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Practice of the Profession

Work Group Scope of Services

The Design and Construction Phases of a Construction Project

Draft

ARCHITECTS COUNCIL OF EUROPE

- SCOPE OF ARCHITECTS' SERVICES -

THE DESIGN AND CONSTRUCTION PHASES OF A CONSTRUCTION PROJECT

**An Appraisal comparing the services provided by architects, in respect of
relatively small scale projects, in different parts of the European Union**

**National statements set out the services as experienced in specific countries in the European
Union**

(Czech Republic, Finland, France, Germany, Portugal, Spain, United Kingdom)

EDITORIAL NOTE

This paper has been prepared on behalf of the Scope of Architects' Services Work Group of the Architects Council of Europe by Roger Shrimplin (RIBA, United Kingdom).

The Annex comprises a series of statements relating to individual states of the European Union. They are presented as submitted but some minor editorial amendments have been made, primarily to standardise the presentation and to improve certain of the more obvious lapses in the English language (and correct American dialect spellings), while preserving the "flavour" as well as the meaning of the originals.

The Work Group as a whole has reviewed the documents and individual members of the Work Group have made submissions relating to their own countries. The contributing members of the Work Group were as follows:

Pedro Belo Ravara	Portugal
Doina Butica	Romania
Peter Kompolschek	Austria
Kimmo Liimatainen	Finland
Thomas Maibaum	Germany
Reichardt Martin	Germany
Pavel Martinek	Czech Republic
Rafael Pellicer	Spain
Philip Ridgway	France (Chairman)
Johannes Schmidt	Austria
Roger Shrimplin	United Kingdom

SUMMARY

This note is intended to explore the core area of work for Architects throughout Europe, by explaining how a typical project would be dealt with in different countries. Reference is being made to three different types of project, to highlight variations in the case of relatively simple, mainstream construction projects which appear to be common to different parts of Europe.

The professional tasks to be undertaken in connection with a building project appear to be very similar across Europe, though there are differences between the services performed and, in particular, in the level of detail or attention to be provided.

Even so, in different parts of Europe the necessary professional tasks may be undertaken by specialist architects or by other professions (non-architects).

The most significant differences in professional practice seem to arise from official requirements relating to the various submissions that have to be made to public authorities and, in all areas, it appears that there is growing concern about the scope for delays and increased costs to projects, resulting from the need for higher levels of detail in presentation and the potential for objections to be made on the basis of subjective assessment rather than objective controls.

It is to be expected, of course, that different submissions requirements and other obligations have an impact on architects' remuneration. The appendix to this paper, which describes practice in various countries, illustrates the extent of some of these differences.

1.00 BACKGROUND

- 1.01 The ACE Scope of Architects' Services Work Group has undertaken an extensive survey of Architects' services in Europe, during 2011, which has produced some interesting results, identifying many similarities between Architects' roles in different countries. In this respect it reflects earlier work adopted by the ACE Work Group on 'Missions and Fees of the Architect'.
- 1.02 On the other hand, the survey has also pointed out some significant differences in professional roles, across Europe, and it has emerged from discussions of the results of the survey that some differences are not revealed by the survey questionnaires, because of the subtleties and complexities of local practices.
- 1.03 Nevertheless, it is becoming increasingly obvious that many variations in methods of practice can exist even within one country, where there is a diversity of procurement methods. It is also the case that the increasingly complicated requirements imposed on the construction industry and on construction professionals is leading to a fragmentation of professional roles, as architects specialise in particular types of work or particular areas of expertise. In turn, this fragmentation and the lack of a clear pattern in the development process, combined with the increasing impact of specialised jargon, is adding to the professional workload and, therefore, to construction costs, delays and uncertainty.
- 1.04 It has therefore been decided to prepare a series of studies in an attempt to expose important differences in national systems and to clarify similarities, as an aid to better understanding of the professional processes. A series of national studies has been undertaken, in a narrative form, explaining the role of the architect in a construction project in different parts of Europe, based on experience in a small number of states.
- 1.05 For the sake of consistency, the framework for the narrative takes account of the draft European Standard on "Engineering Services – Terminology – Glossary of key words and terms at a high level to describe the engineering". The document was prepared by CEN Technical Committee CEN/TC 395 "Engineering Consultancy Services" and in its "final draft" form was published (in September 2012) as: "Engineering Services – Terminology to describe engineering services for buildings, infrastructure and industrial facilities", under reference FprEN 16310:2012. It forms a draft European standard containing a Glossary of key words concerning engineering services provided in the construction of buildings, infrastructure and industrial facilities.
- 1.06 It is intended to explore the core area of work for Architects throughout Europe, by explaining how a typical project would be dealt with in different countries. Reference is being made to three different types of project, to highlight variations. These typical projects have been selected to reflect relatively simple, mainstream construction projects which appear to be common to different

parts of Europe, based on normal standards (rather than luxury standards or special technical requirements, for example).

1.07 The three selected project types are:

- A family house (gross floor area approximately 200m², cost approximately €350 000);
- B apartments (approximately 20 apartments of 70m² each, cost approximately €1.5m);
- C school building (approximately 3000-6000m², in an urban location but not a large city, for children aged over 10 years, cost approximately €5-6m).

1.08 The Glossary (CEN/TC 395) divides the building project into six stages (each of which also includes sub stages). These main stages are:

- 0 Initiative
- 1 Initiation
- 2 Design
- 3 Procurement
- 4 Construction
- 5 Usage
- 6 End of life

1.09 The study focusses on the Architect's professional role in relation to stages 2, 3 and 4 of the project, the core areas of work for the profession.

1.10 Although formal studies have been presented only for a small number of countries, the general comments have also been reviewed by a larger group.

2.00 GENERAL APPRAISAL

Preliminary stages

- 2.01 At the Initiative stage, the Architect's advice is often of particular interest to a client or developer, since the Architect will usually have a general understanding of all aspects of the development process, from relatively abstract legal controls to practical construction problems, as well as broader design issues.
- 2.02 This role of the Architect in the Initiative stage reflects the fundamental professional role as team leader, familiar with all aspects of a project. This role of the architect as a "development consultant" in a broader sense, bringing together a knowledge of construction techniques, construction (and related) regulations, urban planning controls, financial implications and management functions, is being recognised increasingly widely. In consequence it is becoming more valued.
- 2.03 This broader role of the architect is, perhaps, more obvious in those countries where the historic design function of the architect is least regulated (such as the UK) and less recognised in those countries where the architect had a strictly regulated function historically (such as Spain). On the other hand, the design skills of architects has supported transference of skills to other professions (such as interior design and product design) especially, perhaps, in Spain and Italy.
- 2.04 Nevertheless, in several countries, the role of the Architect is curtailed in the early stages of the project, in practice. In this context, it should be noted that, in the past, Architects in other parts of Europe were also constrained in the scope of their activities. In various countries (and even in the UK, for example, which now has a relatively unrestricted professional environment), it was forbidden for architects to act as builders or developers until relatively recently, though it was often possible for such restrictions to be circumvented. In some countries (in Belgium, for example), that is still the case.
- 2.05 In every case, the independent and professional nature of the Architect's role has been emphasised. It is important to recognise that professional independence is reinforced not only by basic law but also by ethical codes which are enforced by a range of governmental or quasi-governmental authorities.
- 2.06 Nevertheless, the Architect's role and liabilities can be modified in some cases. Whereas they may be fixed by law in some countries, in others they may be determined in accordance with contract. Thus, in some cases the Architect may be the legally liable figure for all aspects of a design (whether by the application of law or by contractual agreement) while, in others, liabilities may be shared between individual members of the design team.

- 2.07 Moreover, professional roles in different parts of the European Union are affected by increasingly complex and multiple regulations which may lack clarity in interpretation and are drafted in specialist language which obscures the process for ordinary citizens.

Post-construction stages

- 2.08 In the post construction stages of the building's life, Architects' involvement may be directed to more technical matters. During the working life of a building (especially of larger modern buildings), continual reassessment, maintenance and building management are required. Architects may undertake these tasks (or be involved in assisting others) but it does not normally form their core function, although it has generated an increased requirement for detailed information records to be kept.
- 2.09 Similarly, the end of life process for a building may require particular technical expertise, dealing with certain types of material or complex demolition constraints, for example. Architects may equally be involved in such specialised cases or they may become involved as participants in a new Initiative.

“Core” Stages – Basis for Study

- 2.10 Following the Glossary in FprEN 16310:2012 (previously referred to as CEN/TC 395), however, the studies are focussed on the three “core” stages in the building project, namely Stage 2: Design, Stage 3: Procurement and Stage 4: Construction.
- 2.11 The following preliminary observations are made in respect of these.

Stage 2: Design

- 2.11 The design stage is the stage in which the Architect predominates, both as principal designer and as co-ordinator of other designers. The narratives for this section concentrate on the design task, with a reasonable level of detailed information, including the normal scales used for drawings at this stage and the amount of supporting information required.

- 2.12 Nevertheless, the narratives attempt to explain how other information is normally to be coordinated. This includes information which, in different countries, may be undertaken by separate consultants or by Architects themselves (such as structural calculations or economic analysis), as well as information which will almost always be produced by non-architects (matters as diverse as archaeology and bio-diversity).
- 2.13 The design stage narratives take account of the relationship between the design process and statutory controls. In most of Europe, area codes or local plans give a fairly precise definition of what may be permitted, though in the United Kingdom and Ireland, only the planning permission (rather than a local spatial law) defines what may be permitted, well after the commencement of the design process.
- 2.14 Statutory controls may be said to fall into two categories, in broad terms, across Europe. The first regulates the general nature of the proposed construction, in terms of building type, scale and ancillary requirements (such as car parking or highway access), in the urban planning context. The second concerns the construction detail of the building, particularly in relation to structural stability, resistance to damp, health and safety and so on.
- 2.15 In all countries, local plans (which may have the status of local laws) should provide a reliable framework for new construction schemes in the context of urban planning principles. In most of Europe, these local plans are sufficiently clear and robust to make it obvious what will be permitted, in terms of the overall scale and function of a proposed building. In a few countries (including the UK and Ireland), however, the plans are very subjective and partly based on relatively unpredictable aesthetic considerations. These local plans are thus so flexible (or vague) that a “planning approval” process is necessary to establish whether or not the new building can be permitted in principle.
- 2.16 In all European countries, a building permit is required for a significant construction project. Often, the criteria for the grant of a permit combine both urban planning and more technical construction considerations. Where such permits are based on technical regulations, they are likely to be generally objective and the outcome of an application can be realistically predicted.

Stage 3: Procurement

- 2.17 The procurement stage again involves building design, at a more detailed level, and the narratives again concentrate on the design tasks and the level of information required, including drawing scales and other information requirements (as for Stage 2).
- 2.18 The narrative for Stage 3 attempts to explain the roles of other professionals and the different ways in which necessary information is prepared, especially economic information (which in the UK is often carried out by a Quantity Surveyor or “Cost Consultant”). Different procurement methods usually need to be considered, and the role of Architects in the preparation of contract documentation explored, including professional contracts (between the client and members of the professional team).
- 2.19 In considering the architect’s role, it is especially necessary to examine the level of detail in agreements (contract documents) between clients and architects. Thus, in some countries, verbal professional contracts or very simple contract documents are more common, while in others more detailed professional contracts are required. It can already be noted that a range of tasks are already commonly undertaken by others, including topographical and geological surveys.
- 2.20 As before, the design stage narratives take account of the relationship between the design process and statutory controls. In most of Europe, a considerable level of detail is to be submitted for municipal approval, though the requirements vary and, in any case, a greater level of detail is required for construction purposes.

Stage 4: Construction

- 2.21 During the Construction Stage, the primary role of the Architect may be less clear. In some countries other professions take a leading role in the detailed inspection of the project (such as France and Spain) while in others, the municipality bears a greater responsibility, since the building owner is not obliged to employ qualified professionals (such as the UK).
- 2.22 The relevance of legal controls continues to be important but different types of legislation can apply, including Health and Safety legislation based on European Union law and much more localised systems of completion certificates or “habitability” certificates. It is noteworthy that the same basic tasks may be dealt with by differing degrees of formality (for example, in respect of the “site diary”).

3.00 APPRAISAL AND SUMMARY CONCLUSIONS

- 3.01 The professional tasks to be undertaken in connection with a building project appear to be very similar across Europe, though there are differences between the services performed and, in particular, in the level of detail or attention to be provided.
- 3.02 It is noteworthy that in different parts of Europe the necessary professional tasks may be undertaken by specialist architects or by other professions. In particular, costs analysis may be dealt with in this way (by quantity surveyor in the UK or specialist Technical Architects in Spain, for example). Even structural engineering services, carried out by engineers in most countries, may also be provided by specialist architects (in Spain, for example).
- 3.03 The most significant differences arise from official requirements relating to various submissions.
- 3.04 In all areas, it appears that there is growing concern about the scope for delays and increased costs to projects, resulting from the need for higher levels of detail in presentation and the potential for objections to be made on the basis of subjective assessment rather than objective controls.
- 3.05 Nevertheless, there are clear differences between countries where the basic permission may be very subjective and uncertain (such as the UK) and those where the relevant rules are much clearer (such as Germany).
- 3.06 It is to be expected, of course, that different submissions requirements and other obligations have an impact on architects' remuneration. The appendix to this paper, which describes practice in various countries, illustrates the extent of some of these differences.

ARCHITECTS COUNCIL OF EUROPE

- SCOPE OF ARCHITECTS' SERVICES -
THE DESIGN AND CONSTRUCTION PHASES OF A CONSTRUCTION PROJECT

ANNEX
STATEMENTS RECEIVED FROM: CZECH REPUBLIC, FINLAND, FRANCE,
GERMANY, PORTUGAL, SPAIN, UNITED KINGDOM;

- CZECH REPUBLIC –

CZ1 This note sets out the scope of architects' services in the design and construction phases of a construction project in the Czech Republic. It is based on the UK note (set out elsewhere) and focussed on the three "core" stages in the building project set out in ACE/ CEN TC395.

CZ2 Selected project types are:

A) **Family Houses** (gross floor area approximately 200m², cost approximately €250,000):

Only a small number of commissions are carried out by authorised architects. For this type of contract construction engineers are usually called upon by the general public. Only a small percentage of clients in any one city will directly employ the services of an architect. Exact statistics are not known, but according to unofficial information of the building authority the ratio in Prague is about 1:10

B) **Apartments** (approximately 20 units of 70 m² each, cost approximately €1.5 m):

Apartment buildings are usually only built as a development project by a trading company. Only a few apartment building projects are financed by the state or a municipality, normally they finance only retirement homes or shelters. Cooperative development, common only a decade ago, has disappeared completely. The architect usually carries out the project design from beginning to end and is also the principal designer in the whole process. Choice of designer is based on references and tenders are not normally used. Larger developers will normally employ a small number of established offices so it will be a problem for other architects to win such a contract.

C) **School Buildings** (approximately 3000 - 6000m², cost approximately €4-6 m):

commission of a project to this extent would be rare in the Czech Republic; the project would usually be a reconstruction or extension of an existing school. Any construction of a new school building would be on a smaller scale. As required by law, a designer should always be selected through a tender process, where the lowest project price is used as the major selection criteria; the design itself is not a substantial part of the decision process. That will be dealt with later with the particular designer once selected. If required by the building authority or a relevant investor, they may have a design competition prior to tender. The Czech Chamber of Architects is in this regard actively trying to raise investors' awareness of benefits of such design competitions. The design competition may also include the criteria for the tender. A separate option would be to provide more opportunities to involve young architects without the usual necessary background into the competition process; in the second case the investor can include in its requirements for the competition the studio's ability to implement the contract. The Chamber of Architects comment on

each proposed design, provide a brief for tender inviter and recommend professional members for a jury. According to the Chamber's rules an authorised architect may only participate in tenders approved by the Chamber, otherwise sanctions can be imposed on the architect.

