

GENERAL DESIGN STANDARDS FRAMEWORK IN THE CZECH REPUBLIC

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 by Roger Shrimplin and focuses on the three "core" stages in the building project set out in ACE/ CEN TC395.

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 authorized architects. For this type of contract construction engineers are usually called upon by the general public. Only a small percentage of clients will directly employ the services of an architect. Exact statistics are not known, but according to unofficial information of the building authority the ratio e.g. 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 is rather rare in the Czech Republic; the project would usually be a reconstruction or extension of an existing school. A typical construction of a new school building is normally of a smaller scale. As required by law, a designer has to be selected through a public 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 the 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 invitees and recommend professional members for a jury. According to the Chamber's rules an authorized architect may only participate in tenders approved as regular by the Chamber, otherwise sanctions can be imposed on the architect.

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. They 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 and the contract is concluded accordingly. The contract itself has a prescribed general form based on the Commercial Code. If the simplified contract is used in cases of small commissions (for instance a family house) these contracts always refer to this general contract. In cases of bigger commissions (in our selected project types meaning apartment buildings and school buildings) the contract is always concluded in full.

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

The activities of an architect in cases of selected project types - family house, apartment building and school building – is included in part B - building design.

Building design is divided into phases that are then divided into individual services. Service within each phase is either standard or non-standard (above standard), both referred to as the designing service. Among other services are engineering, special professional activities and requirements for investor's cooperation.

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 within the pricing structure. It also includes architecture and engineering services. The “minimum” must be understood in the context of overcomplicated regulation by the Ministry that does not distinguish the size and type of the building. Potential reduction of project documentation for simple buildings (a family house) is subject to an agreement with the authorities responsible for authorising the construction.

Additional service (in all phases) – is valued individually and will include services that are not directly related to the given phase but describe possible non-standard services. (e.g. web presentation as an additional phase of the building permit process).

Engineering – is not seen in the Czech context as engineering design and professional activity but as all activities related to the authorisation of construction providing the opinions of network administrators, neighbours, etc.

Special professional activity – describes activities that arise as a specific feature of the given project in terms of the site or specific requirements of an authority in the process. These are special studies (noise, geology, etc.) or surveys; or the whole EIA project part.

Investor's cooperation – defines requirements for initial information that are to be provided to the architect by the client for the given phase.

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-sections (transport, energy, technology, etc.). Service Standards adopt this structure of the regulations and create a “core” phase of the Service Standards. These are the stages of the building permit and land use (zoning) permit process (a two-stage permit process is still obligatory in the CR). These core phases are subsequently condensed down towards the design phase, and completed towards the background of the project for pricing purposes. The project structure resulting from the regulations remains.

the Chamber and licence for design: Construction design is not regulated by law, however, all design activities requiring permissions resulting from the regulations must be done by an authorised person. The authorised person must be a design architect or a civil engineer with five years study of the field, two years experience in the field under the supervision of another authorised person and who is also a member of a professional chamber – The Chamber of Architects or The Chamber of Certified Engineers and Technicians. Construction design on sites specifically listed in regional or local zoning plans or with other conditions (e.g. preservation of monuments) may be undertaken only with an architect. Membership of a Chamber provides an architect with the basic insurance policy for his service. For the construction of a family house this basic insurance policy is sufficient. However for larger commissions additional insurance is at the discretion of the architect or at the request of an investor.

the fee scale: It is contrary to the Chamber's rules to work on a project for a different price than is set out in the fee scale. However, the fee scale 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 also possible option for 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.

Architects' service: authorised architects perform his/her profession as an employee of the design studio or as a free-lance profession.

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

PRELIMINARY STAGES:

INITIATIVE

1. market study
2. business case

In practice this phase is not normally carried out. The Official Service Standard does not describe it. Architect's authorisation does not permit an architect to carry out this phase. If an investor requires it, an architect will normally find a third party to provide it.

INITIATION

1. project initiation – analysis of client's requirements
2. feasibility study – verifying project definition with regulations and feasibility
3. project definition – finalising project definition

Under the Czech Standards the INITIATION phase is carried out within one phase called "Project Preparation". This is the phase when the client comes into contact with the architect. The scope of the project determines how detailed the project will be. A family house would normally require consultations, site inspections, 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 (an apartment building, a school building) would normally require a more detailed report summarising findings and recommendations.

Project preparation includes:

- appraisal of the existing data and requests for complementary information if necessary
- assessing the suitability of the site for construction purposes
- setting the project scope
- estimating the overall project schedule

The fee scale values this part 1%

"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 large-scale developers' projects or for commissions on problematic sites to examine the acceptability of the planning application. 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

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. Conceptual design + preliminary design corresponds to the study phase “Project Study”

This phase should be carried out only by the architect; however, it is not required by Czech legislation so the investor chooses who will design the building. The scope of this phase is usually a conceptual project design, selection of the desired concept and 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 acceptability of the planning application, taking into account all known accepted standards and regulations for the project, and then approaches the design in terms of expected costs and standards. 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 a common standard form for a small project by a qualified architect and does not require specific engineering knowledge, but it is sent for consultation if necessary. For larger projects (apartment building, school building) other professionals will be involved already in the study phase in order to provide consultation on (and possibly revise) the design.

In practice, however, the client tends to minimise the Preliminary Design Stage given the scale of the subsequent stages required in order to obtain building approval and to prepare only the conceptual design and to compile the other required materials during 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 market pressure and lower prices for projects.

Official service guidelines for the Design phase arise as a result of the structure set by the regulations that condense it for the Design phase. This is the reason why the regulations don't mention the conceptual factor of the design at this stage (the regulation does not use this term) so this stage is missing in the official Czech Standards.

