composition of academic staff

The recruitment of staff should be directed by clear strategic goals. Academics other than architects should be considered for employment in order to fulfil the criteria of interdisciplinarity.

Temporary staff should preferably be professionals, bringing the outside world to the school, rather than newly graduates of the school itself. To benefit from the temporary staff, these need to be hired for considerably longer than one year.

Reinvent the professorship

The professors should be given more authority to define the profile of the study departments.

It must be reinforced that the professor is the one who represents and raises the profile of the department. Strong professors are the means to ensure that differences between the departments are based on knowledge and research, rather than solely on attitude.

Internationalisation must complement tradition

The language competences of the staff should be enhanced, language barriers for incoming staff and students must be reduced and the students should be encouraged to spend time abroad.

It seems relevant to pose the question of “why internationalisation?” The expert-panel regards the Scandinavian tradition of functionality and social awareness as a major strength of the school, and sees the need for further explication of the Scandinavian tradition. This should not be regarded as a counter to internationalisation, but as a complementary process. Internationalisation must ensure the challenging of the national tradition and thus serve as a means to heighten the awareness of the school’s own strengths and weaknesses.

Transforming tradition

Development of the existing tradition should be stressed, rather than “revolution”.

The strong tradition derived from being an academy must not be regarded as a hindrance for development. On the contrary, the historic legacy of tutorial instruction at the drawing board and the focus on artistic development is what creates very high quality graduates in terms of innovation and design processes. But as touched upon above, increasing international quality calls for organisational and educational improvement, and improvements to the knowledge base. If the school succeeds in transforming tradition, the School of Architecture has the potential to become one of the leading European schools of architecture within in the next five years.

About the recommendations

The recommendations have been sketched out by the international expert-panel. The expert-panel agrees that all focus areas of the benchmarking are important in order to assess the quality of the architectural education. However, they assess that it is essential to prioritise efforts towards improvements.

The recommendations summarised above reflect the panel's main priorities in relation to improvement efforts. Thus the report contains more recommendations than those summarised here. The full recommendations will be presented at the end of each chapter. Furthermore, chapter 9 contains a list of all the recommendations of the report.

3 Mission, Strategy and Organisation

Mission, strategy and organisation are important elements of the framework for education, and determine the institution's ability to develop and improve. The purpose of this chapter is to touch upon the strategic and organisational aspects of the benchmarking.

3.1 Mission and strategy

The following criteria focus on mission and strategy:

- 1A: *A clear mission and strategy for the development of the school exists.*
- 1B: *Mission and strategy are implemented through operational goals and policies.*
- 1D: *Mission and strategy reflect the development and challenges within the profession, nationally and internationally.*

The mission and strategy of the School of Architecture are described in the SA 2010 Plan which forms the basis of the long-term development of the School and its activities up until 2010. The SA 2010 Plan contains both the *raison d'être* of the school (mission), its wishes for the future (vision) and strategic aims (strategy).

Mission

The mission of the school is described as follows: *"Through educational programmes and architectural research, the School of Architecture intends to create the basis for high quality buildings and built environments"*. Furthermore, architecture is described as an art form that is determined by cultural, social, technical and financial factors. The production of the physical framework for people's lives and work requires architects to understand functional, technical, financial and production issues and to contribute to good design and aesthetic value. The education of architects must unite a broad knowledge base with holistic artistic development and practice.

According to the self-assessment report, the strength of the mission statement is the weight put on the societal aims of architecture, and that education is defined as having a holistic and broad

scope founded on both science and art. In that sense the mission statement positions the School of Architecture as an academy rather than a university or technical college. Nevertheless, it is emphasised in the self-assessment report that the School of Architecture does not regard itself as an academy with a pure beaux-art tradition, but rather as a carrier of the Danish tradition of emphasising the functional quality of building.

The expert-panel agrees that it is important to place value upon Danish and Scandinavian traditions in the mission of the school. This must be seen in the light of the desire for the internationalisation of the School of Architecture, since accentuating the national tradition can be a way of sharpening the international profile of the school.

Strategy

The SA Plan 2010 contains strategic aims for the different areas of the school, which have been further specified in the areas of action. In the self-assessment report the following areas of action are highlighted:

- implement a flexible 3+2-structure
- increase internationalisation
- strengthen the graduates' employment opportunities by improving the fields of urban and landscape planning, restoration and design and through an industrial architecture programme
- establish centres within the areas of industrial architecture, design research, IT and urban planning
- strengthen technical, methodological and general academic competences
- build up a collective school identity as the foundation for better internal collaboration
- develop and systematise the competence development of both the scientific and the technical-administrative staff.

In the interview during the site visit, additional emphasis was added to the following areas of action:

- strengthen the education in order to increase graduates' knowledge of the profession's processes and conditions
- strengthen the interplay between research and teaching in the master's programme
- offer careers for researchers and better working conditions for teachers and examiners with external backgrounds.

In general, the expert-panel agrees that all the above mentioned areas of action are important, and they find the strategy of the School of Architecture to be both ambitious and in accordance with the major challenges of the school. Regarding priority of areas of action, the central recommendations of the summary reflect the panel's prioritisation of efforts.

Criterion 1D – whether the strategy reflects the development and challenges within the profession, nationally and internationally – requires a more complex assessment. On this point, the interview with employers revealed contrasting opinions. Overall, the employers find that the graduates from the School of Architecture have become better educated over the years. Graduates are enterprising and eager to participate in the design process. However, the opinion is also that the graduates need more basic skills concerning the building process, instead of focusing solely on the aesthetic dimensions of building.

In line with the above, the SA Plan 2010 contains goals for both strengthening *general academic skills* and increasing graduates' knowledge of *processes and conditions of the profession*. These two areas of action are not incompatible, but according to the expert-panel it is desirable to consider which competences should be the most dominant among the graduates.

The expert-panel identifies a special need to strengthen the general academic competences such as the ability to handle and reformulate complex problems and search for solutions, the theory of ideas, project management, etc. That way, the graduates will be “educated for life” in the sense that they will be trained to *gather* knowledge and *apply* it in practice. On the other hand, reinforcing the vocational element of the education might be a rather short-termed strategy, since the needs of the labour market are changeable and difficult to predict. Furthermore, focus on the vocational elements would narrow the applicability of the architectural education and, to a greater extent, channel graduates towards architectural offices. This does not correspond with actual graduate employment; in 2000 only 30% of Danish architects were employed in private architectural offices (PLS Consult: *Danske arkitekters arbejdsmarked og arkitektfagets fremtid*, 2000, p. 4).

Summing up, the School of Architecture lives up to the criteria of having a clear mission and strategy followed by operational goals and policies, and a strategy reflecting the challenges with the profession. The extent of the realisation of the different areas of action will be touched upon in the following chapters 4 to 8. But first the organisation of the School of Architecture will be considered.

3.2 Organisation

An important aspect of organisation is the capability to create coherence and ownership in relation to mission and strategy. Thereby it is ensured that the institution is able to react to changing demands. Important preconditions for creating coherence and ownership are clearly defined responsibilities and transparency in the decision-making process. This is expressed in the following criterion:

1C: *The organisation of the school ensures that the responsibility for implementation of mission and strategy is clearly defined.*

The self-assessment report reveals two problems related to organisation: "it can be hard to see who has the authority to make decisions", and "that communication between the different levels is often quite poor".

Both rector and pro-rector are elected for a four-year period by teachers, employees and students. Rector has the responsibility for the management of the school's strategy and is responsible towards the Ministry of Culture in terms of fulfilment of the performance contract.

The democratic element of the management is further envisioned in the executive bodies. Regarding the benchmarking, the most important of these are the *School Council*, the *Study Committee* and the *Research Council*. In the School Council strategic perspectives and fundamental guidelines for the School's development are discussed and laid down. The Study Committee is responsible for course planning and prepares proposals for the curricula, and the Research Council offers advice to the School Council and rector on issues regarding research and research planning. The School Council is constituted in accordance with representative democratic principles, ensuring that the academic staff (50%), the technical-administrative staff (25%) and the students (25%) have a say with regard to the school's development. Furthermore, the School Council includes two external members appointed by the Ministry of Culture. The Study Committee is comprised of academic staff and students (50/50) and two technical-administrative staff observers.

The study department is run by a head of department. The head has the academic responsibility for the department and is responsible for ensuring that instruction takes place in accordance with the requisites laid down by the School Council and the Study Committee. Furthermore, the head of department deals with the finances and the management of the department's staff. In the same way institutes have heads of institutes who are responsible for academic and financial matters as well as staff management. See appendix D for an organisation chart of the School of Architecture.

An important aspect of the decision-making is the relation between rector and heads of departments/institutes. As derived from the above, heads of departments/institutes do not possess a formalised seat within the executive bodies of the school. However, they meet regularly with rector to discuss issues related to education and research.

As recorded in the self-assessment report and confirmed in the interviews, the relationship between management and the academic environments is informal and relatively weak. The conclu-

sion is that the executive bodies serve more as a “*democratic monitor*” than as part of the school’s management. Rector acknowledges the need for involving heads of departments/institutes, but it remains on an informal basis. Consequently, there seems to be two parallel systems of management: The *formal* system directed by rector and the *informal* system where heads of departments/institutes are those in power. The existence of parallel systems makes the decision-making process opaque.

The informal system is exacerbated by a combination of, on one side, heads of departments/institutes lacking formalised influence on strategy, and, on the other side, the great autonomy enjoyed by these heads in terms of planning and implementing the programme locally. In other words, the decision-making procedures result in the heads being tied to the individual units rather than regarding themselves as part of the collective management and as implementers of school strategy.

The impression of “fragmented” management was confirmed at the first site visit. The expert-panel observed ten study departments that appeared dynamic individually. However, they seemed to form a whole that was somewhat weaker than its components. The difference in profile of the departments did not seem in accordance with the overall strategy of the school. This gives rise to the expression “schools within the school”: That is to say the departments function as independent *schools* directed by own ideas and traditions, rather than *departments* within the school serving to realise the overall strategy of the school.

The lack of coherence cannot necessarily be solved by decreasing the degree of autonomy of the departments. As expressed in the self-assessment report, the autonomy of departments also contributes positively to creating a lively, flexible and reactive study environment at the School of Architecture. Focus should, however, be on reinforcing *communication* between rector and heads of departments/institutes, rather than delegating more power to the top management. The interview with heads of departments/institutes illustrated how they lack a formal forum for discussing teaching methods, the interplay between research and education and other strategic issues. These discussions are important to improve and transform traditions at the School of Architecture.