- CZ3 The design process in the CR is based on the Service Standards prepared by the Czech Chamber of Architects (ČKA) together with the Chamber of Certified Engineers and Technicians. Their applicability shall apply to all types of buildings and the updated version is due to be released. The scope of designer's services for the client is defined on the basis of these standards according to which the contract is concluded. The contract itself has a prescribed general form based on the Commercial Code. If the simplified contract is used in case of small commissions (for instance a family house) these contracts always refer to this general contract. In case of commissions of a bigger extent, in our selected project types it means apartment buildings and school buildings, the contract is always concluded in full.
- CZ4 Service Standards include all actions necessary to implement the project. It is divided into five basic chapters:
- a-urban planning**
 - b-building design**
 - c-landscape architecture**
 - d-interior**
 - e-special activities**
- CZ5 Activity of an architect in case of the selected project types – family house, apartment building and school building – is included in part B, building design.
- CZ6 Building design is divided into phases that are then divided into individual services. Service within each phase is either standard or non-standard, both referred to as the designing service. Among other services are engineering, special professional activities and requirements for investor's cooperation.
- CZ7 **Standard service (in all phases)** – is valued on the basis of a fee scale and its scope is the minimum project documentation for the design, permission and specifications for making pricing structure. It also includes architecture and engineering services. The "minimum" must be understood in terms of regulation of the Ministry that is burdened with information and that does not distinguish the size and type of the building. Potential reduction of the project for simple buildings (a family house) is subject to an agreement with the authorities responsible for authorising the construction.
- CZ8 **Additional service (in all phases)** – is valued individually and include service that is not directly

related to the given phase but describe non-standard possible services. (e.g. web presentation as an additional phase of building permit process).

- CZ9 **Engineering** – is not seen in the Czech context as engineering design professional activity but as all activities related to the authorisation of construction and providing opinions of network administrators, neighbours etc.
- CZ10 **Special professional activity** – describe activities that arise as a specific feature for the given project in terms of the site or requirement by the authority in the process. These are special studies (noise, geology) or surveys or the whole part of EIA project.
- CZ11 **Investor's cooperation** – defines requirements for initial information that are to be provided to the architect by the client for the given phase.
- CZ12 Compared to ACE, the main feature of the Czech Standards is its strong link to regulations of the Ministry of Regional Development. These regulations describe in detail the content of the project in terms of required drawings, written statements and engineering sub-section (transport, energy, technology etc.). Service Standards adopt this structure of the regulations and create “core” phase of the Service Standards. These are the stages of the building permit and land use (zoning) permitting process (two-stage permitting process is still obligatory in the CR). These core phases are subsequently mechanically condensed towards the design phase, and completed towards the background for the pricing. Project structure resulting from the regulations remains.
- CZ13 **Position of the Chamber, licence for design:** Construction design is not regulated by law, however, all design activities requiring permissions resulting from the regulation must be done by an authorised person. The authorised person is a designer architect or a civil engineer with a 5-year study of the field, two years experience in the field under the supervision of another authorised person and is a member of a professional chamber – The Chamber of Architects or The Chamber of Certified Engineers and Technicians. Only the construction on sites specifically listed in regional or local zoning plans or with other conditions (e.g. preservation of monuments) may be undertaken only by an architect. Membership in the Chamber provides an architect with the basic insurance policy for his service. For the construction of a family house it is sufficient, however for larger commissions additional insurance is at the discretion of the architect or at the request of an investor.
- CZ14 **Position of the fee scale:** It is contrary to the chamber's rules to work on a project for a different price than is set in the fee scale. However, it is not legally binding and dumping prices for the project are quite common in the market. Besides the chamber's fee scale there is a fee system for private entities called UNICA, which is widely used by engineers and is tolerated by architects.

Both systems are based on the classification of buildings according to difficulty and gross investment costs. Fee scale is related to the project as a whole without distinguishing between the architectural and engineering activities.

CZ15 **Architects' service:** authorised architects perform his/her profession as an employee of the design studio or as a freelancer.

Comparison of standards in the Czech Republic with ACE/CEN TC 395

1. PRELIMINARY STAGES

CZ16 INITIATIVE

1. market study
2. business case

In practice this phase is not normally carried out. The Official Service Standard does not describe it. Education does not allow an architect to carry out this phase, if an investor requires it, an architect finds a third party to do it.

CZ17 INITIATION

1. project initiation – analysis of client's requirements
2. feasibility study – verifying project definition with the regulation, feasibility
3. project definition – finalizing project definition

CZ18 In the Czech Standards the INITIATION phase is done within one phase called "project preparation". This is the phase when the client comes into a contract with the architect. The scope of the project determines how detailed the project is. The family house would normally require consultations, site inspection, and verification of the basic data from the building authority or other authorities. These authorities' opinions are always unofficial; output for the client is more of an informal nature. The bigger commissions (apartment building, school building) would normally require a more detailed report summarizing findings and recommendations.

CZ19 Project preparation includes:

- appraisal of the existing data and request to complement it if necessary
- assessing the suitability of the site for the construction
- setting the project scope
- estimating the overall project schedule

CZ20 The fee scale values this part at 1%

CZ21 The “feasibility study” stage is not normally used, the term as such is known and described, but not included in official standards. This stage of the process is commissioned by investors for the bigger developers’ projects or for the commissions on problematic sites to examine the approvability of the planning. A specific form of feasibility study is an architectural design competition for public, rarely private contracts, which focuses primarily on the ideological aspects of the proposal.

2. DESIGN

CZ22 This includes:

1. conceptual design
2. preliminary design
3. developed design
4. detailed design (en16310)
5. engineering design

Standard structure in the CR is different. To simplify it, the comparison can be done this way:

1-2 Conceptual design + preliminary design corresponds to the study phase “study of project”

CZ23 This phase should be done only by the architect; however, it is not required by the legislation so the investor chooses who will design the building. The scope of this phase is usually a conceptual design of a project, selection of the desired concept and its completion to its final form at a scale of 1:200 or 1:100. The designer undertakes detailed consultations with the authorities to examine the approvability of the planning, taking into account all known norms and regulations for the project, approaches the design in terms of expected costs and standard. He defines all the factors and requirements for the next phase in terms of engineering professionals – heating, ventilation etc. This is the stage that can be prepared in common standard of a small project by the architect with the proper education and does not require specific engineering knowledge, it is consulted if necessary. For larger projects (apartment building, school building) other professionals are involved already in the study phase in order to revise the design.

CZ24 In practice, however, the client tends to minimise the Preliminary Design Stage given the scale of the subsequent stages for building permit, to prepare only the conceptual design and to compile the other required materials in the land use (zone) permission project. The scope of the „study” stage therefore often depends on the agreement between the client and the architect relating to the extent to which the architect will agree to move to the next stage. This is a common practice given the market pressure and lowering the prices for the project.

- CZ25 The fee scale values this part at 13%.
- CZ26 Official service guidelines of the Design phase result from the structure set by the regulation that condense it for the Design phase. This is the reason why we do not speak about conceptual factor of the design at this stage (the regulation does not use this term) so this stage is in the official Czech Standards missing.
- CZ27 “Land use (zone) permission project” – after obtaining the client’s approval of the study, the architect will produce the land use (zone) permission project containing construction part and individual engineering professionals. This phase has no parallel in the ACE structure. This is a review of the project in terms of urban context, connecting to the infrastructure and other interests in the area. For smaller structures such as a family house is this phase carried out together with building permit (however, formally still binding), for the larger structures it must always be carried out. The project then goes to individual authorities authorised to issue approvals concerning land use (zone) permission process. At this stage the designer deals with these authorities to revise the project according to the requirements. Individual authorities can have specific requirements on the documentation scope beyond the regulation that must be respected by the architect. When all approvals are issued, the building authority issues one joint approval necessary for granting the land use (zone) permission. In the case of small structure up to 10 approvals are normally required, for the bigger structure on a complicated site tens of approvals can be required. In practice there are only few approvals issued by the state authorities, municipalities (supervising environmental health and security issues) that may have a significant impact on the project. Other are rather formal approval of non-conflicting relation to existing installations. Since the above mentioned authorities do not issue approvals that are mutually coordinated, it is the architect’s responsibility to deal with the contradictory interests. This can lead to increased number of necessary negotiations. That is why negotiations with authorities are a separate service called engineering and is additional service that does not fall within the fee scale. For larger structures this service is done by the third party commissioned by the architect or by the client.
- CZ28 Land use (zone) permission is the approval for the client to realize the construction on a given site; it is not a building permit. If another part of the project is required, e.g. the EIA study, it is carried out during the course of this stage.
- CZ29 The project documentation in the construction stage is done at 1:100 scale, which is not higher than in preliminary design. Together with the project additional materials must be presented such as reports on service connections, structural engineering, fire security and other specific parts resulting from the location of the building on the site and its relation to the surroundings.
- CZ30 The fee scale values the land use (zone) permitting phase at 15%.

3 *developed design*

- CZ31 Developed design (Ad2) in the Czech context corresponds to the building permit project (building permitting, approval). This documentation includes additional materials such as land use (zone) permission and new investor's requirements which is quite common as the land use (zone) permitting process for larger structures may be long, so many factors on the site can change in the course of this process.
- CZ32 Construction documentation is at 1:50 scale; engineering part is completed in more detail providing definite data on the energy consumption etc. Energy label (PENB) is made in this stage. Structural analysis is presented. Documentation processing is similar to land use (zone) permitting process. The architect pre-negotiates requirements of individual authorities, then includes them and submits them to the authorities. When they are issued, the building permit application is handed to the building authority. In order to reduce delays and if agreed by the building authority, the architect can submit the project for building permit process even before obtaining these approvals, that will be presented within the set period. This method is however not officially acceptable in terms of the Building Act. A number of approvals are smaller than in the zone permitting process; there is also an option that relevant authority may retire from repeated decision process in the building permit process.
- CZ33 For a small family house building permit documentation is considered also as land use (zone) permission documentation and the process is reduced to a one-stage construction approval despite the fact that formally it is still binding. For a larger commission the whole process is lengthy and schedule is therefore difficult to estimate.
- CZ34 The developed design phase building permit is valued in a fee scale at 22%.

4 *detailed design*

- CZ35 Detailed design (Ad3) – This phase is for a small project of a family house usually carried out by an architect who also coordinates subcontracted engineering professionals. The procedure for larger buildings is depending on the office similar or the whole project is commissioned to the third party and keeps only the principal supervising authority. Other option would be that the whole phase including responsibility is taken over by an engineering design studio. Based on the agreement with the investor the architect may influence the project only through author's supervision or licence contract. However, these tools are not much effective.
- CZ36 Typical scale of the project is 1:50, detail also 1:1, all specifications, surface finish, facilities and

technology is described. The scope and the use of this phase are subject to more interpretations depending on whether it is a public or private commission. Official definition is as follows: the project, according to which “should be possible to create the bill of quantities and documentation to be used for binding description of all structures for the supplier”. Specific view on the detailed design is the view of the building authority that may require preparation of individual parts of the building in detail that would serve as materials for the building inspections. The bill of quantities itself is not regarded as the service of this phase.

- CZ37 For a small private commission (e.g. a family house), the detailed design is also the engineering design, which means the construction documentation. This can be similar also in the case of selected apartment building with up to 50 units. For larger commissions such as a school building, the detailed design is seen only as a basis for cost assessment, where part of the building supply is also the detailed design produced by the supplier.
- CZ38 In the case of public commission the architect is limited by the description of individual structural elements only on general level which forbids more elaborate details description based on the element of the specific producer. This leads to documentation with less details and more description leaving an architect less certain of whether his ideas will finally be realized.
- CZ39 In the case of a private investor, the detailed design prepared by an architect is comprehensive and the supplier only completes manufacture design. Drawings and details descriptions include specific manufacturers of structural elements.
- CZ40 The fee scale values this service 28%

5. *engineering design*

- CZ41 Engineering design (Ad4) – This documentation is not normally prepared by the designer commissioned by the investor, but by the building contractor. He will prepare it or commission it from original designer as completion of engineering design. This phase is not described in the service standards as architect’s service or engineer’s project. The scope of the project depends on the supplier’s requirements for more detailed information on the given structures, concerning the individual parts or only structural elements. The original architect usually requires examination of the detailed engineering in the detailed design; however, unless there is no support from the investor, disputes about changes in project are for the architect unsolvable. For smaller buildings the detailed design is regarded as the engineering design.

3. *PROCUREMENT*

- CZ42 The architect participates in the tender only as an advisor, this service is always additional.
- CZ43 Family house – the architect would advise on potential contractors, revising references and bids assessment. Involvement of the investor's technical controller in the process is not usual, only above standard commissions of this type.
- CZ44 Apartment building – a developer normally employs the services of the investor's technical controller who represents him during the whole process. Position of the investor's technical controller may also be delegated to the architect. For the following implementation of the construction, however, technical controller must be certified by the Chamber of Certified Engineers. In the event the architect is certified by it, it is seen as conflict of interests if the investor is represented for the implementation of the construction by the author of the documentation.
- CZ45 School building (public commission) – the procedure is similar to the apartment building.
- CZ46 The procurement process is governed by two laws – the Building Act and the Act on Public Procurement. According to the Building Act the architect prepares bills of quantities, the cost assessment is additional service and may only be prepared by the certified technician. The cost assessment is based on selected price system. Under the new standards the intention is to systematically separate creation of bills of quantities from valuation based on the price system that does not allow control of the architect and the investor.
- CZ47 The fee scale values this part AT 8%.
- CZ48 The building is tendered as a whole, the investor always seeks a principal supplier, and therefore also project design makes a whole. Potential suppliers then ask their own subcontractors for price quotation for the individual parts.
- CZ49 The Act on Public Procurement defines the scope of specifications that are prepared for the investor by the potential supplier. By law this is the set of documents, data, requirements and technical specifications from the investor defining the object of the public contract in details required for preparing the bid. Specifically, it is the case of draft contract, terms of payment, insurance etc. The architect may participate in this phase only as a consultant to specify certain parts of the project. Assessment or evaluation of the tender documentation is completely the competence of the investor or through his representative, investor's technical controller.
- CZ50 Drawings for the purpose of procurement process are the detailed design. There is a new requirement that bills of quantities were clearly controllable from the drawings, so the architect will complete the drawings with the specifications and description that will allow this clear control.

Documentation is submitted in the pdf format. The most common programmes used are autocad, archicad. BIM programmes are only beginning to be used and offices are resisting using them. In the new standards BIM method is considered as additional service.

- CZ51 It is common that during the course of the process the company preparing the bid contacts the architect for additional information or inquires about possible change of materials. With a large number of companies this means a lot of extra work for the architect.

4. CONSTRUCTION

- CZ52 This incorporates:
- 4.1 preconstruction
 - 4.2 construction
 - 4.3 commissioning
 - 4.4 handover
 - 4.5 regulatory approval

4.1 preconstruction

- CZ53 choice of supplier is based on the scoring system, where the lowest price is the most important criterion. In the event when none of the bids meet criteria, the investor does not have to choose any bid and may agree the project changes with the designer in order to achieve a more favourable price.

- CZ54 If the supplier is chosen, the investor, with the help of his project manager, concludes a contract with the supplier. Architect usually does not participate in this process.

- CZ55 Prior to the commencement of the construction works the investor should notify the building authority of the natural or legal person with liability for the construction and the health and safety co-ordinator.

- CZ56 The construction works formally commence when the building site is handed over, an architect may be invited to this process.

4.2 construction

- CZ57 Architect may undertake author's supervision during the construction works. This is regarded as standard service, but its efficiency is very low. The construction works are managed and controlled by the investor's technical controller. The architect may make comments in the site diary; they

become binding for the contractor only when approved of by the technical controller.

- CZ58 The site is also inspected regularly by an official of the local municipality (the “Building Inspector” or “Building Control Officer”) who announces the inspection in advance, or creates the inspection schedule at the beginning.
- CZ59 During the course of the construction works the investor’s technical controller will organise regular inspections “site meetings” to which the architect is invited.
- CZ60 During the course of the work the architect, at the instigation of the technical controller, makes changes to the project resulting from the change of materials, structural design. In practice, the link between building contractor and the architect is quite direct and it is mainly up to the architect to what extent he would agree on this method with the risk that it may not be later recognized by the investor’s technical controller as additional work. Modifications to the project are valued as additional service at an hourly rate.
- CZ61 The fee scale values this part at 11%
- CZ62 If a large number of modifications is required during the course of the construction works, a so-called change of construction before completion is necessary, this is a process supervised by the building authority. It is the responsibility of the contractor to carry out the construction works in compliance with approved documentation and to consult amount of acceptable modifications with the building authority. It is usually carried out by the investor’s representative, investor’s technical controller; however, by law this is contractor’s liability. The building authority will decide whether it is necessary to prepare new documentation, if such documentation must reassess any other authority or the change may only be approved through the site inspection and entry in the site diary.
- CZ63 In practice, the changes to the construction before its completion is from the architect’s view problematic as it does not require the direct authorisation by the principal designer, only by the person who carried out the change.
- CZ64 Payments to the building supplier are carried out in the arrears, according to the stages of finished parts based on handover and approval by the technical controller.

4.3 commissioning

- CZ65 In the course of the building, revisions of individual technical equipment are carried out and a protocol is drawn up.

- CZ66 Tests of heating, gas and also chimney inspection are carried out. Investor's technical controller will verify that all inspections were correct.
- CZ67 The legal warranty of the building contractor is five years period by law, unless stated in the contract otherwise.
- CZ68 Preparation of the use instructions is not part of the standard architect's work. This is regarded to be contractor's responsibility.
- CZ69 For larger structures run in trial mode is set. This trial period may last up to a year.

4.4 handover

- CZ70 At completion the construction works contractor will carry out the geodetic survey for the Land Registry and produces engineering design. Its scope is set by the regulation and is not a standard architect's service. The building contractor may commission it from the designer.
- CZ71 The investor's technical controller determines handover eligibility of the building; however, standard contract for work states that "building contractor will take over the work if it is suitable for use". It implies that in spite of small faults the building must be taken over. The investor's technical controller will produce a report on faults and unfinished works with proper deadlines for completion/removal. Only after the completion and final handover, starts a deadline for complaints relating to individual parts, which is governed by law. For larger structures longer guarantee periods are agreed in the contracts, in some cases up to ten years.
- CZ72 The building contractor hands over all revision documents to the investor's technical controller if not already done so and sends the geodetic survey to the land registry, subsequently applies for a regulatory approval at the building authority.
- CZ73 According to the normal contractual relationships the work is regarded as completed once the regulatory approval is granted, which is a standard contract condition

4.5 regulatory approval

- CZ74 The completion of the building and its commissioning is based on the regulatory approval; one building may require more regulatory approvals according to dividing the whole building into individual building objects. These building objects may undergo regulatory approval process even in the course of the construction works, ahead of the other ones. The regulatory approval,

according to the scale of the building, may include more inspection approving of implementation correctness e.g. fire safety, transport solution. If any faults are found, the protocol of faults that must be removed until the next inspection is produced.

CZ75 All parties involved in the building permit process take part in the regulatory approval. Based on this regulation it is not legally binding for the architect to do so, but it is regarded as a standard service for the investor. If they both agreed on it.

FINLAND (SUOMI) -

Background

S1 This note is intended to set out, briefly, the scope of architects' services in the design and construction phases of a construction project in Finland. This note is based on the UK note written by Roger Shrimplin.

As explained elsewhere (in a general introduction), the note is focussed on the three "core" stages in the building project, set out in the Glossary to the relevant European Standard (CEN/TC 395), namely *Stage 2: Design, Stage 3: Procurement and Stage 4: Construction*.

However, also the precursory stages (*0.Initiative, 1.Initiation*) are shortly covered because of the responsibilities of the parties defined in the Finnish legislation, "*the principal designer*" and "*the party engaging in a building project*"¹². Also the importance of pre-design stages demands that they are shortly covered.

S2 It is based on three selected project types, namely:

- A family house (gross floor area approximately 200m², cost approximately €350 000);
- B apartments (approximately 20 apartments of 70m² each, cost approximately €1.5m);
- C school building (approximately 3000-6000m², in an urban location but not a large city, cost approximately €5-6m).

S3 In this Finnish version, these three project types are dealt with as a whole, since they would be dealt with in essentially the same way. It must be stated that the case of a family house designed by an architect is not very common in Finland. Vast majority of the one family houses outside of the major urban areas are pre-fabricated houses. It is estimated that less than 5% of one family houses in Finland are designed by an architect. Housing projects in these areas is dominated by contractor-driven housing production where the architect does not have a very powerful position. The profession of the architect is not regulated in Finland. This causes some problems at least from the consumer protection point of view.

1 Land Use and Building Act (132/1999, amendment 222/2003 included) UNOFFICIAL TRANSLATION
<http://www.finlex.fi/en/laki/kaannokset/1999/en19990132.pdf>

2 "The party engaging in a building project" can be a person, a public entity, a company etc.

Stage 0: Initiative (CEN/TC 395)

0.1 Market Study

0.2 Business Case

S4 In Finland, *the party engaging in a building project* is regarded as been born when he/she is in contact with authorities concerning his/her project. Authorities need not be building authorities, they can also be authorities like authorities supervising environmental health and security issues. The responsibilities of the party engaging in a building project begins at the same time. "*The party shall have the necessary competence to implement the project, as required by its difficulty, and access to qualified personnel*"³. This means that in certain cases architect should already be hired in the phase 0 and nominated as the principal designer.

Stage 1: Initiation (CEN/TC 395)

1.1 Project Initiation

1.2 Project Definition

1.3 Feasibility Study

S5 In general the architects who will eventually design the building are not often involved in stage 1 although in my opinion they should be. *The party engaging in a building project* and already hired consultants – *a construction manager*, for example – are making decisions concerning different aspects of the building project. The architect himself very seldom acts as a construction manager nowadays. In addition the architectural companies focus almost solely on the design of the buildings. Organising the project, quantity surveys, calculation of the construction costs do not include into the scope of a Finnish architectural office.

S6 The architect – when nominated as *the principal designer* – might be regarded as responsible for these decisions later on in the building process. The party engaging in a building project – or a hired construction manager who uses his mandate – often wants to nominate the principal designer as late as possible because of prestige reasons. This creates sometimes a conflict between legal responsibilities and possibility to have influence on for the principal designer. According to the National Building Code of Finland, the principal designer must be nominated at the latest when submitting a building permit application. The principal designer need not necessarily be an architect in all projects, anyway in the vast majority of projects the principal designer has an education of an architect. The building authorities have the definitive power to approve or dismiss the principal designer. The role of the principal designer does not include making drawings. It is more like a co-ordinating, affirmative role. The term "principal designer" is

3 Land Use and Building Act (132/1999, amendment 222/2003 included) UNOFFICIAL TRANSLATION
<http://www.finlex.fi/en/laki/kaannokset/1999/en19990132.pdf>

not very felicitous. In my opinion, a better term would be something like *the Principal Architect*⁴ when the project is about building a house – caves, bridges etc. engineering works excluded.

- S7 In Finland in the corresponding stage of the CEN TC 395 Stage 1 the overall project framework is defined. Usually the Initiation phase is documented in a written document called project plan⁵. It includes all the necessary information to decide whether or not to proceed with the project. It also includes the necessary initial data to start the building design like the results of the surveys, the legal and technical limitations of the city plan and the site, areas of the different needed spaces, definitions for the qualities of the spaces, the overall project schedule, the estimated construction costs and sometimes reference plans. The reference plans should always be presented in a separate attachment because of procurement and copyright reasons.
- S8 The building costs are defined mainly by two methods with target costing application. At first only from the room program for budgeting purposes and secondly after the plans are available – from the plans to check if the design meets the requirements and the budget.

Stage 2: Design (CEN/TC 395)

Sub-Stages 2.1: Conceptual Design and 2.2: Preliminary Design

2.1 Conceptual Design

2.2 Preliminary Design

2.3 Developed Design

2.4 Technical Design / FEED

2.5 Detailed Engineering

- S9 After the phases 0 and 1 In Finland there are several possibilities for the project to proceed. If the client is a public entity, a public procurement process will follow. In the case of private clients the procedure is free. The definition of the provider's (architect's) task bases in general aforementioned project plan which is very often attached to the procurement notices. Furthermore, it is very common to refer to the Scope of Work for architect, published by the Building Information Group⁶.
- S10 In public procurement there is a variety of ways to commission a project. Unfortunately Finnish public clients mainly want to minimise the risk of market court process by using the lowest price as selection criteria. The overall economy of the project is also used as selection criteria but due to the assessment methods and pointing systems, the lowest price dominates also there. The fee is

4 *Laund Use ans Building Act, § 120, "When a special design is prepared by more than one designer, one of them must be appointed as the designer responsible for the special field concerned in its entirety."* These professional could also be nominated *principal*"

5 In Finnish the document is called "*hankesuunnitelma*"

6 <https://www.rakennustieto.fi/index/english.html>, referred 7.2.2012.

normally defined during the procurement process although some extra work which can not be defined beforehand may be charged separately. It is very common that the construction manager sets a separate processes to procure the necessary technical consultants. It is very common that the selection criteria is the lowest price also here. Design contests are very seldom in public procurement. According to national database on public procurement during the recent years only less than 2% of the public commissions are based on design contests.

- S11 It is very common that all consultants are in direct contractual relationship with the party engaging in a building project. The construction manager sits in between. Recently, probably because of the taxing public procurement process of all consultants, there have been some procurements where the principal designer has been obligated to build up a design team.
- S12 After the procurement process the design would begin. Normally the design team would consist of the principal designer who is almost with no excuses the architect, the architect, civil engineer, mechanical (HVAC) engineer and electrical engineer. Sometimes there are a variety of specialists, acoustic, geological engineer, landscape designer and a fire and rescue specialist to name a few. According to National Building Code of Finland it is on the responsibility of the party engaging in a building project and the principal designer to define the necessary expertise needed in a specific project. There are scopes of work for various specialists, also published by the Building Information Group. All the scopes of work from the 1990s have been under development for years. Updated scopes will probably be published in 2012.
- S13 There is no legal obligation whatsoever to sign a written contract before proceeding with the design. Sometimes between private clients and architects the contracts are signed only after the work has completely been done. There is no legal obligation for architects to have professional indemnity insurance but insurance is very common among architects.
- S14 Because an architect – or the principal designer – is a professional regarded to the party engaging in a building project, he has legal obligation to inform the party about all the things which might have implications on the provision of the responsibilities of him. Regarding to the consumer clients, the Finnish consumer protection act⁷ gives the consumer a lot of rights. Architectural companies almost avoid private clients because of high risk and low compensation.
- S15 It is on the responsibility of the principal designer (architect) that the plans and designs are drawn up taking into account all the national laws and building codes. He must also take care that the legality of the plan can be demonstrated with the drawings and documents.
- S16 The design process would probably start with the development of alternative concepts which fulfil the requirements of the project plan. A good rule of thumb is to produce three different concepts.

7 <http://www.finlex.fi/en/laki/kaannokset/1978/en19780038>

The scale of the drawings would probably be 1:200 or 1:100. The client or the construction manager might evaluate the alternative concepts by calculating the estimated construction costs from the plans. The sketches which would be presented to the client would almost certainly be made with computers, and roughly over half of the cases including photorealistic renderings – by using BIM in very early stage of the project. Normally the client would choose one of the sketches as preferred alternative to be refined.

Sub-Stages 2.3: Developed Design, 2.4: Technical Specifications and 2.5: Detailed Engineering

- S17 The design team, under the command of the principal designer, would probably refine the selected sketch, probably through several refinement rounds until it matches the target. The design would be done under the steering of the party engaging in a building project or his representative, the construction manager. The design team can only propose design solutions, all the decisions are made by the party engaging in a building project or his representative, the construction manager.
- S18 The team would then produce an official set of drawings, “main drawings”, (or “pääpiirustukset” in Finnish) at scale of 1:100. These drawings are a part of a set of documents with which the party engaging in a building project applies the building permit. The municipality alone gives the guidelines, interpretes the municipal regulation and legislation and then grants the building permit. The interpretations and decisions vary a lot between the municipalities and depending on the type of the project. It is common that the architect (in the role of the principal designer) takes care of the submittal of the official building permit documents and forms requested by the authorities by proxy from the party engaging in a building project. Recently, especially in large, complicated projects different pre-handling processes concerning the building permit have become normal.
- S19 Some responsibilities concerning the construction works can be imposed on the principal designer by the building authorities on a special kick-off meeting, which is organised by the building authorities. The party engaging in a building project or his representative, construction manager, and the principal designer are obliged to attend the meeting. It is on the responsibility of the party engaging in a building project that the building is built up according to the national laws and building codes and according to the granted building permit. Construction works can sometimes be initiated before the official building permit has been granted (with pledge) for example by beginning the necessary site clearing or demolition works although demolition usually needs another permit.

Stage 3: Procurement

Sub-Stages 3.1: Procurement and 3.2: Construction Contracting

- S20 The amount of the design works – in addition to the building permit – depend heavily on the construction contracting. If the construction works are organised under one main contractor plus subcontracts it may be that the design team produces only one set of drawings⁸ for the bidding process. Additional design works would be done during the construction work, normally included in the fee. Because of the difficulty in defining the amount of additional works it would be recommendable to agree to charge them by hourly rate. Certain supervision of the construction works could include to the scope of the work of the principal designer/ architect. In fact the building authorities can impose certain supervision duties to the designers.
- S21 If the construction works would be done by construction management or management contracting project model the situation would be quite different. In management contracting the design and actual construction are more or less overlapped. It might well be that the foundations are under construction but the load bearing structure might still have alternatives.
- S22 In management contracting projects the bidding process of the various parts of the building demands different sets of drawings. The drawings are grouped according to the phases of the construction works and according to respective procurement sets. Theoretically the design team should be prepared to produce about ten separate sets of drawings for the bidding processes. In some cases the main contractor wants help with his own procurement process. In these cases it is impossible to predefine the needed amount of work. It might be that the design team has to produce document sets for almost every imaginable part of the building. It might be that a document set only for window sill procurement has to be produced. In these cases the amount of separate drawing sets for bidding might be hundreds instead of tens.
- S23 In the recent Finnish development in management contracting theory, there are three different levels of detailing in the definition of the building components. The interest to contribute such development comes inevitably from the construction industry and from construction companies.
- S24 1) The broadest is the principle of the design team to produce only the description of features for the building components. The contractor then passes the detailed design on to the manufacturer of the respective component. The idea of the principle is to exploit the component manufacturing knowledge in design and optimise the planning effort. In the Finnish case – because the principal designer is responsible for the legality and the matching of the components and designs of various disciplines (architecture, mechanical, HVAC, electrical etc.) into one harmonious entity – he has to have the final command on the approval/disapproval of the manufacturer's design. Otherwise this is not possible.

8 "Urakkasarja", "urakkalaskentasarja" in Finnish, means set of drawings intended to be used in bidding.

- S25 2) Next is the principle of the design team to produce design documents as design guidelines. These designs are subject to change if something would be altered during construction. This principle is developed also to exploit the production knowledge of the contractor.
- S26 3) The third is the principle to produce detailed designs by the design team according to which the building is supposed to be built. This has been the “traditional” way of producing construction documents. The critique towards this principle has been that the knowledge of production has not been exploited. On the other hand, it can be argued that this principle leads more and more product oriented construction and custom made components will slowly disappear.
- S27 In Finland different management contracting and construction management methods are becoming more and more popular. What comes to the scopes of work in construction and remuneration, it will be even more difficult to estimate the effort needed as a whole. The variation of workload of the architect is huge depending on the project and it seems that only realistic way of making contracts is on the basis of hourly rates.
- S28 New contracting principles have brought little changes to actual drawings. There might be more markings which relate to borders between contracts. The working drawings itself would have been done with CAD. Main drawings would be at 1:50, detailed drawings could be done at 1:1 scale depending on the project. Explanations of the drawings, painting works etc. are compiled into separate bound A4-sized books which have referrals into drawings. Electronic documents would probably have been saved into project server, in some cases hosted by a printing company. Copy traffic and document versioning would be mainly automatised, the most usual file types being *.plt and *.pdf. Main CAD-programs would probably be ArchiCAD, AutoCAD and Revit.
- S29 The contract documents, managed by the construction manager, would be divided in two groups, commercial and technical documents and numbered. The commercial documents, which include the contractors bid, the contract, possible additional explanation which were given during bidding process etc. The technical documents including project plans, drawings, explanations etc. The “order of succession” of the documents is commercial documents first, technical documents after. All these document are compiled in folders, sealed and tied to the signed contract. The accomplishment of the construction works is tied to sealed contract package. Should there be any disputes, the definitive referral document is the compiled package.