The expert-panel finds the democratic managerial tradition an asset of the school, and therefore this should be developed in such a way that the responsibility of rector, heads of departments/institutes and the executive bodies is clarified. Heads of departments/institutes are the key to development of the education. To realise that vision, rector and heads of departments/institutes must operate more as a management team, with the heads having a formal and active advisory responsibility to rector. This must be secured by formal – instead of informal – meeting forums.

Also, that would enhance the transparency of decision-making by means of uniting the formal and informal systems of power and raise accountability at all levels of management.

Summing up, the criterion 1C stresses the need for clarifying and adjusting the organisation at the School of Architecture. The consequences of the strengths and weaknesses in the organisation will be further enlightened in the following chapters 4 to 8.

3.3 Recommendations

Based on the above analysis, the expert-panel recommends the School of Architecture to:

1. Accentuate the national tradition of architecture in the mission statements of the school with the purpose of sharpening the profile of the School of Architecture on the international market.
2. Clarify the profile of the school in terms of defining the relation between general academic skills and vocational skills, and how the School of Architecture relates to its academy tradition.
3. Increase the general communication concerning responsibility and decision-making in order to heighten the transparency of decision-making procedures.

Furthermore, the School of Architecture should address the Ministry of Culture in order to:

4. Adjust and clarify the decision-making procedure so that responsibility is clear at all levels and the discrepancy between formal and informal power is minimized. It must be ensured that heads of departments/institutes have formal influence on the development of strategy.

4 Programme Content and Structure

The purpose of this chapter is to deepen the issues relating to content of the programme, teaching methods, interplay between education and research, the structure of the programme and examinations and outcome.

4.1 The goals of the programme

The focus on goals is expressed in the following criteria:

- 2A: *The goals for core competences of graduates are clearly formulated.*
- 2B: *The goals include aims for professional qualifications and general academic qualifications.*
- 2C: *The goals cover theoretical orientation and practical orientation.*
- 2D: *The goals demarcate the interface of the profession.*

The self-assessment report refers to the curriculum for the goals of the education. The curriculum touches upon the issues included in the criteria. For example the relation between theoretical orientation and practical orientation is described as follows:

The ability to independently and critically relate – based on both theoretical and practical insight – to architectural statements is a prerequisite for the architectural method of work. The aim of the project study is to ensure that the student acquires a methodology which involves both analysis and experiments and tests. A methodology, the purpose of which is to create architectural entities and ensure that the graduate will be able to work with the practical aspects of the profession and develop further after completing the studies.

As identified by the self-assessment group, the goals for core competences are described in a general manner and lack clarity. The curriculum descriptions contain general intentions of the programme rather than the goals for the output of the programme.

This characterisation of the goals is supported by the interview with the students. The students do not feel acquainted with the expectations of the teachers relating to skills and competences. Furthermore, this is confirmed by a survey of the study and working environment carried out by an external consultancy firm for the School of Architecture in 2005 (Kunstakademiets Arkitekt-skole: *Kommenterede resultater: Dataindsamling til undervisningsmiljøvurdering*). The survey shows that 69% of the students do not know what is expected of them in relation to the curriculum, and 59% do not know what is expected of them in order to be prepared for their graduation project.

Summing up, the School of Architecture does not fully live up to the criteria of formulating clear goals for the core competences. The expert-panel thus considers a need to define and enforce clear and operational goals. It could be valuable for the School of Architecture to seek inspiration in the *Qualification Framework for higher education*¹ listing competency goals for both bachelor and master level.

4.2 The content and structure of the programme

The following criteria state the important aspects of content and structure of the programme:

- 2E: *The programme covers the relevant disciplines and approaches of architecture with regard to the needs and requirements of the labour market as broadly defined.*
- 2G: *The programme qualifies students to skilfully combine different disciplines of the field of architecture.*
- 2H: *The programme encourages theoretical learning to become operational by linking it to practical exercises.*
- 2J: *The programme is characterised by progression in the sense that it comprises a coherent set of educational modules that enables the student to learn the basics of architecture in the beginning and broaden and deepen their experience in the upper level courses.*
- 2K: *Sharing of knowledge and experience ensures interplay between approaches to learning across all areas of the programme.*

¹ The Danish Bologna follow up groups QF working party: *Towards a Danish "Qualifications Framework" for Higher Education*. <http://www.vtu.dk/fsk/div/bologna/DanishQFReport.pdf>

In 2001 the School of Architecture implemented a 3+2-structure dividing the programme into a three year bachelor degree and a two year master degree. The programme is organised in such a way that each of the ten study departments offers the full bachelor programme. However, in the third year of the bachelor programme the study departments adopt different perspectives and priorities in relation to key areas of the department. During the master programme, the profile of the study departments becomes more enunciated in the teaching. Between the study departments, they offer opportunities for specialisation within three main areas: planning, building design and design.

Foundational disciplines

At the School of Architecture the bachelor programme is dominated by project work at the drawing board. In terms of ECTS-points the project work accounts for 48 ECTS-points while the foundational disciplines account for 12 points. The foundational disciplines consist of compulsory courses taught across the study departments and conducted by the research institutes. The courses may take the form of long courses of 3–4 weeks or shorter periods such as lectures, literature studies, study groups and field trips.

In the self-assessment report, the relation between foundational disciplines and project work is critically assessed. The courses in foundational disciplines are developed independently of the methodology of project instruction. This causes a certain separation of theory and practical assignments.

The students are critical of the form of the compulsory courses. They describe the academic level of course teaching as relatively low and poorly integrated with the teaching at the drawing board. Furthermore, the students express a desire for more written assignments in relation to the courses. This complies with the survey of the study environment where nearly 40% of the respondents maintain that lectures have the least outcome compared with other forms of teaching.

As touched upon in the self-assessment report, the School of Architecture has already done much to improve the teaching of foundational disciplines, but they are also aware that more can be done. According to the expert-panel, changing the distribution of ECTS-points is an important starting point, since that would affect both the quantity of compulsory courses and the students' attitude towards the courses. The general approach to solving problems is presently, that one can draw oneself out of problems instead of seeking the solution via literature studies or other sources. Altering the distribution of ECTS-points would thus be a way of refining and complementing the tradition of learning by doing that permeates the culture of the school.

In addition, the possibilities for integrating the content of the foundational disciplines in the project teaching could be strengthened if compulsory courses were restructured from intensive

seminars to weekly lectures or class-room teaching. At the same time this would create variation in the students' timetables which for extended periods of time only involve project work.

Progression

Another key issue is to underpin the progression from bachelor to master level. According to the self-assessment report, progression is found in the choice of subject and the scale, complexity of function and mode of expression. During the first visit to the School of Architecture, the expert-panel experienced that the differences between the study departments were rather vague. Consequently, it was hard to identify the intended specialisation of the master programme in the student projects.

For the master programme, every department produces teaching plans describing the tutorial training, projects, study trips etc. for the fourth and fifth year of studies (54 and 48 ECTS points). Based on the teaching plans, each student prepares a *personal action plan* describing the student's goals, the content and activities, as well as practical training, studies abroad or courses at other institutions of higher education. In addition to this, every student can choose courses held by the different institutes (6 and 12 ECTS points).

The expert-panel finds it important that the profile of the department is apparent in the action plans of the students. This should be seen in the light of the expert-panel's notion of the master programme as the main "carrier" of the academy tradition in terms of tutorial training. The master programme is where the students should develop a specific attitude towards the architectural discipline, and where the foundational disciplines are reviewed and reapplied in the light of this specific field of architecture. Therefore, the study department must ensure that the profile of the study department is apparent in the action plans of the students.

The vagueness of the study department's profile and lack of specialisation can be related to the issues touched upon in chapter 3; namely the lack of communication. The self-assessment report concludes that the weaknesses of the study departments are their reluctance to undertake specialisations at a high level, and that there is only little cooperation and coordination between the departments. The latter makes it difficult to act in accordance with the strategy of the school.

Approaches to learning

According to the self-assessment report, the consensus regarding teaching methods is implicit and does not correspond with a common understanding or include discussions of actual teaching methods. Thus the lack of communication at the school hampers the understanding of teaching methods. This could be facilitated by establishing formal forums between heads of departments and heads of institutes for discussion and formulating clear teaching goals.

Summing up, the criteria covered in this section call for improvements. The expert-panel sees the 3+2-structure as an opportunity to strengthen the academy tradition of tutorial instruction at the drawing board, since the master level will be more focused. To increase the students' benefits from tutorial instruction, it is essential to strengthen the general academic competences of the students by means of reinforcing the compulsory courses. The formulation of clearer goals for the required core competences of the graduates would, in addition, be a way of stimulating the integration of theory and project work. Finally, the development of teaching methods must be supported by discussion forums for heads of departments and heads of institutes, and the relation between form and content must be emphasised. The 3+2-structure opens up opportunities for the content of architectural education, and the form of the 3+2-structure would become meaningful once content has been adjusted.

4.2.1 Research and education

It is important to stress that the purpose of the benchmarking is *not* to assess research in isolation, but to assess the *relation* between research and education, and how the knowledgebase of the school is ensured. The criteria relevant to the relation between research and education are the following:

- 4D: *Goals for basic research, strategic research and artistic development processes are formulated and implemented.*
- 4E: *Research ensures interplay with other related areas of research and incorporates new areas of investigation.*
- 2F: *The programme qualifies students to participate in and complete artistic development processes and/or research.*
- 2I: *Teaching is based on research when relevant.*

Goals for research are described in the Research Plan 2004 – 2006. The plan contains elaboration on aims and visions for research included in SA Plan 2010 and a description of the activities at the four research institutes.

As already touched upon, the institutes are in charge of research and development tasks within their fields, just as they are responsible for teaching in foundational disciplines in the form of courses and consultant instruction. Furthermore, six *centres* have been established in institutes 2, 3 and 4. These centres are interdisciplinary and undertake research and instructional assignments that the school has designated as areas of action (see section 3.1). The centres are temporary constructions.

The establishment of institutes was a part of strengthening the school's research activities. A consequence of the extensive drawing board instruction was that teachers were being forced to give priority to instruction rather than to research. According to the self-assessment report, the institute structure has supported both research and the overall organisation of the research environment. This is confirmed by the expert-panel which is impressed with the general level of research, e.g. as expressed in *Studies, Research and Exhibitions: The Royal Danish Academy of Fine Arts, School of Architecture 05*.