Stage 4: Construction (CEN/TC 395)

Sub-stage: 4.1 Pre-construction

- S30 The contracting and the contract management is almost completely in the hands of construction managers. They write all the necessary additional documents for bidding, select the potential contractors, prepare contracts, supervise bidding process, record the opening of bids etc. The principal designer/ architect with the design team may help compiling some of the additional documents. They might also propose contractors from which they have good experiences to the bidding process.
- S31 Should the bids turn out to be too high for example because of the economical situation, immediately after the opening of the bids, the construction manager might arrange a negotiation of the contract with all the contractors, separately one by one. It would be possible that construction manager asks each contractor to propose ways to build more economically and revise their bids accordingly. In these negotiations the plans are sometimes quite ruthlessly modified. After the contractor has placed a new bid and if his conditions, the costs and other specifications are met the contract would be signed and the modifications to the plans recorded.
- S32 The construction manager would arrange the hand-over of the construction site to the contractor. There is a quite new act (2009) concerning the co-ordination of the safety on the construction site. In a construction project a safety co-ordinator must be nominated.

Sub-stage 4.2: Construction

- S33 When the construction begins the party engaging in a construction project – or his representative, the construction manager – would supervise the execution of construction works. There might be a separate construction works supervisor or inspector hired by the party engaging in a construction project. Also the building authorities would supervise the works in certain steps before the permission to proceed with the construction works is given. The supervision from the building authorities does not mean that the responsibility of the party engaging in a construction project, the construction manager, the principal designer or the contractor would be diminished at all. During last years the impression has been that the effort of design has diminished but the effort of supervision has grown.
- S34 The design team on the command of the principal designer would take part on the supervision of the works. Normally, this would be arranged in connection with the “site meetings”, chaired by the construction manager. In the site meetings all contractors and all members of the design team are represented. Minutes of the meeting are very important documents if something would go wrong.
- S35 Every now and then during the construction there would rise a need for either more detailed design information or design change. These needs can rise from different causes. During the negotiation between the contractor and the construction manager immediately after the bids some plans might

have been changed. The plans might be insufficient due to various reasons. The client might also change his mind during the project. If the contractor cannot keep up with the schedule he might accuse that the plans are insufficient, thus he is late. In renovation projects something unexpected might show up during demolition or when surfaces are broken and structure opened etc.

- S36 These modifications to the plans are done only when they are accepted by the party engaging in a construction project or his representative, construction manager. In general in projects, modifications to the plans are not favoured because they are uneconomic. The reason is that the contractor has an upper hand when negotiating about modifications. In general extra work the price is set high and when something is excluded from the original contract the repayment would be set low.
- S37 The payments to the contractor would have been defined earlier and attached to the contract. The payments are usually tied to the completion of a certain phase of the construction works. In general the construction manager keeps the payments and the progress of the works in balance. It is not desirable either to pay too early because of the risk of losing money or too late forcing the contractor to fund the construction works.

Sub-stage 4.3: Commissioning

- S38 Close to the end of the construction process, various installations and certain elements of the building require to be tested. The builder co-ordinates the tests and the preparation of operating manuals. For projects where the Health and Safety regulations apply, a comprehensive manual is a legal requirement and even in the case of a single family house for an owner-developer such a manual would be compulsory for buildings built after year 2000.
- S39 In Finland the coordination of the building up of the operating manual is on the responsibility of the principal designer. However, in bigger projects it is very common that a separate consult takes care of the compilation of the service manual. It is more and more common that these service manuals are online. In some cases the online building automation systems and operating manuals are intertwined.
- S40 The architect takes part to the inspection of the quality of the construction works. All deficiencies are recorded in official minutes and the contractor is obliged to make repairs. The building authorities would give the permission to occupy the building. In the case of one family houses the readiness of the building varies.

Sub-stage 4.4: Hand over

- S41 After the user has occupied the building there will be another inspection of the building after certain period of time. Only after the guarantee period the surety placed by the contractor is released.
- S42 In general the works defined in the building permit must be finalized in a period of five years. If the project is not finalised, the party engaging in a building project can apply additional time.

Sub-stage 4.5: Regulatory approval

- S43 Building authorities would then conduct a final inspection and give an official statement that the building is ready. In bigger projects there would be other authorities like fire and rescue etc. The official inspection would be done before occupation of the building in the case of public building, commercial building of big block of flats.

- FRANCE (FRANCE) -

Background

F1 This note sets out the scope of architects' services in the design and construction phases of a construction project as normally carried out in France. In the same way as studies for other countries, the three "core" CEN/TC 395 stages in the building project form the focus of this note; namely Stage 2: Design, Stage 3: Procurement and Stage 4: Construction. This note also covers the three selected project types:

- A family house (gross floor area approximately 200m², cost approximately €350 000);
- B apartments (approximately 20 apartments of 70m² each, cost approximately €1.5m);
- C school building (approximately 3000-6000m², in an urban location but not a large city, cost approximately €5-6m).

In France, services for these three project types can be very different due to the nature of the client in each case.

A the family house will usually be for a private individual, well protected by consumer legislation and requiring extensive advice on planning and procurement procedures.

B authorities that build social housing require the same services as other public clients.

For this reason, we have considered the case of apartment buildings built for private developers. Unfortunately, the latter occasionally require a service limited to planning approval or up to completed design for tender.

C school buildings are built for public clients who are subject to public procurement procedures and in particular architectural design competitions.

Work stage headings are the same for each project type as the private sector tends to emulate standard scopes that have been set out by legislation for architects and engineers when working on public contracts. The description that follows sets out common features before highlighting differences at each work stage.

Preliminary Stages:

F2 Prior to working on the design, the architect should obtain a written appointment and sufficient information about the project brief and the physical characteristics of the site. Services offered to the various client types differ at the outset of the project as does the way that initial stages are organised.

- A the brief for a family house will often be written by the architect as a result of discussions with the client. This process is seen as important for confidence building.
- B private developers may need this assistance, but it is more likely that they will produce a brief themselves that defines «the product» they intend to market, either for sale or for rent. Larger developers have elaborate briefs that can detail bathroom and kitchen layouts and even specify materials and elements of the design.
- C school buildings, and other public buildings, with fees exceeding 200k€ will require an architectural design competition between approximately three or four architects. By definition the brief will be prepared before the competition by a «programmiste» or brief writer which is a profession that exists in France partly as a result of the large number of competitions.

For private clients, the architect will assess the viability of the project and check that no fundamental obstacles are enshrined in local planning regulations for the chosen site. He will determine whether the brief and the site are compatible in relation to built areas, height restrictions, parking requirements etc.

Stage 2: Design (CEN/TC 395)

Sub-Stages 2.1: Conceptual Design (ESQUISSE) and 2.2: Preliminary Design (APS - APD)

- F3 It would be gratifying to consider that clients call on architects exclusively for their skills and their knowledge of the building process. However, in France, use of an architect is obligatory to file the building permit application that occurs at the conclusion of preliminary design for buildings with floor areas over 170 m². The corollary is that some clients do not commission architects beyond this stage.
- F4 The design phase will start with a review of the design brief, including a statement by the client of the budget available, the desired delivery date for the building and target standards to be applied, for instance for energy efficiency. The architect will identify the need for specialists and define the services to be provided, if this has not been done by the client. For the school building, a list of required specialists will have formed part of the initial call for applicants. Failure to put together a complete team will result in automatic exclusion from the design competition, in view of the number of applicants (50 to 80 is common).
- F5 The Architect's appointment, or contract, defines the terms of the agreement with the client. Fees and responsibilities are subject to negotiation and agreement by both parties. When there is a design competition, contract conditions for a full service will be negotiated with the winner, after the contest, while unsuccessful competitors will receive an indemnity of a value defined prior to the

competition. Public clients have government guidelines to help define fee levels and, in some cases, these guidelines are referred to in negotiations with private clients. Fees are usually paid in stages, after the work has been done.

- F6 As in other countries, European directives have produced Health and Safety legislation that require the appointment of a Health and Safety Co-ordinator for the apartments and the school project but not for the family house, if the client is also the end user. Health and safety documentation is produced by the H&S coordinator who is unlikely to be the same person as the architect. The architect will advise the client to appoint a technical auditor for the apartment and school projects. For the projects considered, it is unlikely that a Project Manager be involved.
- F7 The architect will also advise the client of the need for specific information which is necessary for the design stages, such as information about existing installations and site constraints including third party rights, soil surveys, contamination, existing services, existing vegetation etc.... Measured surveys of existing buildings and site topography will be undertaken by a géomètre (land surveyor).
- F8 For the three identified building types, the design of the proposed building will be produced as drawings at an appropriate scale accompanied by three dimensional renderings. Normal scales are:
Conceptual Design (esquisse) 1/200 & 1/500 except for the private house
Preliminary Design (APS avant projet sommaire) 1/100 & 1/200
Preliminary Design (APD avant projet détaillé) 1/50 & 1/100
You will have noticed that preliminary design is divided into two sub-stages but these could be merged for the individual house. For the school project, the plans rendered for the design competition correspond officially to APS level, though the stakes are often raised by the competitors themselves. To control this, submittals are restricted to a limited number of presentation panels of a predetermined size.
- F9 Each stage will culminate with set of plans and often a written statement from the architect that outlines the important characteristics of the scheme, details options available and reviews the budget. In principal work should not proceed to the next stage without approval from the client. For the school building, no feedback from the client will be available until after the design competition!
- F10 At the completion of the "Preliminary Design Stage", an application is made to the local municipality, where the site is located, for «planning permission» or «permis de construire» for the project. This will normally be based on drawings at 1:100 scale, though other drawings are

required and additional material must also be presented, depending on the nature of the proposal, and the environment surrounding the site.

- F11 This additional material will include a written analysis of the design proposals to accompany project drawings and will include reports on such matters as fire security, access for the disabled and, most importantly, design measures taken to make the project appropriate in its urban or rural context. Urban planning policies are set out in local regulations that are relatively finite. There is some talk of opening up the planning system to more negotiation, but in any case it is, and will be, the local Mayor who has the final word. The architect will assist the client in his relationship with local authorities.
- F12 Further statutory approvals may need to be sought and files submitted at the same time as the «permis de construire». These include demolition permits, if they do not form part of the planning application, and while not applicable for the examples considered; «installations classées».
- F13 Planning permission is concerned with land use issues and visual appearance but also with certain building regulations. It will define the building permitted in terms of its size, shape, external materials etc, as well as the uses to which it may be put. Specific conditions may be applied including use of certain materials, colours etc. Fire authorities and providers of public utilities, for example, are consulted and will give qualified approval. If planning permission is refused, a new application can be made or redress sought at the administrative tribunal.

***Sub-Stages 2.3/2.4: Developed Design & Technical Specifications (PCG)
and 2.5: Detailed Engineering (EXE)***

- F14 Unless the scheme is located in a conservation area, the building permit or “planning permission” will normally take three months to obtain. After approval an additional two months is allowed for third party recourse during which motivated opposition to the scheme can be filed. Unless the client needs to procure his building rapidly, developed design is undertaken after planning permission has been granted and often after the third party recourse period, to avoid the risk of wasted work.
- F15 The developed design is the stage at which construction drawings are prepared with a view to develop the design up to a level of detail that allows the production of written specifications. For the given projects these would normally be at 1:50 scale with typical details at larger scales provided for characteristic parts of the building. In combination with written specifications, the set of drawings provided at this stage would describe the construction in a comprehensive manner.

- F16 Written specifications and a Bill of Quantities without quantities would be required for the projects under consideration. Specifications would normally be prepared by the architect, or by a construction economist, who would also prepare the Bill of Quantities. It is rare that quantities be provided by the design team as bidding contractors will (re)measure the lots that they bid for when building their price.
- F17 The architect will however provide an estimated cost breakdown by trade or lot and will establish the construction programme with the key dates of the construction process.
- F18 Documents produced at this stage are reviewed by the technical controller for compliance with regulations, norms and codes of practice (DTU, Documents Techniques Unifiés). The H&S coordinator will also review the project for H&S during the construction period and for future maintenance. Both produce reports which may lead to the architect revising certain aspects of the design.
- F19 While unusual for the examples considered, the client may require that the architect provides construction or working drawings and calculations for specific trades (études d'exécution). This is considered as an additional service as the task is normally undertaken by the contractors themselves for approval by the architect. These drawings do not replace workshop and assembly drawings that remain the contractor's responsibility.
- F20 The complete construction documents, of course, include the drawings and schedules prepared by other professionals involved in the construction design, notably the engineering professionals (structural engineers and services engineers). The architect's role normally includes the task of co-ordinating these professionals and providing them with relevant information.
- A The family house would normally not require input by other professionals other than for a soil survey and report, that is strongly recommended.
- B The apartment building for a private developer would traditionally not have included engineers as part of the design team as the detailed design of structure and services would be undertaken by the contractor(s). Recent developments towards energy saving are bringing this into question.
- C For the school building, on the other hand, a full team of specialists will have been formed at the outset before the design competition.
- F21 Prior to the construction process the architect will advise his client of the need for any further investigations, such as surveys for asbestos or other deleterious materials. Where the site is built up to its boundaries or where deep excavations are required, he will advise that a «Référé préventif» be undertaken. This is an official record of the condition of neighbouring properties, to

allow demonstration that correct measures have been taken to ensure that neighbouring buildings have not been destabilised.

- F22 As part of this stage, additional services may be required from the architect. These can include:
- A Application for energy certification for the family house.
 - B Energy certification for the apartment building and most probably marketing material and plans of each unit if the apartments are for sale.
 - C Energy certification for the school building will most probably be required as will files for specific subsidies if these are available from various levels of government.

Stage 3: Procurement

Sub-Stages 3.1: Procurement (AMT) and 3.2: Construction Contracting

- F23 The procurement route chosen by the client may have been decided at an early stage. In particular, a client from the private sector will have decided if he wishes to go to tender. The client from the public sector is obliged to do so and is required to follow public purchasing procedures. The architect will advise the client whether to seek offers from general contractors, groups of contractors or from separate trades.
- F24 The architect will assemble the tender documentation including plans and specifications, produced in sub stages 2.3/2.4 and updated if necessary. Additional documents will be compiled if not directly produced by the architect: construction contract terms and conditions, a construction programme, health and safety plan (except for the private house) and any additional information that could assist contractors to price. A list of contract documents and their order of importance is produced along with guidelines (or rules) for tender returns.
- F25 The architect would obtain the client's approval of tender documentation prior to going out to tender.
- F26 The architect would advise on potential contractors, to ensure that those invited to tender are qualified to do the work, have appropriate insurance, are able to satisfy quality criteria and can mobilise sufficient resources to meet contractual deadlines.
- F27 Following receipt of tenders, the architect would analyse the returns, produce a report and advise on the appointment of the contractor(s), presumably on the basis of the lowest price but also taking account of any changes suggested by contractors to improve their offer and any other relevant circumstances.

- F28 This process may result in revisions being made to the proposals, either as a result of suggestions made by contractors or as the result of a need to seek a price reduction. This revision process may involve a return to earlier stages in the project and a repetition of previous work.
- F29 In due course, the contract is agreed and orders can be placed. The fine detail of the contract may be completed as work progresses provided that the architect prepares and obtains the client's signature on an instruction «ordre de service» to carry out the work that sets out the price and timeframe agreed. The construction contract per se, will comprise agreed terms, plans, specifications, construction programme and additional documentation such as the H&S plan, the technical controller's report, the soil survey etc; signed by the client, the contractor and possibly by the architect as witness.
- F30 The architect will advise the client to declare commencement of the works to municipal authorities and will have advised him to undertake necessary steps to allow work to start on site. It is usual to allow contractors a 30 day preparation period but longer lead in times should be anticipated, for example for asbestos removal prior to demolition.
- F31 In some cases, the tender/procurement and construction stages can be subdivided to permit two or more phases of construction. For example, the first phase may involve demolition of existing structures and site preparation work, while the second phase would involve the building project itself. In any case, the main project could require some pre-ordering of materials or installations (such as a lift). Alternatively, the main building project could itself be followed by a fit-out project (for the education building).

Stage 4: Construction (CEN/TC 395)

- F32 In this report, the "construction" stage coincides with the commencement of physical work on the site of the project. Since the report is concerned specifically with the role of the architect, it does not go into details of the tasks which are carried out by contractor(s).

Sub-stage: 4.1 Pre-construction

- F33 Once the contract has been agreed, the architect (or other "contract administrator") will be involved in the establishment of the detailed construction programme, giving due consideration to site constraints and other matters. The Health and Safety Co-ordinator must approve the builder's method of construction statement for compliance with health and safety requirements. The builder's programme and methodology will normally be agreed, in practice, though the conduct of the work remains the responsibility of the builder, not the architect.

Sub-stage 4.2: Construction

- F34 During the course of the construction works the architect would traditionally have had a number of tasks. Even in the context of a design-and-build contract, these basic tasks are still needed, though they may be simplified in different ways or attributed to other professionals. This section identifies the main tasks.
- F35 The architect will normally be the person who regularly visits the site (probably once per week in any of the given cases) to ensure that the work is being carried out in accordance with the contract details. In particular, the architect will verify that the required quality standards have been met. The architect does not “manage” or “supervise” the work and does not have those responsibilities.
- F36 The architect’s site inspections will allow him to track progress on site and give place to regular site coordination meetings with contractors, the client and other parties involved in the construction process. These meetings are chaired by the architect who issues minutes that record decisions taken and that can be called upon to clarify responsibilities during the ten year liability period after handover.
- F37 The site is also inspected regularly by the H&S coordinator and by the technical controller whose official duty it is to ensure compliance with codes of practice (DTU’s) and Building Regulations. The inspections by the technical controller are concerned with minimum standards, not with quality considerations.
- F38 The regular inspections by the architect also enable other matters to be dealt with. During the course of the work, circumstances arise which require changes to the contract documents, drawings and schedules. It may be that an actual change is required, due to changing requirements of the client or new financial or other circumstances. Changes may result from unforeseen events, such as the discovery of unexpected ground conditions. Instructions to contractors are given by the architect, if necessary after consultation with the client, who should refrain from giving instructions to contractors.
- F39 Apart from the need for changes, clarification may be needed in the case of ambiguities or discrepancies in the contract documents. Additional detail may be required for some elements of the work, within the context of the general requirements of the contract documents.
- F40 It is common practice in France that construction or working drawings for each trade (études d’exécution) be prepared by the builder or by a specialist subcontractor or supplier. The architect’s role will be to approve the contractor’s drawings, as compliant to architectural intent, the architect does not check the technical content though he may have an opinion on options taken.

- F41 Drawings and calculations, established under the responsibility of the contractor, are also examined by the building controller who will check that construction drawings comply with regulations and codes of practice (DTU's) .
- F42 The architect will check the progress of the work and verify that monthly accounts established by each trade correspond to work completed prior to countersigning these accounts and sending them to the client for payment. A proportion of the payment due is retained until the end of the project and final handover. At completion, a final account is established.
- F43 Advance payments may be awarded to the contractor to cover orders of materials. Financial penalties are usually written in the contracts for work done late and it is possible have incentives for work done ahead of schedule. The architect as contract administrator would normally manage these financial adjustments.
- F44 Additional services during the construction phase could include «études de synthèse» and «OPC, Ordonnancement, pilotage et coordination». In the cases considered, the former may be required on the school project if there is a particular need to ensure that conflict does not occur between the various services and the structure. OPC will only be required if there are separate trade contracts, again possibly for the school building. OPC entails detailed planning of deliveries and work on site, combined with monitoring progress and compliance to the construction schedule.

Sub-stage 4.3: Commissioning

- F45 In France, commissioning is the responsibility of the contractor who has a 12 month defects liability period after handover. In addition he is obliged to give a ten year guaranty for his works and two years for working parts. Close to the end of the construction process, various installations and certain elements of the building will be tested by the contractor either as determined in contract documents or as part of his own quality assurance. It is the architect's role to check that the tests provided for in the building contract have been carried out. The technical controller will examine results and determine whether they are satisfactory.
- F46 The builder will assemble as built drawings for his trade and the prepare operating manuals. Collating these documents for each trade, the architect will provide an as built file «DOE, Dossier des Ouvrages Executés» for the client. For the apartment and school buildings, this file will be used by the H&S coordinator to produce a final version of his H&S manual or «DIUO Dossier d'Intervention Ulérieure sur les Ouvrages».

Sub-stage 4.4: Hand over (Réception)

- F47 At completion of the works, the building is handed over to the client, who will be advised by his architect to take one of three stances. He either accepts the work, with or without provisos, or he defers handover. The architect will establish a handover certificate with a list of provisos or «réserves» if applicable. If this is the case, the architect will proceed to ensure that the contractor takes steps to lift the provisos (or conditions) in order to satisfy client requirements. The architect will arbitrate if the client has excessive demands or if the contractor is unwilling to take necessary action.
- F48 The architect's certificate of handover («récéption» or practical completion) determines the commencement of the contractual post completion liability periods (see above, point 44).

Sub-stage 4.5: Regulatory approval

- F49 At completion, the client will send a declaration to the municipality certifying that the works have been completed in accordance with building regulations. The technical controller will produce a final report and contractors will be need to follow his recommendations for the client to have the benefit of full decennial insurance coverage. If he has managed the construction process, the architect will also be required to certify that the works comply to the building permit or planning approval.
- F50 The local municipality can also inspect the project to ensure that it complies with planning permission and, as it will be open to the public, a fire security commission will need to inspect the completed school building and authorise the facility to open.
- F51 With recent legislative developments in favour of sustainable building and other developments, increased obligations are in the process of being instigated. Depending on the building type, they will come into force at different dates over the next months and years. They include energy performance certificates at building permit application and at project handover with test results for airtightness of the building envelope.
- F52 Taxes are assessed based on floor areas and the uses to which they are put. They are assessed independently by tax officials and are payable at certain predetermined moments during the construction process or at yearly intervals after completion.

NOTES

1. Professional Indemnity Insurance

Whether they practice as individual professionals or as a company, architects have an obligation under law to obtain Professional Indemnity Insurance (PII) to cover their professional liabilities and those of their employees. The order of architects is charged with checking that its members have insurance and does so each year. Failure to carry insurance results in being struck off. PII insurance covers the ten year «décennale» insurance of buildings built to the architect's designs, a two year guaranty for working parts, responsibilities agreed to by contract (with some limitations) and the architect's civil responsibilities to third parties for a period of thirty years. Decennial insurance covers the building's integrity («solidité») and its fitness for use while civil, the content of PII coverage is defined by law. A large majority of architects in France are insured by a mutual insurance company; MAF, Mutuelle des Architectes Français, which is run by the profession.

2. Maître d'Oeuvre (literally; master of the works)

This term, enshrined in official law dating from 1977, is a French particularity. It is a function that can be applied to architects, to consulting engineers and even to state or municipal employes, for example on infrastructure projects. In essence, on any given project, it is the person or team that produces the project design and provides construction contract management. These two aspects of the function are often split into «Maître d'Oeuvre de conception» for project design and «Maître d'Oeuvre d'exécution» for contract administration. They are not necessarily the same person.

No qualifications are required to be Maître d'Oeuvre! Unless you are a recently qualified architect! In the recent reform that requires a period of practical experience for architectural students, this period is called «habilitation à la Maîtrise d'Oeuvre» i.e. aptitude to become a «Maître d'Oeuvre»!

GERMANY

- GERMANY (DEUTSCHLAND) -

Project Stages

Stage 1: Initiation of basic evaluation

Stage 2: Design draft

Stage 4: Execution of construction

Three selected project sizes:

- A Single-family home 200 m² GFA, costs of approx. €350,000
- B Multi-unit residential dwelling 1,400 m² living area , €1.5 million
- C School building (3,000 – 6,000 m² GFA, Gymnasium (grammar school), Realschule (middle school), Gesamtschule (comprehensive school), approx. €5 - 6 million

Stage 1: Initiation

- D1 While the substages *1.1 Project initiation* and *1.2 Feasibility study* usually represent pure building owner services as defined by CEN 395, substage *1.3 Project definition* is a component of the services of an architect in Germany. This involves consultation services prior to the commencement of the actual planning work, in which the focus is on three important tasks:
 - 1. What is the building task?
 - 2. What services are required to this purpose?
 - 3. Which experts need to be drawn upon?
- D2 At the end of this phase, the architect and the building owner should have reached agreement concerning the building task, the scheduling and financial benchmark data for the awarding of the planning and construction services, as well as the correct procedures for realising the project.
- D3 This consultation service is all the more important the less experience with building the building owner has.
If, on the other hand, a larger public or private building owner is involved, ideally with personnel resources with building experience, this consultation service is generally not commissioned.
- D4 However, not rare are cases in which the building owner *thinks* he doesn't need to commission this consultation service, because he is of the opinion that all points have been clarified and the fee required for this can be dispensed with, although the mentioned questions have in fact *not* been

clarified. Here the architect must face the challenge of emphatically demanding the corresponding information from the building owner and documenting this in his own interest.

- D5 The definition of a room schedule is a service for which a separate fee is charged. In practice, in the case of more complex projects (such as the construction of a school), the room schedule is generally provided by the building owner, while this service is provided by the architect without a fee being charged in the case of smaller building projects (such as the construction of a single-family home).

Stage 2: Design

2.1 Conceptual design: Preliminary design

- D6 The programme and the project goals are precisely defined in this phase.
- D7 The project is first visualised sketchily and the design idea (“the handwriting of the architect”) made visible. At the same time, successful proof of functionality must be provided, in which the programme is proven and the contributions of the expert planners (structural engineer, building services planner) are integrated into the planning.
- D8 Plans in this phase generally have a scale of 1:200.
- D9 In this phase, the architect also examines the approvability of the planning. This takes place through a comparison with valid planning and building laws, as well as through discussions with authorities.
- D10 An important component of this phase and an important task of the architect is the creation of the cost assessment. The form of the cost assessment is standardised for the purpose of improved comparability and based on the systematic of DIN 276. This establishes the planning phase in which the type of costing should be chosen and which costs must be included. The systematic of the DIN (which can also be understood as a checklist) makes it possible for the building owner to determine whether the cost assessment is complete. The architect is responsible for ensuring completeness. For this reason, the architect also includes those costs in the cost assessment that have not been determined by himself, but instead by other expert planners (building services planner, structural engineer, building site auditor, etc). However, this also includes equipment costs, financing costs, all professional and other fees, etc.
- D11 Due to the limited planning depth in this planning phase, the cost estimate often takes place on the basis of parameters, for example, costs for each m² of gross floor area.

- D12 In this phase of the project, the budget is for the first time defined more precisely, so that, especially in the case of inexperienced building owners, it often only now becomes recognisable whether the project can be realised at all.
- D13 Together, the architect and the building owner strive to optimise the planning, in the course of which the number and planning depth of the variants created by the architect for the building owner are often points of contention.
- D14 Particularly institutional and public building owners often demand very far-reaching planning in this phase, in order to make possible the awarding of construction services to building companies at an earlier date, in order in turn to be able to more quickly begin with the marketing of the project, or to more quickly achieve a greater extent of cost and planning security.

2.2 Preliminary design, developed design: Design planning

- D15 After the budget has been defined and the important points of the draft established, the planning is then worked through in this phase.
- D16 An important goal of this phase is the comprehensive description of the project with text and illustrations. A comprehensive textual and graphic description of the object, which describes the planned building, incl. all materials, components and functions so unambiguously that the building owner can be certain that the specifications of the prior phases have been fulfilled, serves this purpose.
- D17 Plans in this phase generally have a scale of 1:100.
- D18 The prerequisite for the deepening of planning is the preliminary work of the contributions of other involved experts (structural engineer, building services planner). As in the previous planning phases, the architect is also assigned the central and responsible task of integrating and coordinating these contributions in this planning phase.
- D19 The deepening of planning also corresponds to a deepening of costing. The detailed cost calculation now continues from where the rough cost assessment of the previous phase left off. In contrast to the cost assessment, the costs here are determined separately according to actual quantities and components, thus, for example, costs for 100 m² of masonry walling, etc. The systematic of cost calculation corresponds exactly to that of cost assessment and follows the same DIN. Thus the cost impact of planning changes, for example, due to programme changes of the building owner or to conditions according to building law, can be transparently explained.

- D20 This phase is followed immediately by the approval planning. For all building projects with volumes greater than 30 m³, architects in Germany are subject to the obligation to prove that the building project complies with building laws. Depending upon the size of the building project, building applications of various depths are to be created by the architect for this purpose. The form and the scope of the building applications is not standardised throughout Germany and differs unfortunately from federal state to federal state, although the fundamental rules are for the most part comparable.
- D21 Legislation reserves the right to submit building applications to only those persons registered in a list of architects maintained by the Chambers of Architects. The prerequisite for registration is proof of a course of professional training required by law and several years of professional experience. Only these persons are entitled to designate themselves as 'architects'. Unfortunately, these prerequisites for registration also differ from federal state to federal state, as does the question of for which (smaller) building projects building applications may also be submitted by persons without the title of 'architect'. It is thus usual, for example, that building applications for a single-family dwelling may also be submitted by master masons or graduates of a course of study in architecture.
- D22 In the context of the approval process, a check is made to determine whether the building project is in compliance with local building regulations and laws, and that the rights of neighbours are not infringed upon. In the process, it must be stated that a politically desired process exists in Germany, which continually reduces the testing obligation of the approval authorities and shifts this obligation to architects and/or private experts.
- D23 Should it be determined that the planning permission cannot be approved, the architect is held liable and may under certain circumstances forfeit his claim to remuneration. He must thus already evaluate the fundamental approvability of his planning in advance.

2.3 Technical design: *Determination of measurements/bills of quantities*

- D24 In contrast to CEN 395, which classifies the awarding of construction services as a sub-item of the sub-stage Technical Design, the creation of invitations to tender and involvement in the awarding is an important architectural service in Germany.
- D25 In Germany, various forms for the awarding of building services are usual, which, from the point of view of the architect, are primarily differentiated by the question of whether one or several companies are to provide the building services and on which planning basis the awarding takes place.

- D26 Principally, an award to construction companies is possible at any point in the planning process. However, the following applies here: the earlier the awarding takes place, the more expensive it will be for the building owner, as the company will calculate both the expense for the provision of the planning and the risk involved in the creation of a tender on the basis of not yet completed planning.
- D27 The usual procedure in Germany is that the architects create the invitation to tender and the awarding for the trades for which no specialist planners have been commissioned by the building owner. In important matters, the detailed design of the architect will become a component of a subsequent building contract, and thus also provides the reasoning for the responsibility and perhaps the liability of the architect in the event of faulty detailed design.
- D28 Within the framework of this service, the architect determines the quantities, describes the services, supplements planning documents, carries out a pre-selection of suitable companies upon the request of the building owner, sends the initiations to tender to companies, evaluates the bids, participates in negotiations with the companies, creates a recommendation for the award and prepares the building contracts for the building owner.
- D29 The results of the award are compiled in a quotation. The portions of costs from the trades for which the building owner commissioned special experts are also recorded here. The systematic of the quotation in turn follows DIN 276, which ensures the transparency and completeness of the costs, and enables a comparison with the costing of the previous planning phases (cost assessment, cost calculation).

2.4 Detailed engineering: Implementation planning

- D30 The creation of the implementation planning, at 25 % of the total service of the architect, is one of the most important phases of the activity of the architect. The implementation planning describes the object with text and drawings in such a detailed fashion that the construction companies are able to provide a service that is free of defects.
- D31 The implementation planning created by the architect is not to be confused with the construction documentation (shop drawing) of the commissioned construction companies. While the latter are occupied exclusively with the trade-specific component (e.g. the window), the implementation planning of the architect represents the comprehensive planning, which coordinates and integrates the components created by various trades, and in particular defines the interfaces between the trades (for example, integration of the window into the building shell and the facade, etc.).

- D32 The construction documentation of the companies thus builds on the implementation planning of the architects.
- D33 With respect to the integration of the building services, this involves an iterative planning process, which, building on the design planning services of the previous phases, is characterised by a continuing deepening of detail, until this results in a solution ready for implementation.
- D34 This planning phase is independent of the question of whether the construction services are to be awarded to many different construction companies or to a general contractor. Generally, plans in this phase have a scale of 1:50 to 1:1.
- D35 When changes occur during the construction phase (e.g. due to changes wished for by the building owner or due to unforeseen circumstances in the case of building refurbishments), it is the task of the architect to update the implementation planning. The goal is that the implementation plans comprehensively describe the building at the point in time of the handover (revision plans).

Stage 3: Tender procedure

- D36 See Point 2.3 (above)

Stage 4: Construction

4.1 Pre-construction

- D37 See Point 4.2 (above).