As a rule of thumb, the permanent associate professors are also researchers, and thus belong to two units: a study department, where the tutorial instruction takes place, and an institute/centre. This double organisation means that the heads of departments and the heads of institutes share the management responsibility for the research staff, and that the associate professors are carriers of knowledge in a matrix system.

In both the self-assessment report and in the interview, the achievement of the matrix system is critically assessed. As expressed by one head of department, "*the School of Architecture has the people to do research, but we are not good enough to communicate research to the students.*" Furthermore, the teachers that participated in the interview expressed that the connection between courses offered by the institutes and the teaching at the drawing board is inadequate. Thus the ideal of integrating foundational disciplines in the project work suffers difficult conditions, because the *supply* of courses is not adapted to the *demand* for courses.

The expert-panel finds that the division between institutes and study departments is valuable. They do not consider the mismatch between supply and demand as a consequence of the division between institutes and departments in itself, but as something caused by the lack of communication between heads of departments and heads of institutes.

As stated in criterion 2F, it is important to prepare the students to participate in and complete artistic development processes and/or research. As already touched upon, the students' general academic competences need to be reinforced in terms of ability to gather knowledge and apply knowledge in problem formulation and problem solving. To some extent the school seems to struggle with a culture that defines knowledge as being in opposition – and in some way a threat – to art and creativity. Thus the expert-panel agrees with the self-assessment report that a strength of the school is the students' ability to participate in development processes, while a weakness is the application of knowledge in the development process.

Criterion 4E concerning the interplay between related areas of research and the incorporation of new areas of investigation has been difficult for the expert-panel to assess. According to the self-assessment report, the School of Architecture has participated in many interdisciplinary projects

and partnerships with both technical universities and design schools. Despite this, the impression of the expert-panel is that in terms of ensuring interplay between research and education, the school could be better at utilizing other research institutions and other professions. This is also based on the fact that the academic staff is dominated by architects. Furthermore, in the interview with the employers, it was stated that the School of Architecture could play a more significant role as a centre of knowledge for the professional community. In other words, the School of Architecture is doing a lot to open up towards the outside, but there is still room for improvement. This issue will be further discussed in chapter 5 concerning academic staff.

Summing up, the expert-panel is impressed with the level of research at the School of Architecture, but wishes for a better integration of research and education. The matrix system provided by the double organisation of the teachers partially ensures that education is based on research. However, there is a need to systematically communicate research and knowledge to the students by means of strengthening the compulsory courses and improving the students' ability to participate in the research process. This can be catalysed by the previously suggested alterations: changing the distribution of ECTS-points between project work and foundational disciplines; strengthening communication between heads of departments and heads of institutes; and finally by recruiting more associate professors with backgrounds other than architecture (see chapter 5).

4.3 Examinations

The following criteria state the expectations concerning examination:

- 3A: *Examination criteria are relevant, clearly formulated and available to students.*
3B: *External examiners ensure broadness in the assessment of students and an external evaluation of content and level of the programme.*

Examination at the School of Architecture differs a lot from examination at the schools of the panel-members. The examination and assessment system of the School of Architecture has been stipulated in the ministerial order for the architectural programme. Basically, the examination system consists of the following five elements:

Semester assessment: A written assessment prepared by the student's teacher at the end of each semester. The assessment contains an evaluation of the individual assignments and the student's methodological competences, skills and presentation techniques. Furthermore, the student is counselled on his or her further studies. In 2004, grading was introduced as a trial scheme. The grades are given on a six-tier ECTS-scale from A to F, or, for older students that commenced before 2004, a five-tier scale from 'low level' to 'high level'. The main difference between the two scales is that students can fail on the ECTS-scale (grade F) but not on the five-tier scale.

Study activity evaluation: The study activity evaluation is prepared by the student's teachers who classify the study activities during the semester as approved/not approved. If the student receives two consecutive activity evaluations or a total of three activity evaluations that are not approved, the student will be expelled.

First year assessment: At the end of the first year, the student's ability to complete the architectural programme is evaluated. The basis of the assessment is the student's completed work from the first year, consisting mainly of architectural projects. According to an agreement with the Ministry of Culture, an assessment committee consists of a teacher from the relevant department and an examiner from the Aarhus School of Architecture.

Bachelor evaluation: The purpose of the assessment is to evaluate whether the student has acquired the general methods, knowledge and skills of the architectural profession. The bachelor evaluation is based on the bachelor assignment set by the student's study department. The bachelor project is graded as pass/fail by a teacher appointed by the School of Architecture and an examiner appointed by the Ministry of Culture.

Graduation evaluation: The final project is submitted to the study department to which the student has been assigned during the past two semesters. A programme must be drawn up for the final project, which must then be approved by the assessment committee before the student commences the project. The final project is graded as pass/fail by two teachers appointed by the School of Architecture and two examiners appointed by the Ministry of Culture. One of the examiners is appointed upon recommendation from the Academic Council, the other upon recommendation of the School of Architecture.

In addition to the above, the system is supplemented with regular critiques from the study departments. The students present their project work every two or three weeks during the semester. This is primarily a pedagogical tool for training the dialogue regarding the project work, but it also serves as an ongoing evaluation and counselling of the student. The critique typically takes place in an auditorium or at the drawing board and is handled by 3–4 of the department's teachers, together with all the students in the class. Guest critics from other departments or professionals participate regularly.

Critique or other forms of evaluation are rarely used in the courses of foundational disciplines. As mentioned in the self-assessment report, the School of Architecture monitors the students' participation in the compulsory subjects, but does not check whether they have acquired the necessary knowledge.

Both the self-assessment report and the interviews revealed the weaknesses of the present examination and assessment system. Firstly, the lack of assessment of course instruction has a negative effect on outcome, since the students tend to lower the priority of the subject, as they are not “forced” to apply what is taught during the course instruction. Secondly, the assessment system primarily supports the design process – the clear idea and presentation – but not the more basic academic skills. The daily work of the profession on technology, finance, law and management of the realisation process are not given much consideration in the assessment criteria, and the students whose talents lie in the direction of thorough knowledge and the ability to cooperate are partly left stranded. Finally, the general opinion of the employers is that the students should be subjected to more examinations. This would teach the students to act according to deadlines and under pressure, which are important competences for working in an architectural office.

As mentioned in section 4.1, the clarity of goals especially affects the clarity of evaluation criteria. According to the self-assessment report, the assessment criteria do not clearly impart what is expected from the students. The conceptions used in the curriculum – stating the criteria – are not defined. Furthermore, they neither express to which competences they refer, which complexity the students need to handle nor which theoretical material they are expected to be familiar with. This is illustrated by the criteria for the bachelor assessment:

Basically, the bachelor project must be an architectural project that documents that the student has developed the fundamental working methodology to complete architectural studies (analysis) and project solution (proposals), has acquired the general knowledge and skills of the profession and has developed the ability to use these in project assignments in respect of one of the programme’s main fields.

The school’s study departments have the option of supplementing this with individual criteria that fit the particular study department. However, there are no rules governing the scope or communication of the criteria. Instead, the assessment criteria are communicated to the students over time as part of the school’s culture. The success of the culture-born criteria is queried in the survey of the study environment, where 86% of the respondents state that teachers and students should be better at harmonising mutual expectations. Furthermore, 80% of the respondents do not know what is expected of them with regard to grading.

Summing up, criterion 3A calls for some changes. The expert-panel sees the need for altering the existing examination and assessment system with due regard to existing tradition. First of all, the expert-panel recommends that the compulsory courses should be restructured so that teaching is supported by assignments and exercises. Secondly, the critiques should be made less subjective

by formulating clear and transparent criteria including references to the core curriculum of the foundational disciplines. That way the value of knowledge can be changed. Thirdly, the School of Architecture should consider reducing the domination of the study departments in the critiques, either through the use of external reviewers or by increasing the use of public critique sessions.

4.4 Outcome

This section touches upon the outcome: the students' work and the quality of graduates. The focus of the benchmarking is not to assess the students' work in itself, but to assess the work as a product of education. Thus it is the *linking* of the framework and structure of the educational programme and the outcome of the education that is of interest. The following criterion describes the expectations to the students' work:

- 3C: *The work of the students reflects the students' capability to:*
- *create a synthesis of artistic and technical aspects of architecture at a high level;*
 - *account for technical, social, economical and functional preconditions at a high level;*
 - *apply relevant methods and approaches;*
 - *work innovatively;*
 - *develop and describe the content of a project in a professional language.*

On the whole the expert-panel is impressed with the quality of the students' work; especially the graduation projects. But the students' work also reflects some of the weaknesses that have been discussed above. Firstly, it was hard for the expert-panel to distinguish the work of the different study departments from one another. In that sense, the profile and the specialisation is mostly reflected in terms of architectural expression and presentation, while subjects and scale only differ slightly. Secondly, it was difficult to see how the foundational disciplines of architecture were reflected in the projects, e.g. in terms of technical, economic or sociological issues. Focus is on the design and innovation process rather than the detail and management of construction.

The finding of the expert-panel is supported by the interview with the employers. As mentioned in section 3.1, the employers in general find that the graduates are enterprising and very dedicated to the design process. However, they would also like the graduates to possess increased competence within building processes, project management and to be better at cooperating with other professions. Still it is important for the expert-panel to stress that the School of Architecture cannot and should not replicate the work and learning environment of professional offices.

Summing up, criterion 3C is fulfilled. However, the examination of the student work highlighted some of the weaknesses of the programme relating to the recommendation of the previous and following chapters.

4.5 Recommendations

The above analysis results in the expert-panel recommending the School of Architecture to:

5. Define and enforce clear operational goals for core competences, including both the desired professional competences and the desired general academic skills of the graduates. The goals should be formulated through discussion with relevant internal stakeholders and should be widely disseminated.
6. Ensure that heads of departments and heads of institutes (see recommendation 4) undertake discussions on teaching methods, in order to challenge and explicate the implicit consensus regarding methods of teaching. Furthermore, the discussion forum should be used to strengthen communication of the supply of, and demand for, courses in foundational disciplines.
7. Change the distribution of ECTS-points from the present 48/12 ratio between project work and foundational disciplines to a ratio of at least at 30/30.
8. Strengthen the discussion of how to structure compulsory courses, e.g. as weekly lectures or class-room teaching, rather than blocks of courses. Furthermore, the compulsory courses must be supported by assignments and exercises.
9. Clarify the responsibility of the study department in order to ensure that the profile of the study department is apparent in the action plans of the students.
10. Put in force that the formulated goals (see recommendation 5) function as criteria for critique and examinations, and give a high priority to communicating the goals to the students.
11. Consider reducing the domination of the study departments in the critique process, either by means of using external reviewers or through using more public critique sessions.

5 Academic Staff

The basis for producing good graduates is, to a very large degree, a professional teaching staff. The teachers can be regarded as mediators of the architectural tradition and future challenges. It is, therefore, crucial to continuously uncover and deal with any issues related to the teaching staff in order to ensure an architectural education of high quality. As covered by the following criteria, the recruitment process, diversity among the staff and responsibilities will be in focus.

4A: *The school attracts qualified teachers and researchers.*

4B: *The artistic, theoretical and practical focus of the programme is reflected in the composition of the teaching staff.*

4C: *Professionals of a high level are associated with the programme as teachers or as external examiners.*

The term 'academic staff' is used in order to emphasise the double role of the teachers: they have responsibilities in regard to both teaching and research. As noted at the site-visit, it is considered that "*research starts with teaching*". Thus teaching and research cannot be seen as isolated from each other, but are interdependent in the sense that the interplay between them constitutes teaching of a high quality.

The academic staff comprises two main groups: The *temporary* staff with contract terms, normally of one academic year, and the *permanent* staff. The permanent staff presently covers 58% compared with 42% for the temporary staff. Table 1 provides an overview of the academic staff.

Table 1
Academic staff according to position

Category	Number	Percentage of academic staff
Professors	11	6%
Associate professors	57	32%
Assistant professors	7	4%
Research/teaching assistants	9	5%
Ph.D. students	18	10%
Other permanent	2	1%
Temporary staff	76	42%
Total	180	100%

Source: *The Self-assessment Report: The Royal Danish Academy of Fine Arts School of Architecture, 2005*

The school's students total approximately 1,050 persons. Thus the teacher-student-ratio is approximately 1:6. At MIT the ratio is considerably higher – approximately 1:3. At Delft and ETH the ratio is lower – respectively 1:9² and 1:7³. When comparing the ratios, the relatively high degree of tutorial instruction at the School of Architecture, compared with the other schools, should be taken into account, since that teaching form is very time-consuming.

Temporary staff

In the interviews with the school's academic staff, it was brought forward that it is not publicly announced when the School of Architecture seeks temporary staff. Consequently, new graduates from the school are often employed; because they are good students, rather than on the basis of their documented teaching-skills. After they have been hired, they do not receive any pedagogical training. For that reason, some of the school's staff finds the recruitment of temporary staff rather arbitrary and lacking in clarity.

The panel considers it very important that teachers are hired for a period considerably longer than one year in order for them to develop methodologically and academically within their position. In addition, it is important to note that the temporary staff does not apply research in their teaching. Firstly, there is no time for research due to the short-term employment – as a member of the staff expressed it, “*you are hired only to spend time in class.*” Secondly, some of the temporary

² Depending on the year of study at Delft, the range is between 1:7 and 1:10 with an average tendency towards 1:9.

³ Without teaching assistants the ratio would be 1:18 at ETH.

staff are recent graduates who have never done research. This means that the temporary staff, in fact, cannot be considered 'academic staff' in line with the permanent teaching staff that combines teaching and research.

Along with the temporary staff's lack of research-based teaching, the choice of employing new graduates also weakens the connection with the market, as the graduates have little or no practical experience outside the school. The expert-panel emphasises the teachers' role in being open towards the surrounding society in order for the school not to become an isolated and autonomous institution. In order to enforce this openness, a limited number of new graduates from the School of Architecture and more foreign academic staff should be recruited.

The panel stresses that the temporary staff constitutes a potential resource in the sense that they contribute towards a dynamic teaching staff, and they meet the special needs connected with the flexibility of the academic staff. However, it is necessary to reduce the number of temporary staff members, and to merely strengthen the investment in the short-term teaching staff. To exploit the potential dynamics to the full, there must be greater demands upon, and clarity concerning the role of the temporary staff.

Professors

The use of professors has been subject to much debate at the School of Architecture. The quota for professors is 16 in total, but this number is not utilized. Currently there are 11 professors who play different roles. Four are heads of department, two heads of institute, one is primarily engaged in course instruction, three represent specialisations in both research and instruction fields, while one is a visiting professor.

In line with the self-assessment report, the expert-panel assesses the role of the professors to be problematic. First of all, there must be clarity about the professors' role. Secondly, the expert-panel sees untapped resources in the professors. The professors could take more part in supporting the school's public image and in the ongoing branding; thus they can utilize their positions to advance the transparency of the institutes and departments within and outside the school. A clear external job profile would complement the branding of the school. Finally, it should be stressed that securing adequate and competitive terms of employment, including wages, is important to attract the foremost professionals to the professorships.

Seniority

Another striking aspect of the composition of the staff is the substantial number of permanent staff between 60 and 65 years of age. The figures below provide an overview of the age distribution of the staff.

Figure 1: Age profile permanent academic staff

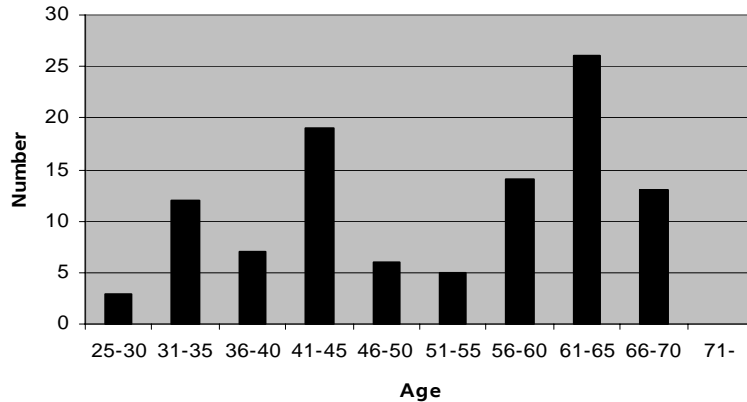
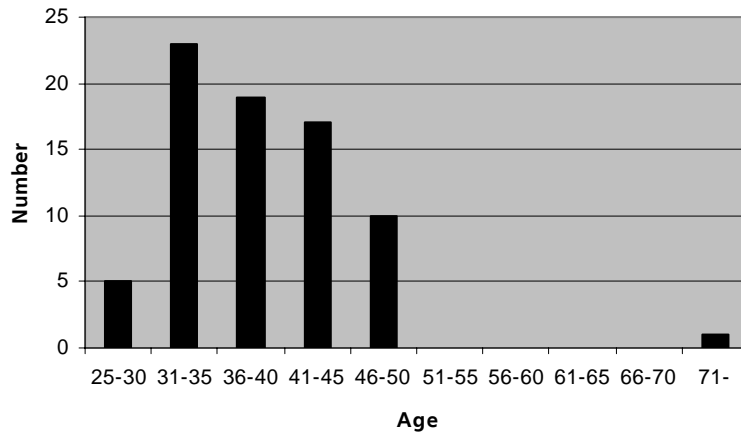


Figure 2: Age profile temporary academic staff



Source: *The Self-assessment Report: The Royal Danish Academy of Fine Arts School of Architecture, 2005*

The School of Architecture is aware that nearly 30% of the permanent staff will retire within the next five to ten years. On the one hand, the age-bulge is recognised, and a high turnover in the academic staff is expected in the near future. On the other hand they assess the age-spread in the staff to be well-balanced when the temporary staff is taken into account. Yet the expert-panel finds it problematic that the staff aged 60 to 65 years of age comprises exclusively *permanent* teaching staff. This means that it will be the teachers with research backgrounds that will be

leaving the school. This could result in the dissemination of knowledge becoming more difficult. On the other hand, the age bulge could be regarded as an opportunity to recruit new academic staff in accordance with the recommendations.

Another aspect of the seniority concerns the competences of the staff. The staff receives neither pedagogical training nor supplementary education during their employment at the School of Architecture. This applies to all the teaching staff. However, the senior staff is the most vulnerable to this absence. For example, the students expressed in the interviews that they in general prefer young teachers, because they feel that while the competences of the ageing staff in general are extensive, their pedagogical competences are obsolete.

Competences

Criteria 4B states that the artistic, theoretical and practical aspects of the programme must be reflected in the composition of the teaching staff. At the implementation level this means that staff of different educational backgrounds is needed. However table 2 below reveals that the current composition of the staff shows a different picture.

Table 2
Composition of staff according to education

Educational background	Percentage
Architects	89%
Engineers	7%
Staff with other university degrees	4%
Total	100%

Source: The Self-assessment report: The Royal Danish Academy of Fine Arts School of Architecture, 2005

As table 2 shows there is a significant overweight of architects among the staff. The self-assessment report describes this as striking. However, this was not of great concern in the interviews with the teachers who assessed the issue of educational background as unproblematic.

According to the expert-panel, the domination of architects in the teaching staff is a weakness of the school. The fact that the architects are such a dominant part of the staff makes it difficult to realise the objective of reinforcing the interplay with disciplines other than architecture. Thus it reduces the benefit of being challenged by other academic traditions. In addition, the self-assessment report gives an impression that architectural qualifications in general are seen as isolated from other competences. The expert-panel emphasises the importance of a combination of both pedagogical skills and solid architectural qualifications as a basis for good teaching, as also indicated in the SA 2010 Plan.

Recruitment

It is a generally held opinion at the School of Architecture that the school should become better at attracting qualified teachers in order to ensure a differentiated academic staff. On the one hand, the job as a teacher is considered a prestigious position within the public sector, and is flexible in regard to research and other parallel activities. On the other hand, however, the school finds that the teaching job could and should be more attractive in order to keep some of the best architects from the market.

The expert-panel agrees that the teaching jobs should be made more attractive to practising architects and other academics. In this respect the panel assesses that the academic staff at the School of Architecture, in comparison to its members' home schools, constitute only a minor part of the decision-making processes at the school. The teaching staff should, as mediators of architectural knowledge, be more in focus in decision-making, and the professors more committed to leadership.

At a more practical level, the expert-panel considers the recruitment process incoherent and therefore encourages an overall strategy for the recruitment of staff. This could include goals for: (1) the composition of staff with regard to educational background; (2) limits for the percentage, and a clear profile of temporary staff; and (3) a diversity of age in order to avoid future age-bulges.

The general impression of the academic staff is that it is competent and very committed. However, the School of Architecture does not quite meet the criteria 5A to 5C. Thus there is a need for improving the ability to attract qualified academic staff and changing the composition of academic staff so that it to a higher degree reflects the focus of the programme.