4.2 Construction: Construction supervision

- D38 The supervision of the construction site during the construction phase is, at approx. one third of the total performance of the architects, a significant part of the service portfolio, and simultaneously also the part of the architect performance involving the greatest liability risks.
- D39 It is in fact often the case with construction defects that the architect entrusted with the construction supervision is allocated co-responsibility by the court, because he is responsible for supervising the execution of the construction services on location. When there is a defect, it is often concluded that supervision was not carried out correctly.
- D40 The site management of the architect stands beside the specialist site management of the individual companies. While the architect has overall responsibility for the complete project, the

specialist site managers have the responsibility for their respective trades. This overall responsibility is on the one hand to the client, on the other hand to the building control authority.

D41 The services of the architect responsible for site management consist of the following sub-performances, among others:

- Monitoring of the execution of the property with respect to agreement with the building permit or approval, the design plans and the specifications, as well as with the generally recognised rules of technology and the relevant regulations
- Monitoring of the execution of the bearing design for agreement with the proof of stability
- Coordination of the participants technically involved in property monitoring (e.g. specialist engineers) and coordination of the those carrying out construction and of all deliveries and services with the goal of smooth cooperation.
- Establishing and monitoring of a construction schedule
- Keeping of a construction diary
- Joint on-site measurement with the companies carrying out construction
- Acceptance of the construction performances with involvement of other participants involved in the technical planning and property monitoring, with determination of defects (see No. 4.3 Commissioning)
- Checking of invoices and cost control by checking invoicing for services of the companies carrying out construction in comparison to the contractual prices and the costs estimate.
- Establishment of total costs according to DIN 276 upon completion of the construction measure and final invoice of all trades
- Application for official construction acceptances and participation in such (see No. 4.5)
- Handover of the property including compilation and handing over of the necessary documents, for example, operating instructions, test protocol (see No. 4.4)
- Listing of warranty terms
- Monitoring of correction of the defects found during acceptance of the construction performances.
- Local representation of client interests in the context of a power of attorney, including the exercising of property rights at the construction site.
- Implementation of the principles of danger prevention, provisions for safety and health protection applicable to the respective construction site and monitoring of the correct application of work procedures. Coordination of activities for the protection of employees and accident prevention

D42 The service portfolio is reduced in the event that a general contractor is commissioned. Construction supervision is then not necessary to the full extent and also not sensible for liability reasons. Instead, the performance of the architect for such construction projects shifts away from organisational tasks (costs/dates) toward tasks of quality assurance.

4.3 Commissioning: Acceptance

- D43 For the acceptance of the construction services provided by the various trades, two different aspects are to be considered:
1. Technical acceptance (Commissioning)
 2. Legal acceptance (Handover)
- D44 The technical acceptance takes place between the architect and the company. In the process, the construction service is inspected for freedom from defects and agreement with the nominal construction specifications. Significant defects of the building can prevent acceptance.
- D45 During the regulating procedure and test operation of the building services system components and the instruction of the client or of the operating personnel with regard to the building services systems, the architect is generally supported by the specialist companies or specialist engineers.

4.4 Handover: Handover, revision documents

- D46 The legal acceptance of a construction service takes place between the two contractual parties who have concluded the construction agreement, the client and the contractor. This takes place on the basis of the construction contract of the German Construction Contract Procedures (VOB) and/or the Civil Code (BGB) in a formalised legal framework.
- D47 The warranty phase (guarantee) of the company begins at the point in time of legal acceptance. Responsibility for the building is transferred to the client.
- D48 If the client discovers defects following acceptance, he must prove that a defect exists. The company has the burden of proof prior to acceptance: it must prove that a defect does not exist.
- D49 The services of the architect in this phase include the creation and compilation of planning documents of the finished building, of test certificates, operating and maintenance documents for transfer to the client.

4.5 Regulatory approval: Official acceptance

- D50 Upon completion of the construction project, the architect applies for acceptance of the construction project by the building control authority.

- D51 The procedure differs from state to state in Germany and also depends upon the type, size and complexity of the construction project. In the case of smaller construction projects, the building control authority often dispenses with official acceptance and merely expects a certification by the architect or by an independent expert.

- PORTUGAL (PORTUGAL) -

Background

P1 This note is intended to set out, briefly, the scope of architects' services in the design and construction phases of a construction project. As explained elsewhere (in a general introduction), the note is focussed on the three "core" stages in the building project, set out in the Glossary to the relevant European Standard (CEN/TC 395), namely Stage 2: Design, Stage 3: Procurement and Stage 4: Construction. It is based on three selected project types, namely:

- A family house (gross floor area approximately 200m², cost approximately €350 000);
- B apartments (approximately 20 apartments of 70m² each, cost approximately €1.5m);
- C school building (approximately 3000-6000m², in an urban location but not a large city, cost approximately €5-6m).

In this version, FOR Portugal, these three project types are dealt with as a whole, since they would be dealt with in essentially the same way (when it comes to services only, but not necessarily to the procurement proceedings and design responsibilities and liabilities). Nevertheless, attention is drawn to various distinctions where appropriate.

Stage 2: Design (CEN/TC 395)

P2 Prior to commencing the design stage of a construction project, an Architect in Portugal might be involved in the initial appraisal and gestation of the scheme (Stages 0-1 of CEN/TC 395). However the most probable is that the client had already prepared a design brief from which the architect should use as the bases for *Preliminary Design*. In the case that the architect is called upon to suggest modifications and improvements and in assessing the viability of the proposal, in terms of its achievability (in the light of legal constraints, public controls or practical considerations, for example) and its financial viability, this is usually considered an extra service. That might happen with private clients and not necessarily with public authorities/clients. In the present cases these extra services could be a case for the family house or, perhaps for the housing block (in case that of a private developer), but would not be the case for the School or for a state developing initiative on the promotion for apartments.

P2.1 This initial stage, which we call the *Preliminary Programme*, as explained above, can have the involvement of the architect for a private commission. For all public commissions, Codes for Public Procurement (CCP) shall be followed by law. CCP make mandatory an Open Public

Contest for projects for more than 25.000,00 euros. It allows for two types of proceedings but the Portuguese Chamber of Architects (OA) understands that only one is applicable. The first one is the so-called generic Open Public Contest, a non-anonymous process, where the lowest price is usually the most important criteria. OA repudiates this procurement proceeding, where services (in the case design services) are the focuses of the commission, as they are not industrial or commercial products. The other proceeding, within the scope of the Open Public Contest, is the exemption that the CCP allows and identifies as the indicated for the commissioning of projects and services. This latter case is nominated as the *Conceptual Contest*. It is also the one recommend by the OA. However many public organisations and Municipalities prefer to launch an Open Public Competition as the main tool for procurement.

- P2.2 The architect, for building projects, is normally considered the leader of a multi disciplinary team, where all structural, engineering services and other mandatory consultants are to be included (thermic, acoustics and water proof systems). Terms of reference and Preliminary Program do respond to the all project team and the architect usually assumes the contract for all of these services besides the architectural design. For private projects client can decide to assign directly to engineers and consultants separate contracts. However project coordination is assign to the architect and is included in the architectural fees.
- P2.3 Deciding upon the specialists might be part of the architect's responsibilities on this stage. Usually, in the case of public contracts, a list of specialists and consultants is given with the contest terms of reference. In the case of private commissions, the architect should list his needs for specialists and consultants when preparing his fees proposal.
- P2.4 In the case of private clients and organisations the Architect must (and generally does) define the terms of the agreement with the client, formally and in writing. Failure to complete a written agreement with the client can (and does) lead to a disciplinary sanction and may make it harder for the architect to recover fees that ought to be due. Fees and responsibilities are subject to negotiation and agreement (and the architect may undertake only partial services in any case) but the contract between the architect and the client must include specific details of professional indemnity insurance and complaints procedures, for example. Fees are usually paid in stages, after the work has been done, though advance fees are sometimes paid. Liabilities under the contract can also be negotiated.
- P2.5 In the case of public contracts, the architect has to accept the terms of reference submitted to the public contest, in which the contract's minute is included. Terms and conditions of agreement are automatically accepted once the architect accepts to be part of a public procurement for a project design proceeding.

- P2.6 The Health and Safety Co-ordinator would be required for all the public contracts but not necessarily to the private ones. This Co-ordinator is the responsible for the issuing of the Health and Insurance plan for construction, but it will not be the responsible for the Health and Insurance site co-ordinator. This latter one is under the contractor responsibilities (in the case of private developers) or under project management (in the case of public contracts. Project management is usually assured by the client and normally is commissioned to a third party entity.
- P2.7 For private commissions the architect will also advise the client of the need for specific information in relation to the project, including the brief itself and any information, which is necessary for the design stages, including site surveys and information about existing installations and existing problems (such as contamination). Measured surveys of existing buildings and ground topography are the client's responsibility. Accredited companies to the client undertake surveys. Topographic surveys have to be linked to the national geo-referential network and in some cases (bigger projects and/or areas) they have to be subjected to homologation.

Sub-Stages 2.1: Conceptual Design and 2.2: Preliminary Design

- P3 Once the design procurement is finished, through a public conceptual contest (public institution) or direct commission (private clients) a general contract is firmed between the architect (leader of the design team) and client's representative. For private clients and/or organisations an agreement letter might be sufficient. In this latter case, the architect's fees proposal should state scheduling and the conditions in which the design project should be undertaken. This proposal is usually considered an annex to the agreement letter. The Architect's function is regulated in Portugal and a non-architect may not undertake the work. In Portugal, general contract includes structural and all the other engineering services, as the necessary consultancy services.
- P4 Conceptual design is part of the public procurement proceedings. For this reason, in those cases, the first task of the architect and his team is to revise the conceptual stage through the preparation of the Preliminary Design Stage. One does correspond to the other in terms of its graphics and written parts. What happens is that the architect is asked to prepare twice (for the conceptual contest and for the present design stage) an equivalent design project stage.
- P5 Taking that into account, the Design stage would, no doubt, start with a review of the design brief. This design stage takes into account all the engineer services and consultancies but does not necessarily integrate them in terms of functional areas.
- P6 In the first instance, the design of the proposed building would probably be executed in drawn form at a scale of 1:200 (for all three of the identified types). The drawings would be computerised and three dimensional program images are often used in order to ease clients reading and

understanding of the whole design. Traditional drawing techniques can also be used. On the other hand, projects are increasingly defined in more comprehensive Building Information Management (BIM) programs, which would almost certainly be the case for the school project, but not necessarily for the residential projects.

- P7 Of course, the design may be subject to various reviews and redesign stages, depending on different factors, including costs, technical constraints and client intentions. Fee proposals will normally seek to prevent a commitment to unlimited design revisions without remuneration but in practice, redesign costs may not always be recovered.
- P8 After the submission of the Preliminary Design Phase to the client, follows a period for the client to issue considerations to the design. These considerations can be favourable or critical of the design, formalizing in a list of amendments to be applicable to the design. A revision to the present stage could be implemented before final approval of it and the initiation of the next stage of the design. Alternatively, that list of amendments can be considered as mandatory revisions to be introduced in the coming stage of the design project. In that latter case a conditioned approval is issued by the client to the present design phase.
- P9 After approval of the Preliminary Design Stage a different design stage initiates. This stage is not considered within the CEN395 staging. In fact this sub-stage refers to the development of the design in larger scale drawings, where specialists and consultants are fully integrated into the project. These set of drawings and documents are at the scale 1:100 and are as detailed as they can be in order to fulfil all legislation and codes to achieve planning permissions. These permissions are to be obtained to the architectural design as to all other engineer services required by different municipalities or licensing authorities. The Architect is called upon different responsibilities likewise the universal accessibility plans, security and fire escape route plans, thermal and acoustic plans, even though these can be prepared by consultants. These latter ones are mandatory to official approval by Municipality. Usually this sub-stage is referred as the Project. The full architectonic 1:100 drawings, with some higher scale drawings depending on Municipality's requirements, are usually submitted before the specialised drawings. These latter ones are submitted after a first "approval" of the architectonic plans. However official approval happens only after all required engineers and consultants drawings and specifications are submitted. In some cases, depending on the size and energy requirements for the building, more simplified documents are required to some of the engineering services, like M & E. The Municipality gathers together all the official information from the different competent authorities on the revision of the different services and issues a final approval based on all the partial "approvals". However there is a recent different submission and approval proceeding from 2008. This proceeding puts on the side of the architect and the design team the responsibility for the fulfilment of all the regulations and codes and applies to areas that have a defined and clear

Master Plan. This Master Plan has to define, however, urban parameters in a detail that the public space is formalized. A first submission, based on the 1:200 drawings or even an earlier design stage, to the Municipality requiring the feasibility of the construction is to be responded by the Municipality with all the urban and planning constraints listed. This official response document is valid for a year, within which the design team is called to submit a complete package including all the engineering and consultancy services. The Municipality issues a construction permit and the responsibility for the observation of codes and regulations is transferred to the design team, in this case the Project Co-ordinator. At the end of construction, with security inspection, fire escape routes or universal accessibility demands and others, changes could be ask to be made by competent licensing authorities in order for the building to have final use permit. For both cases a fee is payable to the municipality, based on the size of the project.

- P10 For the issuing of the planning permit, the design has to fulfil all the construction codes and regulation and also fire escape routes, universal accessibility, thermal and acoustic regulations and minimal categorization by law. All engineering and specialist calculations must be submitted at this stage.
- P11 This additional material will include a written analysis of the design proposals as well as project drawings and will often include reports on such matters as archaeology, historic features, wildlife, potential contamination travel and transport implications and the like. The application will be decided in the context of local planning policies (not local planning law), which allow for some flexibility and subjectivity (and some “political” judgement, by local councillors). An appraisal of planning policies is also required, therefore.
- P12 The planning permission is concerned with land use issues (including visual appearance) and will define the building permitted (in terms of its size, shape, external materials and so on), as well as the uses to which it may be put. Restrictions may be applied and some details (for example of the landscaping) may be deferred for later submission (by the imposition of conditions). It should be noted that, if planning permission is refused, a procedure for administrative appeal is available, which is robust and well used.

Sub-Stages 2.3: Developed Design, 2.4: Technical Specifications and 2.5: Detailed Engineering

- P13 Only with the grant of “planning permission” can the land owner or developer be sure that the land can be built upon. Otherwise, it may have to remain undeveloped, even within an urban area, due to technical problems (such as flood risk or access constraints) or merely because the site ought to remain undeveloped in accordance with policies which value its visual contribution to the townscape. Normally, therefore, detailed design is only undertaken after planning permission has been granted, to avoid the risk of wasted work.

- P14 The detailed design is the stage at which construction drawings are prepared. For the given projects these would typically be at 1:50 scale, 1:20 scale for façade detailing, window scheduling and particular areas of the project. Other scale drawings, like 1:10, 1:5 or even 1:1 (in the case of window and door detailing) are usually prepared. All the drawings would be heavily annotated with notes to describe and explain the construction. These set of drawings, include finishing scheduling, bill of quantities and specification. The specification would normally be prepared by the architect, perhaps with the assistance of a Quantity Surveyor, who would also prepare the bill of quantities. An accurate estimate, based on the bill of quantities is mandatory as the basis for the procurement and construction contracting.
- P15 The complete construction documents, of course, include the drawings and schedules prepared by other professionals involved in the construction design, notably the engineering professionals (structural engineers and services engineers). The architect's role normally includes the task of co-ordinating all these details, though a Project Manager may be appointed for larger projects. The study projects would be unlikely to require such a figure and, in any case, the usefulness of the Project Manager can be very variable.

Stage 3: Procurement

Sub-Stages 3.1: Procurement and 3.2: Construction Contracting

- P16 Within the public procurement proceedings the basis for the building contract is likely to have been settled before the commencement of the design stage.
- P17 There are no standard contracts or any official contract minute to be undertaken by private or public clients. However contracts tend to be standardized through the making of experience. Recent changes were added to contract documents, in terms of responsibilities and liabilities, within the new CCP, dated from 2008. Contracts tend to be simple documents (10 to 15 pages only) complemented with all the terms of reference documents, design team initial proposal and project documents. For private clients, as stated before, simple assignment letters can be used as contract having architect's fees and services proposal as an annex.
- P18 The procurement documents would, therefore, include the drawings and schedules, including permissions and approvals, together with the details of the proposed contract. The architect (or other "contract administrator") would advise on potential contractors, to ensure that any of those invited to tender would be able to do a good job. A deadline would be specified for the return of tenders in accordance with the documents.