5.1 Recommendations

The expert-panel recommends the School of Architecture to:

12. Delegate more authority and influence to the academic staff in order to attract the best. The teachers should be an integrated part of the decision making processes. The same applies to the professors who should be more committed to professional leadership and be given the autonomy and responsibility for strengthening the profile of the study departments.
13. Define clear strategic goals for the recruitment of staff. More academics other than architects, more graduates from schools other than the School of Architecture and more foreign academic staff should be recruited to fulfil the criterion of interdisciplinarity. The age profile of the staff should be considered in order to avoid another age-bulge in the future.

14. Temporary staff should be hired with regard to their competences and experience in the field, and for considerably longer periods than a year. However, the total number of temporary staff members should be reduced.
15. Strengthen opportunities for the supplementary education of academic staff with a special focus on pedagogical training.

6 Quality Assurance, Admission and Critical Mass

The purpose of this chapter is to touch upon the issues of quality assurance, the admission procedures, and how these issues relate to the critical mass of the School of Architecture.

6.1 Quality assurance

The most important elements of quality assurance are regular and systematic gathering of knowledge on a given matter, and using the knowledge to improve the matter. The following criteria state the important elements of a quality assurance system:

- 6A: *A system for quality assurance exists.*
- 6B: *The programme and its content are evaluated on a regular basis.*
- 6C: *Students are frequently invited to evaluate courses, e.g. content, organisation, teaching, methods and outcomes.*
- 6D: *The school is engaged in obtaining regular and systemic feed back from employers, professional associations and graduates concerning the quality of the programme.*
- 6E: *Based on evaluation results, the content of the programme, the individual courses and curricula are updated on a regular and systemic basis.*

An important forum for quality assurance of education at the School of Architecture is the *Department Council* and *Department Assembly*. The head of the department, the permanent teaching staff and an equal number of students make up the Department Council. The council holds monthly meetings and is the institutionalised information path between head of department and students. Together with the Department Council, the head of department prepares the department's teaching plan in accordance with the requirements and intentions stipulated by the School Council, the Study Committee and the curriculum. The Department Council also has an

advisory function vis-à-vis the head of the department in respect of his management of the department.

The Department Assembly is a joint meeting held between all the students and teachers of a department. Here, the students are briefed, and issues of relevance to everyone in the department are discussed. The Department Assembly is not formalised, and it is up to the individual departments to decide how often they wish to call these meetings, the norm being once a month.

Formal quality assurance

Evaluation of teaching is divided into evaluation of tutorial teaching and course teaching. Tutorial teaching is evaluated once a year and is initiated by the Study Administration. Based on a questionnaire completed by the department's students, the individual Department Councils are obliged to summarise the evaluation and sketch out an action plan. However, only seven to nine of the ten study departments normally prepare an action plan. The response rate for the questionnaire-based evaluation is approximately 20%.

The course instruction is evaluated at the end of each course by means of an evaluation form. The results are reported to the Study Administration. The response rate for evaluations varies from 20% up to 80% depending on the teaching form; the closer the relationship between student and teacher, the higher response rate.

The response rate for the questionnaire-based evaluation of the tutorial instruction is not satisfactory. This could be due to the fact that the students have doubts about whether the evaluation actually leads to changes. Study departments neglecting the formulation of action plans foster this. Another point of view put forward in the self-assessment report is that the teachers' instruction is not evaluated. This is very surprising to the expert-panel who all represent systems where this is practiced. At ETH, a ranking of teachers is published each year, and at MIT a two-page summary of quantitative and qualitative assessments is published at the end of each term based on the students' evaluation of each subject.

As already referred to above, an evaluation of the study and working environment of the school has been conducted. This has been carried out by an external consultancy firm and will be repeated every three years. The management of the school is expected to start the preparation of an action plan relating to the conclusions of the survey in autumn 2005.

Informal quality assurance

Apart from the formalised initiatives on quality assurance, an informal culture for quality assurance exists. The self-assessment report notes that the debates between teachers and students in connection with the final semester critique have significant impact on the development and im-

provement of the instruction in the departments. According to the school, the tutorial relationship between students and teachers makes it easier for them to exchange critique and proposals for change. This point of view is challenged by the expert-panel and the students interviewed at the site-visit. The informality of quality assurance makes it more personalised, but also more difficult for the students to critically assess the instruction. Furthermore, the lack of clear goals for the teaching makes it difficult for the students to know what is expected of the teaching; or in other words what determines quality. Thus it might be the lack of clear goals rather than the informality of quality assurance that causes the problem.

Follow-up procedures

The processing of evaluation results is characterised by the informality of communication touched upon in chapter 3. Seen from the students' point of view, the handling of the evaluation results and possible improvements, to a great extent, takes place behind the scenes. According to the self-assessment report, there is no doubt that the content of the courses is varied and developed. However, it is not a transparent process. This is supported by the survey of study environment, where only 30% of the respondents state that they are satisfied with the possibilities for influencing the form of education, and only 17% are satisfied with the information on major changes to the study programme. The expert-panel finds the follow-up procedures insufficient.

Feed-back from external stakeholders

Regarding criterion 6D on systemic feed-back from external stakeholders such as employers or graduates, there is a need for improvement. External stakeholders are engaged as external examiners at the first-year assessment, the bachelor evaluation, and at graduation. Feed-back from external examiners is reported to the school, and the graduation committee of the school assesses whether the results are at a satisfactory level. The School of Architecture is aware that this does not count as a systematic evaluation that can contribute to changes in the programme. Rather, the purpose is to check that the level of proficiency does not fall too low.

Furthermore, the School Council is legally obliged to have two external members, representing an institution of higher education and a private company. Through their participation, the school receives regular feedback regarding all parts of the administration.

The possibilities for improving the feed-back channels of the external stakeholders are supported by the interview held with employers, which showed both an interest and commitment regarding the quality of the school. In this connection, more involvement of external stakeholders was desired.

In summary, as with other areas of the School of Architecture, the quality assurance reflects a traditional collegiate structure and collegial culture that place emphasis on informal rather than

formal quality assurance mechanisms. It is a system that requires particular care towards ensuring systematic follow-up. Thus there is a need to systematise and clarify the quality assurance. An important initiative is to draw up clear goals for the education in order to define what constitutes quality. Or, expressed in terms of criteria, focus should be directed towards 6A and 6E. Furthermore, energy should be invested towards obtaining regular and systemic feed-back from employers, professional associations and graduates concerning the quality of the programme.

6.2 Admission and critical mass

Another aspect of quality assurance is admission procedures. These criteria outline the important aspects of admission:

- 5A: *The terms of admission are relevant and sufficient to meet the academic requirements of the programme.*
- 5B: *The quality and number of students in the programme are sufficient for securing a dynamic study environment.*

The terms of admission to the architectural programme are stipulated in the Danish Ministry of Culture's Ministerial Order No. 58 of 28 January 1991. Furthermore, the terms have been described in the school's own admission material, which is published on 1 February every year and contains information on the admission procedure.

Admission to the architectural programme requires an exam from a Danish secondary school or a bachelor of constructing architecture: a 3½-year programme, the prerequisite of which is an exam from a secondary school or training as a skilled craftsman.

Applicants are admitted on the basis of either the exam quotient from their qualifying exam (Quota 1) or an admission test (Quota 2). The ratio of students admitted through Quota 1 and Quota 2 is 60/40. The admission test lasts three days and consists of practical assignments testing the applicants' ability to sketch, think in terms of space and work conceptually.

The admission committee is generally of the opinion that it is difficult, based on a three-day test, to assess the potential of the students. The potentials are not fully apparent before the completion of the first year of study. In addition, the admission committee finds that there is insufficient talent among the applicants to justify the intake of students at both Copenhagen and Aarhus schools of architecture. In the light of the admission committee's statements regarding the limited talent, paradoxically only very few students fail the first-year assessment.

A study shows that the students who drop out of the programme during the first year are almost all quota 1 students. This indicates that many quota 1 students find it difficult to adapt to the project-based teaching methods of the school. This is perhaps due to the fact that these teaching methods are very different from the ones used in upper secondary schools because there is no specific syllabus to follow. Later on in the programme, there is no distinct difference between the academic abilities or skills of quota 1 and quota 2 students.

The School of Architecture is characterised by a relatively high completion rate stable around 70% for the last couple of years. The expert-panel questions the idea of indisputably defining low drop out as a quality. They believe that the quality of the students is what determines the quality of the school; thus the Danish tradition of selection at the gate should be challenged by selection through the programme.

Table 3
Statistics for application, intake and graduation

	2000	2001	2002	2003	2004	2005
Applicants	*	*	876	774	783	832
Admitted	250	275	265	236	232	237
No. of students at semester-start 1 September ⁴	235	235	230	207	199	201

Source: *The Self-assessment Report: The Royal Danish Academy of Fine Arts School of Architecture, 2005*

* No data

Another aspect of admission is to secure a satisfactory critical mass. The number of admissions to the School of Architecture is regulated by the Ministry of Culture, resulting in the current student population of approx. 1,200 (see table 3 above). The school has taken steps to ensure that this number will reduce to approx. 1,000 students within three to four years. This is a result of the relatively high unemployment among architects (see section 1.5).

The expert-panel finds that 1,000 students are sufficient to secure a critical mass. In comparison, the department of architecture at MIT counts only 100 students, whereas Faculteit Bouwkunde at Delft has 3000 students and ETH approximately 1300 students. Thus it is not the size of the school that determines the quality of the school, but it is the ability to populate a school with

⁴ *The difference between admitted students and students actually showing up at semester-start is relatively high. According to the School of Architecture this is caused by many applicants from other Scandinavian countries that opt out because they have been admitted to a school of architecture in their home country.*

high quality students and to attract high quality academic staff. In that sense, the expert-panel agrees with the point of view put forward in the self-assessment report, namely, that the size of the individual departments is regarded as more important in the achievement of a dynamic study environment than the size of the whole school. Therefore, the expert-panel acknowledges the initiative of the school to ensure that the size of the departments remains within the range 80 to 150 students.

Summing up, the School of Architecture lives up to criteria 5A and 5B.

6.3 Recommendations

Based on the above the expert-panel recommends the School of Architecture to:

16. Formulate overall goals and procedures for systemic quality assurance with regard to formalising the quality assurance mechanisms. The goals and procedures for quality assurance should be seen in relation to goals for core competences (recommendation 5).
17. Ensure that knowledge obtained through the quality assurance systems is used to systematically update the content of the programme, the individual courses and curricula, and that the processing of knowledge is made transparent.
18. Consider establishing mechanisms to ensure systematic feed-back from the labour market and graduates, as part of a systemic quality assurance system.

7 Internationalisation

This chapter deals with why internationalisation is needed, how it can be achieved at the School of Architecture, and what formal and informal challenges are connected with this. The following criteria direct the chapter:

- 7A: *A strategy for internationalisation is formulated in accordance with the principles of the Bologna declaration.*
- 7B: *Internationalisation is reflected as an international dimension in the content of the programme and curriculum (internationalisation at home).*
- 7C: *Systems exist to ensure student access to international study and training opportunities.*
- 7D: *Systems exist to ensure international exchange of teaching staff.*
- 7E: *Quality assurance mechanisms exist to ensure that out-going as well as in-coming students receive international courses which are adequate and appropriate in terms of quality and level.*

The School of Architecture has no formal strategy for internationalisation. However, goals of internationalisation have been presented in the SA 2010 Plan:

- *The School of Architecture must be known for internationally oriented and recognised programmes at the bachelor, master and Ph.D. levels in the main areas of architecture*
- *It is crucial that the content of the programme reflects international demands.*

The School of Architecture has set up an *Internationalisation Committee*, which is responsible for developing internationalisation initiatives. This group has set a number of objectives to improve the internationalisation of the school. These objectives are:

- *At least 20% of the School's students will spend one or two semesters studying abroad*
- *At least ten teachers will participate in exchange programmes for one or two weeks every year*
- *There will be an equal number of outgoing and incoming students*

- *Study programmes taught in English will be developed.*

In spite of the attempts to become more internationalised, internationalisation is still not a dominant characteristic of the school. As the self-assessment group expressed it at the site-visit, “*Internationalisation is not doing all too well*”. There is no doubt that not all recent initiatives of the internationalisation committee have become apparent, and are thus yet to be experienced. However, the expert-panel assesses that there is room for supplementary initiatives.

Scandinavian tradition internationalised

Being a School of Architecture with a strong Scandinavian tradition, internationalisation may at first seem to present a conflict. However, the school has a very positive attitude towards a more international profile. The management’s primary position on internationalisation is that future graduates from the School of Architecture should have the ability to work in different parts of the world. This view is supported by the employers.

The expert-panel regards the School of Architecture’s Scandinavian tradition of functionality and social awareness as a major strength, and they see the need to further explicate the tradition. The panel does not regard this as a counter-flow to internationalisation, but as a complementary process. However, an internationalisation process demands a high level of clarity about what the school stands for and, in that sense, heightens the awareness of the strengths and weaknesses connected with the national tradition. Thus the process may be a challenge, but will in time strengthen the profile and reputation of the school internationally.

Students going abroad

As the figure below illustrates, the number of students and teachers going abroad has increased over the last couple of years.

Table 4
Students and teachers going abroad

	2002/03	2003/04	2004/05
Student exchange outgoing	46	46	58
Teacher exchange outgoing	5	8	10
Practical training abroad	39	29	63

Source: The Self-assessment report: The Royal Danish Academy of Fine Arts School of Architecture, 2005

The students’ primary comments on internationalisation were positive and hopeful. On the other hand, the students to some extent seemed reluctant to study abroad. The student interviews

showed that they had not received adequate information about studying abroad, and had a reluctant attitude towards it. One student expressed that the school does not spend enough time on this matter and said, "*if we go to another university in another country they [the school's staff] wouldn't know what we do*".

The students explained their reluctance in terms of not wanting to leave their fellow students, ECTS-points, difficulties in getting through the studies in 5 years if studying abroad, and timing in regard to the programme. Since the implementation of the 3+2 structure of the programme, the majority of the students seem to prefer to go abroad during the master's programme. According to the self-assessment report, the compulsory elements of the bachelor programme make it more difficult to go abroad during the first three years.

The panel does not dispute that the structure of the programme may have an influence on timing in terms of ease and benefit of a study period abroad. However, they are convinced that the real problem lies elsewhere. The importance of encouraging and informing the students of the many possibilities is emphasised. The school has a number of exchange agreements with schools in Europe, USA, South America, Australia, Japan, etc. Information on exchange agreements, as well as grants and the ECTS-system, should be improved, but more importantly the encouragement of students should be *supported* by the teachers.

Incoming students

In the academic year 2003/2004, more courses in English were implemented. The idea was that a group of ten foreign and ten Danish students would work and receive instruction together in English. However, this proved difficult to realise. The Danish students were not interested in joining such groups, the result being that only drawing board instruction has been taught in English and the foreign students have been distributed among the departments. However, the self-assessment group assesses that the foreign students have in this way become very well integrated in the departments.

The expert-panel's notion of integration, on the other hand, is not to integrate by force or to necessarily distribute foreign students, but to *incorporate* the international students in the study environment. To incorporate these students also means meeting certain demands, e.g. the language. The expert-panel noticed on the site visits, that the Danish students were proficient in English, thus the language does not constitute a barrier for integrating the foreign students. The panel stresses that it is important that the schools' students are open towards the foreign students and realise that they can profit from the foreign students' competences, and vice versa.

Quality assurance

Currently, the outgoing students write a report upon their return, and present the work from their time abroad in their study department. On the basis of this documentation, the partner institutions are continuously evaluated. The students' work after returning from abroad thus serves as a mechanism of quality assurance for the stay.

To quality assure the incoming foreign students' stay at the School of Architecture, students complete an evaluation form at the end of their stay, which provides the basis for the Internationalisation Committee and the International Secretariat to work on improvements or changes to the study departments. The self-assessment group assesses the quality assurance of the exchanges to be efficient and satisfactory.

Academic staff and language

The self-assessment group finds that foreign teachers at the School of Architecture strengthen both internationalisation and the academic environment at the school. The school succeeds to some extent in attracting foreign visiting teachers for short periods. Yet, due to the language barriers, very few foreign teachers assume more permanent positions. Conditions relating to language are regulated and agreed upon in each individual contract between the School of Architecture and the employee. Over the years, an informal language policy has come about requiring foreign staff to teach in Danish after a certain time at the school. In order to raise the number of foreign staff it is necessary to ease the language policy and thus make the job more attractive to foreign teachers.

The panel was surprised and unimpressed that the school offers only very few courses in languages other than Danish: 11 in total. They see a need for more courses in English in order to meet the demands of an international school, and to attract foreign students and teachers. However, the panel does not necessarily intend all English courses to be taught by foreign teachers and thus finds it necessary to enhance the language competences of the staff.

International cooperation

The overall aim of internationalisation is to achieve an internationally compatible education. Equally, the employers emphasized the profit of being able to collaborate with foreign architects due to the benefits of complementary views and perspectives on architecture. In the interview with the employers it came to attention that difficulties may be connected with collaborating with foreign architects about a given project. Architectural practice differs from country to country. For instance, an employer pointed out that the timeframe and working process may vary so much that it sometimes proves difficult to be loyal to the Danish way of undertaking architectural projects.

This at once challenges and explains the need for internationalisation. On the one hand international collaboration may meet challenges and thus be difficult to realize. On the other hand, this collaboration and practical implementation of the internationalization process can serve as a quality assurance mechanism in the sense that a fully internationalised school should be able to collaborate internationally at the same time as retaining a national profile.

In summary, the School of Architecture lives up to criteria 7A and 7C and, to some extent, criteria 7B, 7D and 7E. To fully meet the latter, first of all more courses in English are required, and the language policy must be eased. In order to make further use of the present quality assurance of the exchange programs, there also lies a great possibility in bringing forth good examples in connection with the presentation of the students' report. The key word is to identify, disseminate and share good practice for internationalisation.

7.1 Recommendations

In accordance with the above analysis, the expert-panel recommends the School of Architecture to:

19. Encourage students to go abroad and strengthen the information on possibilities and formalities connected with studying abroad.
20. Increase the number of foreign staff. In order to do this there must be clarity about what the school expects of the foreign staff.
21. Increase the number of foreign staff staying longer than two years at the school. This can be achieved by easing the language policy and thus make the teaching job more attractive to foreign staff.
22. Increase the number of courses in English. This necessitates English language training of academic staff.
23. Share good practice concerning internationalisation and seek inspiration among schools with a strong international profile.

8 Facilities and Economy

Facilities are important since these form the conditions under which the ambitions of the school must be met. The following criteria focus on facilities concerning IT, buildings and student support:

- 8A: *IT-facilities and workshops reflect the facilities available to employers.*
- 8B: *Buildings and exhibition rooms support the development of teaching and research, and fulfil the needs of the different departments of the school.*
- 8C: *Student facilities and student support ensure a good study environment.*

IT-facilities, buildings and communication facilities

The overall goal of the school's IT-policy is that students learn to integrate IT into their project work. The strategy has called for changes, such as the installation of a wireless network on campus to ensure that students have access to networks all over the school. Students are invited to bring their own computers while the school supplies the necessary service. However, there is also IT-equipment at the students' disposal during courses and IT-workshops. According to the students, there is still room for improving the IT-facilities. In the survey of the study environment only about 25% of the respondents were satisfied with the general IT-facilities.

IT-courses are compulsory in the bachelor programme and are also offered to graduate students. Furthermore, it is school policy to integrate IT into the assignment-based teaching. Today, the school spends a lot of resources on teaching basic architectural programs and fewer resources on teaching more experimental, high-level IT. It is the hope that setting up the *Centre for IT and Architecture* will help reverse this balance.

In the view of the expert-panel, the School of Architecture has excellent workshop facilities counting wood-, metal- and plastic workshops and a laboratory with a simulated sun for daylight instruction. The mandatory courses of the workshop are offered at the beginning of the students' studies. Accordingly, the interaction with the study departments has increased.

The lack of focus on ergonomically correct workstations is very apparent in the survey of the study environment. The site-visit revealed that the management is aware that this issue needs to be prioritised in the future.

Other facilities include the School of Architecture Library. This is a library for students, researchers and teachers at the School of Architecture, a public research library and a library for the architectural profession. The library covers the fields of architecture, construction, physical planning and design. The expert-panel finds that the library should be further integrated into the teaching. At present, it seems that the library is conceived more as a place to seek *inspiration* rather than a place to seek *information* and *knowledge*. In that sense taking advantage of the library facilities is closely connected to the recommendation regarding more exercises on the courses in foundational disciplines.