- P19 In the case of public institutions, a “base price” for construction is given to all the contestants. This price is the client’s opinion, based on the estimate given by the architect’s team. However, this price cannot exceed the “base price” for construction given at the beginning of the design, included in the Terms of Reference documents. In many cases, more than we would like, “base prices” are unrealistic, generating conflicting situations between the design team and the public client over the design process.
- P20 Following receipt of tenders, the architect would advise on the appointment of the contractor, presumably on the basis of the lowest price but also taking account of any qualifications (limitations) made to the offer and other relevant circumstances.
- P21 The tenders returned may result in revisions being made to the proposals, either as a result of suggestions made by contractors or as the result of a need to seek a price reduction. This revision process (“value engineering”) may involve a return to earlier stages in the project and a repetition of previous work. It may also be necessary to take account of revisions required by the client, for example.
- P22 Eventually, the contract is agreed and work on site can commence. The detailed contract may be completed as work progresses provided that the documentation is sufficient to define the contract terms with reasonable certainty (perhaps under a “letter of intent”). For some private clients, in law, a verbal contract (as distinct from a written contract) is capable of being valid, but is undesirable and the architect may be criticised (and may be subject to a disciplinary procedure) for allowing the project to proceed on an uncertain basis. That is never the case for public clients.
- P23 It can be noted that, in some cases (usually but not necessarily for larger scale projects), the tender (procurement) and construction stages can be subdivided to permit two stages of construction. For example, the first stage may involve demolition of existing structures and site preparation work, while the second stage would involve the building project itself. In any case, the main project could require some pre-ordering of materials or installations (such as a lift). Alternatively, the main building project could itself be followed by a fit-out project (for the education building).
- P24 Note that in the case of demolition work, whether as preliminary works for the construction, or included in the project, a detailed project has to be submitted and approved by the competent sanitary authorities before starting construction. The architect might take the responsibility for this specific project, but it is usually undertaken by a specialist.

Stage 4: Construction (CEN/TC 395)

- P25 In this report, the “construction” stage coincides with the commencement of physical work on the site of the project.
- P26 Since this report is concerned specifically with the role of the architect, it does not go into details of the tasks which are carried out by the builder (contractor).

Sub-stage: 4.1 Pre-construction

- P27 Once the contract has been agreed, the architect (or other “contract administrator”) will be involved in the establishment of the programme, consideration of site constraints and other matters. The Health and Safety Co-ordinator must approve the builder’s method of construction statement for compliance with health and safety requirements. The builder’s programme and methodology will normally be agreed, in practice, though the conduct of the work remains the responsibility of the builder, not the architect.

Sub-stage 4.2: Construction

- P28 During the course of the construction works the architect would traditionally have had a number of tasks. This section identifies the main tasks.
- P29 The architect, with the support of all the engineers and consultants of the design team, will normally be the person who regularly visits the site (probably once per week in any of the given cases) to ensure that the work is being carried out in accordance with the contract details. In particular, the architect will verify that the required quality standards have been met. The architect does not “manage” or “supervise” the work and does not have those responsibilities. He or she can ask a specific engineers or consultant to visit the site when needed.
- P30 Since the contract documents specify that the work is to be carried out in accordance with legal requirements, the architect’s site inspections also have that function, in practice.
- P31 The regular inspections by the architect also enable other matters to be dealt with. During the course of the work, circumstances arise which require changes to or clarification of the contract documents, drawings and schedules. It may be that an actual change is required, due to changing requirements of the client or new circumstances (including financial pressures or additional funding). Changes may result from unforeseen events, such as the discovery of unexpected ground conditions.

- P32 Apart from the need for changes, clarification may be needed in the case of ambiguities or discrepancies in the contract documents. Additional detail may be required for some elements of the work, within the context of the general requirements of the contract documents.
- P33 It should be noted that some additional details may also be prepared by the builder or by a specialist subcontractor or supplier. These may be for installations such as lifts, ventilation, electrical installations and the like or may be for manufactured building elements such as stairs, windows, doors and so on. In such cases, the architect's role will be to "approve" the specialist's details, though without accepting liability.
- P34 In dealing with requirements for additional details, the overall financial and regulatory implications must also be considered, of course.
- P35 The "contract administrator" represents the client and is usually a third entity. The role of the "contract administrator" is to undertake periodic valuations of the project, in accordance with the contract, to support payments to the builder. Normally the builder will be paid in arrears, as the work is done, according to the value of the work done. A proportion of the payment due is retained until the end of the project and final handover, to allow for minor remedial works later. The "contract administrator" is part of a larger team known as the work management team. This team are on site at all times, supervising materials, construction systems and methods and controlling works scheduling.

Sub-stage 4.3: Commissioning

- P36 Close to the end of the construction process, various installations and certain elements of the building require to be tested. The builder co-ordinates the tests and the preparation of operating manuals. A comprehensive manual is a legal requirement and even in the case of a single family house for an owner-developer such a manual would be desirable. This manual specifies not only machinery and specific equipment or installations, but also construction detailing (walls/roofs water proofing and insulation, window specifications and other necessary specifications).
- P37 The architect will consider the various tests, together with the client's representative and will "approve" the results. Payment to the builder and sub-contractors will be dependent on the tests. At completion, minor remedial works are carried out but a further inspection would normally be made after one year, to ensure that the project has been carried out correctly (especially installations).

Sub-stage 4.4: Hand over

- P38 The building is handed over to the client once the architect (or “contract administrator”) has certified that it has reached the stage of “practical completion”. That does not imply that the building is complete in every respect but that the building occupier can take possession, to use the building or to commence their own furnishing or fit-out programme. This flexibility can also give rise to some uncertainty, however.
- P39 The architect’s, being the project co-ordinator, certificate of practical completion also has important implications for the building insurance and other responsibilities (and the commencement of the contractual post completion liability period).

Sub-stage 4.5: Regulatory approval

- P40 The Competent authorities have to inspect the building, after completion, to ensure that it complies with the planning permission. As stated before, if some elements or parts of the building do not comprise with regulations (safety, thermal, acoustic, accessibility), changes ought to be made in order to comply. Sometimes these changes are not in accordance with the project, but they have to be implemented nevertheless.
- P41 After all competent authorities have issued their agreement on the building, the architect, as co-ordinator of the project, has to sign a liability document to be submitted with the final reviewing plans of the building to the municipality. The municipality will issue the completion certificate, which is formally asked for and paid for by the client, which is attached to the property manual.

- SPAIN -

Background

- E1 This note is intended to set out, briefly, the scope of architects' services in the design and construction phases of a construction project. As explained elsewhere (in a general introduction), the note is focussed on the three "core" stages in the building project, set out in the Glossary to the relevant European Standard (CEN/TC 395), namely Stage 2: Design, Stage 3: Procurement and Stage 4: Construction. It is based on three selected project types, namely:
- A family house (gross floor area approximately 200m², cost approximately €350 000);
 - B apartments (approximately 20 apartments of 70m² each, cost approximately €1.5m);
 - C school building (approximately 3000-6000m², in an urban location but not a large city, cost approximately €5-6m).
- E2 Regarding to the responsibilities and fees, the tasks are similar in these three cases, so the only difference is related to the complexity of the work. Perhaps we could say that there are differences according to the kind of promoter: the first case is usually developed for a private and non-professional one, since the other are usually developed for institutions (public or private) or professional promoters. This means that the difficulty varies according to the degree of knowledge of the promoting system by the client.
- E3 The tasks of the architect are not closed, so they may be involved in the whole project, since the very beginning. According to a common criterion, this document shall refer to the stages listed in point E1, but that is not comprehensive of the whole set of works an architect may lead or do.
- E5 The main difference of architecture in Spain compared to most of the European countries lies in that the architect can make a whole project by himself, without any other technician such as a structural engineer or so. This way, an architect can actually design and calculate structure and utilities; even if he subcontracts it (which he may do), he must sign for everything and is responsible for it. Let's say that in Spain the architect makes the job that in other countries is made by an architect plus two or three engineers... Spanish architect is also a Construction Engineer in fact.

- E6 In Spain we use a three stage scheme, called “ante-project”, “basic project” and “executive project”. This scheme is related to three different phases of development of the project and its limits were defined even by law. Not by a law regarding architecture but one about fees, derogated in 1997 but used as a base to define those limits. That law was promulgated in 1977 and, obviously, things have changed a lot since then, but the definition of limits still works.
- E7 Architects’ Associations (“Colegios Profesionales”) have their own guides about the content of each phase. Anyway, local Administration tends to ask for developments not fitted to those phases, and in the real practice there are many situations in which it is hard to establish the limits between phases.
- E8 In Spain there is a Law (“LOE”, “Building Regulation Law”), promulgated in 1997, which clearly defines the legal capability to design buildings. It is compulsory that the buildings are designed by an architect or an engineer. In case of buildings whose use is administrative, sanitary, religious, residential, educational or cultural, an architect is compulsory. In any other cases, also engineers can design by themselves.
- E9 The responsibility of the direction of construction works corresponds to the same criterion. Besides, there is a complementary role, called “Director of the execution works”, which is assumed by a technician called “Aparejador”. This figure does not exist in other countries. Their role is to control the execution of the building, but not to design the solutions, which is a task that corresponds to the architect. So, in the phase of construction, the architect must make a team with an “aparejador”.

Sub-Stage 2.1: Pre-project (“anteproyecto”)

- E10 Prior to commencing the design stage of a construction project, an Architect will work in assessing the viability of the proposal, in terms of its achievability (in the light of legal constraints, public controls or practical considerations, for example) and its financial viability. This phase is not mandatory and the architect could go directly to the next one.
- E11 In this stage the architect can work alone and only needs assistance in case of special designs or complex problems. There is no need for calculations nor for health and safety works.
- E12 The pre-project is a document which consists on a collection of drawings to define the basic geometry of the building, without detail nor constructive definition. It allows to determine the whole area and a first approximation to the cost based on cost modules. It costs 15% of the total fee of the project.

Sub-Stage 2.1: Basic project

- E13 It contains the drawings of the building, which determine its complete geometry, with dimensions and a memory about materials and constructive systems and solutions. Plans, sections and elevations are enough to determine the global budget of the building, according to chapters and modules by chapter (it is not a detailed measurement, but it is possible to determine the price quite accurately)
- E14 This is the phase which allows to obtain building permits. However, for the last years most of the local authorities require a development of utilities plans; so, it is usual to make a “basic project” plus technical services, which is in a certain way a nonsense, but required. The project is supervised by local authorities and in the case we have some special utilities, those must be supervised by specific authorities (environment, noises, sustainability...). The planning law is clear and not flexible and to obtain a license is usually a hard process, unless the commitment is a public institution, when the licence does not exist, but an authorisation, quite more relaxed and easy to obtain.
- E15 Theoretically, this would allow another person to go on with the project, since it is the base for further developing on structures and facilities. Its cost is usually 40% of the total fee if a pre-project has not been previously made, or 25% if it has been.

Sub-Stage 2.3: Executive project.

- E16 It is a complete development of the project, including detailed drawings, technical specifications and engineering on structures and utilities. It comprises detailed drawings of construction, structure, services... plus complementary studies about history (if needed), archaeology, topography, geotechnics, sustainability, energy, insulation, accessibility, schedules and so on, depending on the regional and local authorities and regulations. It also contains detailed budget and a project about Health and Safety, which can be made by the architect himself or by another technician.
- E17 All of the work is signed by the Architect, no matter whether he has subcontracted some of the calculations or not (in Spain the architect can make by himself the whole project and even if he does not make one part, he must sign and become responsible about it).
- E18 Executive project allows to precisely determine every detail and specification of a building. It comprises structures, services, connections to the public suppliers, whole construction systems and a detailed budget with measurement of all of the systems and materials.

- E19 Architect's fees comprise all the plans and calculations precise for building, no matter if he does everything by himself or subcontracts them. Its cost is usually a 30% of the total fee. This cost is determined by custom and it appears at the "fees law" from 1977 (still working for the general distribution of the fees), but it is strange, since this stage implies much bigger external costs and collaborations.
- E20 This phase, as much as the former ones, but specially this one, might be supervised by an external quality control company. There is not usually a separate Project Manager, not even in the case of the school, since in Spain this function is undertaken by the architect in most of the cases, except really big buildings.

Stage 3: Procurement

Sub-Stages 3.1: Procurement and 3.2: Construction Contracting

- E21 The architect usually is not involved with the contracting of the construction company when making big building or when working for public institutions. In the case of the single family houses he is involved but in a not regulated way. Anyway, the architect must oblige the constructor to satisfy his contract, mainly in the technical aspects.
- E22 In any case, the tenders returned may result in revisions being made to the proposals, either as a result of suggestions made by contractors or as the result of a need to seek a price reduction. This revision process ("value engineering") may involve a return to earlier stages in the project and a repetition of previous work. It may also be necessary to take account of revisions required by the client, for example.

Stage 4: Construction (CEN/TC 395)

Sub-stage 4.1: Construction

- E23 In this report, the "construction" stage coincides with the commencement of physical work on the site of the project. First step is to sign a staking-out act, which is the way to certificate that the building has enough space in the plot and the builder agrees with the project and is able to build it.
- E24 A Health and Safety Co-ordinator is mandatory and he can be the architect himself, the "aparejador" or an external technician, usually architect, "aparejador" or engineer.

- E25 The architect controls the building process, produces every new drawing needed, decides every detail to be made. He must visit the site regularly or even appoint a team on the site which depends on him (but this is only for big works, not for any of the three examples we are talking about in this report). The “aparejador” must control that the decisions made by the architects are followed by the builder, although the architect also controls them. But the “aparejador” is closer to the building works... For example, when making a concrete slab, the “aparejador” controls the adjustment of the re-bars, which have been decided in the architect’s drawings, but the architect controls the final aspect, the geometry and quality of the finished slab.
- E26 The architect, in conjunction with the “aparejador” (who is also during the construction works a Quantity Surveyor), will undertake periodic valuations of the project, in accordance with the contract, to support payments to the builder.
- E27 Both architect and “aparejador” usually have similar fees in this phase. Its cost is about a 30% of the total fee and it is delivered in accordance with the quantities approved to the builder.

Sub-stage 4.2: Hand over and 4.3: Regulatory approval

- E28 When finishing the building, the architect checks the accordance of every detail to the drawings and certifies the end of the building process. So, the building is handed over to the client once the architect has certified that it has reached the stage of “practical completion”. That does not imply that the building is complete in every respect but that the building occupier can take possession, to use the building or to commence their own furnishing or fit-out programme. This flexibility can also give rise to some uncertainty, however.
- E29 The architect’s certificate of practical completion also has important implications for the building insurance and other responsibilities (and the commencement of the contractual post completion liability period).
- E30 Once finished, the promoter must obtain the final licence, which allows to use the building and, mainly, to contract supplies (electricity, water, telephone, sewerage...). This licence is given by the local authorities and its process depends on each city, but there are common requirements. Most important in term of time is the “Building Book”, a document which comprises every plan made during the project and the building process, every paper, every act, all the As Built plans, manuals of every machine and technical system, plus documents for the national cadastre, the notary and so on.

Final Considerations: about fees

- E31 The Building Book is a good example of one big problem we have here: it is mandatory since 1997 and it's been hard to convince the promoters that must involve a separate fee. This is a problem common to several other documents (such as the Health and Safety project, the residues plan...): since these are documents which are mandatory later than 1977, when the last fee's law was promulgated, they do not appear in that law. So, the architects have had to explain that those are new requirements and must involve a bigger fee... but this problem is still not solved and there is a wide range of agreements between promoters and architects.
- E32 Besides, as explained at the beginning of this document, the spanish architect is much a civil engineer too, so, when taking account of the figures given, you must remember this. So, we have to compare the total fee of the architect, plus the structural engineer, plus the mechanical engineer and so on, to know the real situation of Spanish architects in this question.

- UNITED KINGDOM -

Background

UK1 This note is intended to set out, briefly, the scope of architects' services in the design and construction phases of a construction project. As explained elsewhere (in a general introduction), the note is focussed on the three "core" stages in the building project, set out in the Glossary to the relevant draft European Standard (CEN/TC 395), namely Stage 2: Design, Stage 3: Procurement and Stage 4: Construction.

UK2 In the UK, however, a "Plan of Work" is published, which has recently been reviewed and restructured and which is an industry standard programme that is more useful than the draft European Standard.

UK3 This study is based on three selected project types, namely:

- A family house (gross floor area approximately 200m², cost approximately €350 000);
- B apartments (approximately 20 apartments of 70m² each, cost approximately €1.5m);
- C school building (approximately 3000-6000m², in an urban location but not a large city, cost approximately €5-6m).