The School of Architecture has some excellent facilities for exhibitions. The annual series of exhibitions include productions by the academic staff, architectural firms, international exhibitions from other schools of architecture and exhibitions of student work. The latter is given credit by the expert-panel that was impressed with the exhibition of the graduate projects. The school's objective of involving itself in the surrounding world and involving the public in the content and development of the profession is realised through the public exhibitions, lectures, seminars and debates in the exhibition halls. According to the employers, the School of Architecture could, however, play an even more prominent role as a knowledge centre for the profession.

www.karch.dk is the school's window to the world, containing information about the school which is important for applicants, partners and the professional environments outside the school. The information provided in English is very limited which is in conflict with the goal of reinforcing internationalisation. The internal newsletter *Copy* is distributed once a week.

Summing up, the facilities support the possibilities for the development of the school. In the view of the expert-panel, the conditions meet the ambitions of the school, which means that both criteria 8A and 8B are fulfilled. However, it is necessary to continuously prioritise the students' working environment and the facilities for communication. Also, despite the generous and excellent facilities of the school, the particular form and configuration of the buildings underline the institutional tendency towards separate "schools within the School". This phenomenon is probably difficult to overcome, but it should be considered.

Student facilities

The central student counselling embraces activities aimed at both students and applicants. It is an independent counselling service that assists students with study-related, practical and personal problems. The student guidance counsellors have noticed that more and more students are trou-

bled by stress and other personal problems, which is confirmed by the survey of the study environment. According to the student counsellors, the problems can be linked to imprecise requirements for student performance and the schools failure to pay attention to students who are not performing well.

The students are organised in the *Students' Union*. They coordinate the students' school policy and plan social events. Three students do, in total, 30 weekly hours of secretarial work in the Student's Union.

Social activities include a sailing club and the annual Holmen Event, which is a party for all the schools on Holmen⁵. Weeks of preparations conclude in a magnificent sporting and musical event at the School of Architecture. The party is the result of the creative talents and cooperation between the schools. Typically more than 2,000 people attend the Holmen Event.

Summing up, the student facilities support and ensure a good study environment as stated in criterion 8C. The problems of stress and inadequacy of the students' seem to relate to programmatic issues rather than to the student counselling.

8.1 Economy

In this section economy and the distribution of budget as a means to support the school's strategy are discussed, but not the actual *content* of the budget. This is expressed in the following criterion:

8D: *The economy of the school permits the fulfilment of mission and strategy.*

The primary funding of the School of Architecture is allocated via the annual Appropriations Act. For the past five years, the allocations have been fairly stable at approximately DKK 145 million. In addition, the school is financed by grants from public and private sources for research projects, which added up to approximately DKK 11 million in 2004. These sums are tied to the completion of certain projects agreed between the school and the grantor.

The funds available to the school under the Appropriation Act are distributed to the primary purposes of the school under the control of the School Council. The distribution of expenses is showed in table 4 below:

⁵ *Holmen is home to many of the educations under the auspices of the Ministry of Culture.*

Table 5
Expenses distributed to primary purposes at the School of Architecture 2004

	Expenses in DKK million	In percent of total expenses
Education	49,9	28%
Research	37,4	21%
Continuing education	0,8	1%
Library	7,2	4%
General management and administration	22,5	13%
Internal Services	57,9	33%
Total	175,5	100%

Source: Annual Report 2004, The Royal Danish Academy of Fine Arts School of Architecture

The financial management of the School of Architecture is based on framework management. Thus the School Council determines the overall resource framework for the activities via the budget. The administration and distribution of resources is handled by the person responsible for the individual budget – heads of department, heads of institute and heads of administration – in accordance with the targets prepared for the individual organisational unit.

The funds of the study departments are determined by the number of students in each department. According to the expert-panel, this is precarious since the smaller – and accordingly less popular – departments have correspondingly poorer opportunities of improving the quality of the department. Furthermore, the expert-panel sees that this way of distributing the budget leads to political behaviour of the study departments, since the budget system causes competition rather than cooperation between the departments. This weakens the collective identity of the school.

Resources for course instruction come from an adjustable allocation in the School Council's budget (DKK 3.6 million in 2005) and an adjustable allocation for other operating activities (DKK 0.5 million in 2005). Furthermore, the institutes finance researchers' teaching time to the extent that the researchers' teaching obligation is not reserved for a specific study department. The responsibility for planning and prioritising the course instruction has been delegated by rector to the chairman of the Study Committee. The latter holds annual planning sessions with the heads of the institutes to agree on the course plan, lectures, etc. for the year. The available resources are distributed in the form of adjustable allocations to the institutes. It is then the responsibility of the heads of institute to carry out the planned courses within the agreed financial framework. As touched upon in chapter 4, the supply of course instruction does not always seem to meet the

demand. The complex funding of course instruction could be one explanation for the mismatch of supply and demand.

In connection with the adoption of the annual School Council budgets, it must be decided whether resources should be allocated to special areas of action and to reserves. In the present contract period, special funds have been allocated for the implementation of the areas of action in the SA 2010 Plan and the performance contract with the Danish Ministry of Culture. In 2005, a total sum of DKK 8.2 million has been allocated to the areas of action 'Strengthening of general academic competences'; 'Industrial Architecture'; 'Urban Planning'; 'IT and Architecture'; and 'Design Research'. The allocated amounts are distributed among the heads of institute, who are responsible for planning the amounts in accordance with the action plans. Finally, the School Council budget includes reserves administrated by rector, DKK 2 million in 2005. These reserves are allocated to the completion of unforeseen and innovative activities.

Both the self-assessment report and the interview with the management convey a good impression of the economy of the School of Architecture and that it provides ample opportunity to pursue mission and strategy; mainly because the performance contracts with the Ministry of Culture ensure reliable budgets for four-year periods. However, the self-assessment report points out weaknesses in the financial management. Due to the many organisational units – ten study departments, four institutes, library and administration – there are 16 managers with budget responsibility referring directly to rector. This structure limits the possibilities of ensuring that individual targets and action plans are equally heading in the right direction and are optimal in relation to the implementation of strategy. Thus the *combination* of the complex financial management and lack of a formal communication forum for heads of departments/institutes makes it difficult to accomplish the goals of the strategy.

Summing up, criterion 8D is met but there is still room for developing the financial management so that it supports the fulfilment of mission and strategy.

8.2 Recommendations

The expert-panel finds that both facilities and economy are important prerequisites for realising strategy. On the other hand, the panel notes that there are other areas of action that should have even higher priority. In the light of this, the expert-panel recommends the School of Architecture to:

24. Continue to prioritise the working environment of students and the facilities in order to strengthen communication.

25. Continue to develop the activities directed towards the profession and the general public in order to play a more prominent role as knowledge centre for the profession.
26. Consider changing budget distribution so the size of the study department is not the only determinant of funding. This could hinder the political behaviour of the study departments, and support cooperation between study departments rather than “schools in the school”.

9 Overview of Recommendations

Mission, strategy and management

1. Accentuate the national tradition of architecture in the mission statements of the school with the purpose of sharpening the profile of the School of Architecture on the international market.
2. Clarify the profile of the school in terms of defining the relation between general academic skills and vocational skills, and how the School of Architecture relates to its academy tradition.
3. Increase the general communication concerning responsibility and decision-making in order to heighten the transparency of decision-making procedures.
4. (School of Architecture and Ministry of Culture in cooperation) Adjust and clarify the decision-making procedure so that responsibility is clear at all levels and the discrepancy between formal and informal power is minimized. It must be ensured that heads of departments/institutes have formal influence on the development of strategy.

Programme content and structure

5. Define and enforce clear operational goals for core competences, including both the desired professional competences and the desired general academic skills of the graduates. The goals should be formulated through discussion with relevant internal stakeholders and should be widely disseminated.
6. Ensure that heads of departments and heads of institutes (see recommendation 4) undertake discussions on teaching methods, in order to challenge and explicate the implicit consensus regarding methods of teaching. Furthermore, the discussion forum should be used to strengthen communication of the supply of, and demand for, courses in foundational disciplines.

7. Change the distribution of ECTS-points from the present 48/12 ratio between project work and foundational disciplines to a ratio of at least at 30/30.
8. Strengthen the discussion of how to structure compulsory courses, e.g. as weekly lectures or class-room teaching, rather than blocks of courses. Furthermore, the compulsory courses must be supported by assignments and exercises.
9. Clarify the responsibility of the study department in order to ensure that the profile of the study department is apparent in the action plans of the students.
10. Ensure that the formulated goals (see recommendation 5) function as criteria for critique and examinations, and give a high priority to communicating the goals to the students.
11. Consider reducing the domination of the study departments in the critique process, either by means of using external reviewers or through using more public critique sessions.

Academic staff

12. Delegate more authority and influence to the academic staff in order to attract the best. The teachers should be an integrated part of the decision making processes. The same applies to the professors who should be more committed to professional leadership and be given the autonomy and responsibility for strengthening the profile of the study departments.
13. Define clear strategic goals for the recruitment of staff. More academics other than architects, more graduates from schools other than the School of Architecture and more foreign academic staff should be recruited to fulfil the criterion of interdisciplinarity. The age of the staff should be considered in order to avoid another age-bulge in the future.
14. Temporary staff should be hired with regard to their competences and experience in the field, and for considerably longer periods than a year. However, the total number of temporary staff should be reduced.
15. Strengthen opportunities for the supplementary education of academic staff with special focus on pedagogical training.

Quality assurance, admission and critical mass

16. Formulate overall goals and procedures for systemic quality assurance with regard to formalising the quality assurance mechanisms. The goals and procedures for quality assurance should be seen in relation to goals for core competences (recommendation 5).

17. Ensure that knowledge obtained through the quality assurance systems is used to systematically update the content of the programme, the individual courses and curricula, and that the processing of knowledge is made transparent.
18. Consider establishing mechanisms to ensure systematic feed-back from the labour market and graduates, as part of a systemic quality assurance system.

Internationalisation

19. Encourage students to go abroad and strengthen the information on possibilities and formalities connected with studying abroad.
20. Increase the number of foreign staff. In order to do this there must be clarity about what the school expects of the foreign staff
21. Increase the number of foreign staff staying longer than two years at the school. This can be achieved by easing the language policy and thus make the teaching job more attractive to foreign staff
22. Increase the number of courses in English. This will necessitate English language training of academic staff.
23. Share good practice concerning internationalisation and seek inspiration among schools with a strong international profile

Facilities and economy

24. Continue to prioritise the working environment of students and the facilities in order to strengthen communication.
25. Continue to develop the activities directed towards the profession and the general public in order to play a more prominent role as knowledge centre for the profession.
26. Consider changing budget distribution so size of study department is not the only determinant of funding. This could hinder the political behaviour of the study departments, and support cooperation between study departments rather than "schools in the school".