In this UK version, these three project types are dealt with as a whole, since they would be dealt with in essentially the same way. Nevertheless, attention is drawn to various distinctions where appropriate.

Stage 2: Design (CEN/TC 395)

UK4 Prior to commencing the design stage of a construction project, an Architect in the UK will, almost inevitably, have been involved in the initial appraisal and gestation of the scheme (Stages 0-1 of CEN/TC 395), even if the client had already prepared a design brief the architect would be likely to have suggested modifications and improvements and may also have been involved (perhaps with others) in assessing the viability of the proposal, in terms of its achievability (in the light of legal constraints, public controls or practical considerations, for example) and its financial viability.

Sub-Stages 2.1: Conceptual Design and 2.2: Preliminary Design

- UK5 The Architect's broad understanding of the whole process can be regarded as being a major asset by the client, beyond the provision of design skills. The Architect's abilities to carry out the design of the project (as "designer") must be specifically considered by the client (usually through the Design and Safety Co-ordinator) prior to the commencement of project design work (as distinct from feasibility studies). It should be remembered, however, that the Architect's function is not regulated in the United Kingdom and a non-architect may undertake the work. In other countries, the function is more closely regulated and may include structural engineering services, for example.
- UK6 Taking that into account, the Design phase would, no doubt, start with a review of the design brief. The Architect would need to identify the need for specialists (of which more comment will be made below) and will define the services to be provided. The architect will usually advise on the appointment of other specialists by the client but may agree to sub-contract that part of the work, retaining overall liability.
- UK7 The Architect must (and generally does) define the terms of the agreement with the client, formally and in writing. Failure to complete a written agreement with the client can (and does) lead to a disciplinary sanction and may make it harder for the architect to recover fees that ought to be due. Fees and responsibilities are subject to negotiation and agreement (and the architect may undertake only partial services in any case) but the contract between the architect and the client must include specific details of professional indemnity insurance (see footnote) and complaints procedures, for example. Fees are usually paid in stages, after the work has been done, though advance fees are sometimes paid and success fees may sometimes be negotiated for some types of work. Liabilities under the contract can also be negotiated.
- UK8 At the commencement of the design stage, the client must also advise the client of responsibilities in relation to Health and Safety legislation and must be aware of the architect's ("designer's") responsibilities. The appointment of a Health and Safety Co-ordinator (who is unlikely to be the same person as the architect) would be required for the apartments and the school project but might not be required for the family house (if the client is also to be the end user). A separate Project Manager may well be appointed on the larger project (the school), but this function would normally be undertaken by the Architect.
- UK9 The architect will also advise the client of the need for specific information in relation to the project, including the brief itself and any information which is necessary for the design stages, including site surveys and information about existing installations and existing problems (such as contamination). Measured surveys of existing buildings have been undertaken by the architect in the past but it is now usual for a surveying company to prepare the basic information. There is no

law which defines in precise terms the nature of the drawings and other material required to be prepared – it must, of course, be adequate for its purpose.

- UK10 In the first instance, the design of the proposed building would probably be executed in drawn form at a scale of 1:100 (for all three of the identified types). The drawings would be computerised but not necessarily in a three dimensional program and a few architects still use traditional drawing techniques. On the other hand, projects are increasingly defined in more comprehensive Building Information Management (BIM) programs, which would almost certainly be the case for the school project, if not for the residential projects.
- UK11 Of course, the design may be subject to various reviews and redesign stages, depending on different factors, including costs, technical constraints and client intentions. Fee proposals will normally seek to prevent a commitment to unlimited design revisions without remuneration but in practice, redesign costs may not always be recovered.
- UK12 At the completion of the “Preliminary Design Stage”, an application is made to the local municipality, where the site is located, for “planning permission” for the project. This will normally be based on drawings at 1:100 scale, though other drawings may be required and significant volumes of additional material must also be presented, depending on the nature of the proposal, the site and the surroundings, especially since the planning policies which apply do not have legal force and are subject to interpretation (often rather subjectively). A relatively small fee is payable to the municipality.
- UK13 This additional material will include a written analysis of the design proposals as well as project drawings and will often include reports on such matters as archaeology, historic features, wildlife, potential contamination travel and transport implications and the like. The application will be decided in the context of local planning policies (not local planning law), which allow for some flexibility and subjectivity (and some “political” judgement, by local councillors). An appraisal of planning policies is also required, therefore.
- UK14 The planning permission is concerned with land use issues (including visual appearance) and will define the building permitted (in terms of its size, shape, external materials and so on), as well as the uses to which it may be put. Restrictions may be applied and some details (for example of the landscaping) may be deferred for later submission (by the imposition of conditions). It should be noted that, if planning permission is refused, a procedure for administrative appeal is available, which is robust and well used.

Sub-Stages 2.3: Developed Design, 2.4: Technical Specifications and 2.5: Detailed Engineering

- UK15 Only with the grant of “planning permission” can the land owner or developer be sure that the land can be built upon. Otherwise, it may have to remain undeveloped, even within an urban area, due to technical problems (such as flood risk or access constraints) or merely because the site ought to remain undeveloped in accordance with policies which value its visual contribution to the townscape. Normally, therefore, detailed design is only undertaken after planning permission has been granted, to avoid the risk of wasted work.
- UK16 The detailed design is the stage at which construction drawings are prepared. For the given projects these would typical be at 1:50 scale (though much more detailed drawings will be required for particular parts of the building). The drawings would be heavily annotated with notes to describe and explain the construction.
- UK17 These basic construction drawings are again presented to the local municipality for approval by their technical department under the “Building Regulations”, which are concerned with technical construction matters, only. Again, a fee is payable to the municipality.
- UK18 Unlike the situation in respect of planning permission, these technical decisions do not usually give rise to significant disputes, although there is some limited scope for individual interpretation (for example in the area of fire escapes and access for disabled people).
- UK19 The submission to the municipality may include some schedules and will require structural calculations and calculations of energy consumption. All these calculations are commonly undertaken by specialists.
- UK20 In parallel with this established system for the approval of construction details, a relatively new system permits, as an alternative, the approval of construction drawings by recognised technical firms as approved inspectors (and this work may be undertaken by the architect). It may be noted that a much simpler system is also available for very small projects, such as house extensions, that are outside the scope of this report.
- UK21 Even in relation to the smallest projects, in a case where the site is built up to its boundaries or where deep excavations are required, an additional separate consent process is undertaken in relation to neighbouring properties, to ensure that neighbouring buildings are not destabilised. The neighbour’s consent is required to the construction proposals which might affect the adjoining site and a dispute resolution system provides for disagreements to be resolved by experts.
- UK22 The construction details which are required for construction purposes involve additional drawings (at larger scales) and schedules. A Specification (Schedule of Work) and, usually, a Bill of Quantities would be required for the projects under consideration. The Specification would

normally be prepared by the architect, perhaps with the assistance of a Quantity Surveyor, who would also prepare the Bill of Quantities. The Specification, in particular, is likely to be based on a standard model (notably the National Building Specification (NBS)), published by the RIBA.

- UK23 At this stage, drawings and detailed submissions would be prepared and submitted to deal with conditions imposed on either the planning permission (perhaps covering landscape design, external materials and specific details) or the building regulations approval (perhaps covering remaining structural calculations or details of manufactured elements such as stairs or windows).
- UK24 The complete construction documents, of course, include the drawings and schedules prepared by other professionals involved in the construction design, notably the engineering professionals (structural engineers and services engineers). The architect's role normally includes the task of co-ordinating all these details, though a Project Manager may be appointed for larger projects. The study projects would be unlikely to require such a figure and, in any case, the usefulness of the Project Manager can be very variable.

Stage 3: Procurement

Sub-Stages 3.1: Procurement and 3.2: Construction Contracting

- UK25 The basis for the building contract is likely to have been settled before the commencement of the design stage. In particular, the decision whether or not the contract would be in the traditional form or as a design-and-build form.
- UK26 In any case, one of the standard forms published by the Joint Contracts Tribunal (sponsored by the RIBA) would almost certainly be used, in the three cases under consideration. There exists a variety of standard contracts all of which run to many pages (typically about 70 pages), making provision for foreseeable eventualities and requiring completion in relation to the specific project, including details of the parties, insurances, liabilities and so on.
- UK27 The architect would normally be responsible for the completion of the contract in accordance with the client's wishes, though this may be undertaken by a Quantity Surveyor or Project Manager or by the client's lawyer (solicitor).
- UK28 The procurement documents would, therefore, include the drawings and schedules, including permissions and approvals, together with the details of the proposed contract. The architect (or other "contract administrator") would advise on potential contractors, to ensure that any of those invited to tender would be able to do a good job. A deadline would be specified for the return of tenders in accordance with the documents.

- UK29 Following receipt of tenders, the architect would advise on the appointment of the contractor, presumably on the basis of the lowest price but also taking account of any qualifications (limitations) made to the offer and other relevant circumstances.
- UK30 The tenders returned may result in revisions being made to the proposals, either as a result of suggestions made by contractors or as the result of a need to seek a price reduction. This revision process (“value engineering”) may involve a return to earlier stages in the project and a repetition of previous work. It may also be necessary to take account of revisions required by the client, for example.
- UK31 Eventually, the contract is agreed and work on site can commence. The detailed contract may be completed as work progresses provided that the documentation is sufficient to define the contract terms with reasonable certainty (perhaps under a “letter of intent”). In law a verbal contract (as distinct from a written contract) is capable of being valid, but is undesirable and the architect may be criticised (and may be subject to a disciplinary procedure) for allowing the project to proceed on an uncertain basis.
- UK32 It can be noted that, in some cases (usually but not necessarily for larger scale projects), the tender (procurement) and construction stages can be subdivided to permit two stages of construction. For example, the first stage may involve demolition of existing structures and site preparation work, while the second stage would involve the building project itself. In any case, the main project could require some pre-ordering of materials or installations (such as a lift). Alternatively, the main building project could itself be followed by a fit-out project (for the education building).

Stage 4: Construction (CEN/TC 395)

- UK33 In this report, the “construction” stage coincides with the commencement of physical work on the site of the project.
- UK34 Since the report is concerned specifically with the role of the architect, it does not go into details of the tasks which are carried out by the builder (contractor).

Sub-stage: 4.1 Pre-construction

- UK35 Once the contract has been agreed, the architect (or other “contract administrator”) will be involved in the establishment of the programme, consideration of site constraints and other matters. The Health and Safety Co-ordinator must approve the builder’s method of construction statement for

compliance with health and safety requirements. The builder's programme and methodology will normally be agreed, in practice, though the conduct of the work remains the responsibility of the builder, not the architect.

Sub-stage 4.2: Construction

- UK36 During the course of the construction works the architect would traditionally have had a number of tasks. Even in the context of a design-and-build contract, these basic tasks are still needed, though they may be simplified in different ways, in any of the project types referred to, under different contract types. This section identifies the main tasks.
- UK37 The architect will normally be the person who regularly visits the site (probably once per week in any of the given cases) to ensure that the work is being carried out in accordance with the contract details. In particular, the architect will verify that the required quality standards have been met. The architect does not "manage" or "supervise" the work and does not have those responsibilities.
- UK38 Since the contract documents specify that the work is to be carried out in accordance with legal requirements, the architect's site inspections also have that function, in practice.
- UK39 Nevertheless, the site is also inspected regularly by an official of the local municipality (the "Building Inspector" or "Building Control Officer") whose official duty it is to ensure compliance with Building Regulations (but not with the planning permission). The official inspections will particularly include inspection of foundations, ground slab waterproofing, roof construction, installations (drains), sound proofing, energy insulation and final completion. The official inspections are concerned with minimum standards, not with quality considerations.
- UK40 The regular inspections by the architect also enable other matters to be dealt with. During the course of the work, circumstances arise which require changes to or clarification of the contract documents, drawings and schedules. It may be that an actual change is required, due to changing requirements of the client or new circumstances (including financial pressures or additional funding). Changes may result from unforeseen events, such as the discovery of unexpected ground conditions.
- UK41 Apart from the need for changes, clarification may be needed in the case of ambiguities or discrepancies in the contract documents. Additional detail may be required for some elements of the work, within the context of the general requirements of the contract documents.
- UK42 It should be noted that some additional details may also be prepared by the builder or by a specialist subcontractor or supplier. These may be for installations such as lifts, ventilation,

electrical installations and the like or may be for manufactured building elements such as stairs, windows, doors and so on. In such cases, the architect's role will be to "approve" the specialist's details, though without accepting liability.

UK43 In dealing with requirements for additional details, the overall financial and regulatory implications must also be considered, of course.

UK44 The architect (or "contract administrator"), in conjunction with the Quantity Surveyor, will also undertake periodic valuations of the project, in accordance with the contract, to support payments to the builder. Normally the builder will be paid in arrears, as the work is done, according to the value of the work done. A proportion of the payment due is retained until the end of the project and final handover, to allow for minor remedial works later.

UK45 However, payments may be made in other ways, for example in accordance with a pre-agreed schedule of stage payments or periodic (monthly) payments (subject to meeting stage requirements). Payments may be made in advance (though this presents a risk to the client) or at the end of the project (though this presents a risk to the builder and imposes financial costs). It is usually necessary, in practice, for allowance to be made for variations to the works and for financial consequences of delays to be taken into account.

UK46 In addition, the architect may be called upon to certify the value of work done in satisfying a bank loan agreement or other financial arrangement. The architect is normally expected to undertake personal visits to the site to make such assessments.

Sub-stage 4.3: Commissioning

UK47 Close to the end of the construction process, various installations and certain elements of the building require to be tested. The builder co-ordinates the tests and the preparation of operating manuals. For projects where the Health and Safety regulations apply, a comprehensive manual is a legal requirement and even in the case of a single family house for an owner-developer such a manual would be desirable.

UK48 The architect will consider the various tests, together with the official of the local municipality and will "approve" the results. Payment to the builder and sub-contractors will be dependent on the tests. At completion, minor remedial works are carried out but a further inspection would normally be made after one year, to ensure that the project has been carried out correctly (especially installations).

Sub-stage 4.4: Hand over

- UK49 The building is handed over to the client once the architect (or “contract administrator”) has certified that it has reached the stage of “practical completion”. That does not imply that the building is complete in every respect but that the building occupier can take possession, to use the building or to commence their own furnishing or fit-out programme. This flexibility can also give rise to some uncertainty, however.
- UK50 The architect’s certificate of practical completion also has important implications for the building insurance and other responsibilities (and the commencement of the contractual post completion liability period).

Sub-stage 4.5: Regulatory approval

- UK51 In the United Kingdom, the completion of the building does not involve the issue of a comprehensive official approval notice.
- UK52 The local municipality does not usually inspect the project, either during construction or on completion, to ensure that it complies with the planning permission, unless a complaint is made by a member of the public (a neighbour or a passer-by) or unless an officer or councillor notices an irregularity by chance.
- UK53 However, a mechanism exists to enable an owner of a building or land to obtain a certificate of compliance with planning legislation, at any time. This may confirm that a building is in compliance with planning permission or that it has become lawful by the passage of time (an immunity period of four years in the case of building works). This could apply even in the case of the construction of an entire house, for example.
- UK54 Compliance with the Building Regulations is confirmed by a final inspection made by the Building Control Officer. A certificate of completion is issued upon request (and upon payment of a small fee) but is not necessarily issued. It is desirable, of course, for a municipality completion certificate to be obtained and attached to the property manual.
- UK55 The liability to pay local taxes does not depend on a completion certificate for the project. Taxes are assessed based on the actual floor areas and the uses to which they are put and are assessed independently by local tax officials.

NOTES

1. *Professional Indemnity Insurance*

Architects have an obligation under their professional codes of conduct (deontological codes) to obtain Professional Indemnity Insurance (PII) in respect of professional liabilities, as distinct from buildings insurance, employers' insurance and so on. The level of insurance required is specified by the Architects Registration Board (ARB). Until recently, the ARB required an annual statement of compliance though this has now been discontinued. Failure to carry the appropriate cover is regarded very seriously (as was failure to return the annual statement).

2. *The Architect's professional liabilities to the client may be limited by contract, though liabilities to third parties (the general public or building users) are regulated by the general law. The normal principle for professional services is that the Architect must exercise "reasonable skill and care" but is not required to achieve a standard of construction imposed by law.*