Appendix A

Members of the Panel

Hans Beunderman (chairman of the panel)

Born in Rotterdam in the Netherlands in 1948. He graduated cum laude from Delft University of Technology, Faculty of Architecture in 1974. His professional career as an architect/ urban designer includes working in an architectural firm in Finland and establishing the Oosting & Beunderman office in Utrecht, the Netherlands. From 1985-1998 he was employed by the Dutch Ministry of Spatial Planning, Housing and Environment in Hague. His positions include being director of the Architects & Advisors firm of the National Government Building Agency and director of the Policy Department and deputy Director General of the GBA. In 1990 he acquired an executive MBA degree at Rochester/ Rotterdam. He became dean and professor at his home school, Delft University, in 1998 where he amongst others installed the "Delft School of Design" in the first semester of 2003. As dean he is a member of the TU Delft University Advisory Council and chairman of the Board of the Research Institute OTB⁶.

Stanford O. Anderson

Born in Minnesota, USA. He received a bachelor's degree from the University of Minnesota and a master's in architecture from the University of California at Berkeley in 1958. He held a Fulbright fellowship in Munich in 1961-62 and completed a PhD in the history of art at Columbia University in New York City in 1968. Anderson has taught mainly at the Massachusetts Institute of Technology (MIT). He was co-founder of the PhD programme in History, Theory and Criticism of Architecture, Art and Urban Form that he directed from 1974-1991 and again in 1995-96. He was Head of the MIT Department of Architecture from 1991-2005. Anderson has published a number of books on architecture and has received no less than three awards for his exceptional work in the field of architecture. He is currently professor at MIT.

⁶ After the closing of the international benchmarking, Hans Beunderman has been appointed Director of Strategy at Delft University of Technology

Johan Celsing

Born in Stockholm, Sweden in 1955. He graduated from KTH, The Royal Institute of Technology in Stockholm in 1981 and established his own office, Johan Celsing arkitektkontor, in Stockholm 1985. Completed works include the Nobel Forum in Stockholm 1993, the Millesgarden Art gallery, Stockholm 1999, the University College of Teachers, Stockholm 2001, the Museum of Sketches, Lund 2004 and the Bonnier office building and art gallery, Stockholm 2006. Johan Celsing has also designed alterations and additions in Stockholm at the plenary chamber of the Parliament and at the government offices, Rosenbad. Johan Celsing received the Kasper Salin award for the Millesgarden art gallery in 1999, the Tengbom medal from The Royal Academy of fine Arts in 1994 and the Prince Eugen medal in 2000. He is an elected member of the Royal Academy of fine Arts, Stockholm. Johan Celsing designs furniture and lighting fixtures produced by Swedish Garsnas, Austrian Cserni and others. While practicing as a consulting architect, Celsing has taught at KTH in various positions from 1984-1994 and has been guest critic at schools of architecture in Oslo, Oulo, Copenhagen, Mendrisio, Tel Aviv, Harvard GSD, Washington DC/ Virg. Tech and Lima/Catolica.

Dietmar Eberle

Born in Hittisau, Vorarlberg, Austria in 1952. He graduated from the Technical University of Vienna in 1978. After the completion of his studies he spent two years working in Tehran, Iran. In 1979 he co-founded the Baukuenstler Movement in the Vorarlberg region of Western Austria and in 1984 he began his collaboration with Carlo Baumschlager, now known as Baumschlager-Eberle GmbH. The practice has project offices in Lochau on the shores of Lake Constance and Vaduz, Liechtenstein as well as a partner office in Vienna. It has received numerous awards and citations for excellence and won over 35 national and international competitions. Eberle has continued his dedication to education by teaching at various institutions throughout North America and Europe. Since 1999 he has held a Professorship at the ETH in Zürich, Switzerland and, as of 2003, has become Dean for the School of Architecture. At the ETH he also heads the Centre for Housing and Sustainable Urban Development.

Appendix B

Criteria

1. Mission, strategy and organisation

1A: A clear mission and strategy for the development of the school exists.

1B: Mission and strategy are implemented through operational goals and policies.

1C: The organisation of the school ensures that the responsibility for implementation of mission and strategy is clearly defined.

1D: Mission and strategy reflect the development and challenges within the profession, nationally and internationally.

2. Goals, programme content and structure

Goals

2A: The goals for core competences of graduates are clearly formulated.

2B: The goals include aims for professional qualifications and general academic qualifications.

2C: The goals cover theoretical orientation and practical orientation.

2D: The goals demarcate the interface of the profession.

Programme content

2E: The programme covers the relevant disciplines and approaches of architecture with regard to the needs and requirements of the labour market as broadly defined.

2F: The programme qualifies students to participate in and complete artistic development processes and/or research.

2G: The programme qualifies students to skilfully combine different disciplines of the field of architecture.

2H: The programme encourages theoretical learning to become operational by linking it to practical exercises.

2I: Teaching is based on research when relevant.

Structure

2J: The programme is characterised by progression in the sense that it comprises a coherent set of educational modules that enables the student to learn the basics of architecture in the beginning and broaden and deepen their experience in the upper level courses.

2K: Sharing of knowledge and experience ensures interplay between approaches to learning across all areas of the programme.

3. Examination and outcome

3A: Examination criteria are relevant, clearly formulated and available to students.

3B: External examiners ensure broadness in the assessment of students and an external evaluation of content and level of the programme.

3C: The work of the students reflects the students' capability to:

- create a synthesis of artistic and technical aspects of architecture at a high level;
- account for technical, social, economical and functional preconditions at a high level;
- apply relevant methods and approaches;
- work innovatively;
- develop and describe the content of a project in a professional language.

4. Teachers, research and artistic development

Teachers

4A: The school attracts qualified teachers and researchers.

4B: The artistic, theoretical and practical focus of the programme is reflected in the composition of the teaching staff.

4C: Professionals of a high level are associated with the programme as teachers or as external examiners.

Research and artistic development

4D: Goals for basic research, strategic research and artistic development processes are formulated and implemented.

4E: Research ensures interplay with other related areas of research and incorporates new areas of investigation.

5. Admission and critical mass

5A: The terms of admission are relevant and sufficient to meet the academic requirements of the programme.

5B: The quality and number of students at the programme is sufficient for securing a dynamic study environment.

6. Quality assurance

6A: A system for quality assurance exists.

6B: The programme and its content are evaluated on a regular basis.

6C: Students are frequently invited to evaluate courses, e.g. content, organisation, teaching, methods and outcomes.

6D: The school is engaged in obtaining regular and systemic feed back from employers, professional associations and graduates concerning the quality of the programme.

6E: Based on evaluation results, the content of the programme, the individual courses and curricula are updated on a regular and systemic basis.

7. Internationalisation

7A: A strategy for internationalisation is formulated in accordance with the principles of the Bologna declaration.

7B: Internationalisation is reflected as an international dimension in the content of the programme and curriculum (internationalisation at home).

7C: Systems exist to ensure student access to international study and training opportunities.

7D: Systems exist to ensure international exchange of teaching staff.

7E: Quality assurance mechanisms exist to ensure that out-going as well as in-coming students receive international courses which are adequate and appropriate in terms of quality and level.

8. Facilities and economy

8A: IT-facilities and workshops reflect the facilities available to employers.

8B: Buildings and exhibition rooms support the development of teaching and research, and fulfil the needs of the different departments of the school.

8C: Student facilities and student support ensure a good study environment

8D: The economy of the school permits the fulfilment of mission and strategy

Appendix C

Site Visits

First site visit

- 8.30 - 8.45** Welcome to School of Architecture – rectors meeting room
- 8.50 - 9.20** Visit to **study department 1**: Architecture, town and landscape (introduction by Assoc. Prof., Architect Jens Kvorning, Head of Dep.)
- 9.25 - 9.40** Visit to **study department 6**: Architecture, space and form
- 9.45 -10.00** Visit to **study department 3**: Architecture, process and method
- 10.05 -10.35** Visit to **study department 4/5**: Architecture, space and habitation (introduction by Prof., Architect Tage Lyneborg, Head of Dep. assisted by Assoc. Prof., Architect Kjeld Vindum and Assoc. Prof., Architect Thomas Wiesner)
- 10.40 -10.55** Visit to **study department 2**: Architecture, town and building
- 11.00 -11.15** Visit to **study department 7**: Architecture, building and realisation
- 11.20 -11.35** Visit to **study department 9**: Architecture, technology and resources
- 11.40 -12.30** Lunch – rectors meeting room
- 12.30 -13.00** Visit to **study department 10**: Architecture, conditions and vision (introduction by Assoc. Prof., Architect Mathilde Petri, Head of Dep.)

- 13.05 -13.20** Visit to **study department 8**: Architecture, experiment and technology
- 13.25 -13.55** Visit to **study department 11**: Architecture, design and industrial form (introduction by Prof., Architect Anders Brix Pedersen, Head of Dep.)
- 14.00 -14.30** Coffee and meeting in the panel – rectors meeting room
- 14.30 -15.30** Visit to the exhibition of graduate projects
- 15.30 -16.00** Presentation of project 1 (Amanda Taarup Betz, Dep. 8: Behaviour space – Between a dance school and a train station)
- 16.05 -16.35** Presentation of project 2 (Gunilla Stine Rasmussen and Kirsten Højgaard Jensen, Dep. 1: Making Slagelse visible using landscape – a strategic plan for city development)
- 16.40 -17.10** Presentation of project 3 (Rikke-Julie Schaumburg-Müller, Dep. 2: Theatre in Athens)
- 17.15 -18.15** Summing up: Meeting in the panel – rectors meeting room

Second site visit

- 8.30 - 9.30** Interview with self-assessment group
- 9.35 -10.35** Interview with management
- 10.40 -11.40** Interview with heads of departments and heads of institutes
- 11.40 -12.10** Tour of the library and workshops
- 12.10 -12.55** Lunch
- 13.00 -14.00** Interview with teachers/researchers
- 14.05 -15.35** Interview with students
- 15.45 -16.45** Interview with employers
- 17.00 -17.30** Final meeting with management

Appendix D

Organisation chart of the School of Architecture