"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 a construction part and a review by individual engineering professionals. This phase has no parallel in the ACE structure. This is a review of the project in terms of urban context, relating the project to infrastructure and other interests in the area. For smaller structures such as a family house this phase is carried out together with building permit (and remains formally binding), for the larger structures it must always be carried out. The project then goes to individual authorities authorised to issue approvals under the 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 scope of documentation that go 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 structures up to 10 approvals are normally required, for bigger structures on a complicated site tens of approvals can be required. In practice there are only a few approvals issued by the state authorities and municipalities (supervising environmental, health and security issues) that may

have a significant impact on the project. Others are rather formal approvals of a 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 and resolve any contradictory or conflicting issues and interests. This can lead to an increased number of necessary negotiations. That is why negotiations with authorities are a separate service called engineering and these are additional services that do not fall within the fee scale. For larger structures this service is done by a third party commissioned by the architect or by the client.

Land use (zone) permission is approval for the client to implement the construction at 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.

The project documentation in the construction stage is done at 1:100 scale that is not higher than in the preliminary design. Together with the project additional materials must be presented with reports and supplemental information such as reports on service connections, structural engineering, fire security and other specific issues resulting or arising due to the specific location of the building on the site and its relation to the surroundings.

The fee scale values the land use (zone) permission project phase 15%

ad2. Developed design in the Czech context corresponds to the building permission project. This documentation includes additional materials arising from land use (zone) permission and investor's new requirements which is quite common as the land use (zone) permission process for larger structures may be lengthy, so many factors on the site can change in the course of this process.

Construction documentation is at 1:100 scale; the engineering part is completed in more detail providing definite data re energy consumption etc. Energy label (PENB) is made during this stage. Structural analysis is presented. Documentation processing is similar to land use (zone) permission process. The architect negotiates requirements of individual authorities in advance, 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 (which will then be added within a specified 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 for relevant authorities to retire from repeated decision-making processes in the building permit process (when the land use permission is sufficient).

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 a schedule is therefore difficult to estimate.

developed design phase – building permit is valued in a fee scale 22%

Ad3 Detailed design – This phase for a small project (e.g. for the construction of a family house) is usually carried out by an architect who also coordinates subcontracted engineering professionals. Depending on the office (architect) the procedure for larger buildings is similar or the whole project is commissioned to the third party and keeps only the principal supervising authority. Another possible option would be for the whole phase, including responsibility, to be taken over by an engineering design studio. Based on the agreement with the investor the architect may influence the project only through the author's supervision or licence contract. However, these tools are largely ineffective.

Typical scale of the project is 1:50, detail also 1:1, all specifications, surface finishes, facilities and technology is described. The scope and the use of this phase are subject to more interpretation depending on whether it is a public or private commission. The official definition is as follows: the project, according to which "it should be possible to create a bill of quantities and documentation to be used as a binding description specifying all structures for the supplier". The specific view of the detailed design is the view of the building authority that may require preparation of documentation detailing 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.

For a small private commission e.g. a family house, the detailed design is also the engineering design, which means construction documentation. This can also similarly be the case of selected apartment buildings comprising up to 50 units. For larger commissions (such as a school building), the detailed design will be seen only as a basis for cost assessment, where part of the building supplies will also be the detailed design produced by the supplier.

In the case of a public commission the architect is limited by the description of individual structural elements at a general level and this will forbid more elaborate description of details based on the element of the specific producer. This leads to documentation with less detail and more description leaving an architect less certain of whether his ideas will finally be realised.

In the case of a private investor, the detailed design prepared by an architect is comprehensive and the supplier only completes a manufacture design. Drawings and detailed descriptions will include specific manufacturers of structural elements.

The fee scale values this service 28%

Ad 4 - Engineering design - 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 the original designer as part of completion of the engineering design. This phase is not described in the Service Standards as architect's service or the engineer's project. The scope of the project depends on the supplier's requirements for more detailed information in relation to given structures (concerning individual parts or only structural elements). The original architect

will usually require examination of the detailed engineering in the detailed design; however, unless there is support from the investor, disputes about changes to the project will be unresolvable for the architect. For smaller buildings the detailed design is regarded as the engineering design.

3.PROCUREMENT

The architect participates in the tender only as an adviser. This service is always additional.

Family house – the architect would advise on potential contractors, revise references and assess bids. Involvement of the investor's technical controller in this process is not usual, and would only occur for more complicated commissions.

Apartment building – a developer normally employs the services of the investor's technical controller who then represents him during the whole process. The position of the investor's technical controller may also be delegated to the architect. When construction commences, however, the technical controller must be certified by the Chamber of Certified Engineers. In the event that the architect is certified also this way, it is seen as a conflict of interest if the investor is represented at the implementation of the construction stage by the author of the documentation.

School building – public commission – the procedure is similar to that for an apartment building.

The procurement process is governed by two laws – the Building Act and the Act on Public Procurement. Under the Building Act the architect prepares bills of quantities and the cost assessment is deemed an additional service (and may only be prepared by the certified technician). The cost assessment is based on a selected price system. Under the new standards the intention is to systematically separate the creation of bills of quantities from valuations based on a price system that does not allow control by the architect and the investor.

The fee scale values this service 8%

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 quotations for individual parts of the project.

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 which define the object of the public contract in details

required for preparing the bid. Specifically, it is the case of a 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 solely the responsibility of the investor or his authorised representative, the investor's technical controller.

Drawings for the purpose of the procurement process will be the detailed design. There is a new requirement that bills of quantities are clearly controllable from the drawings, so an architect will complete the drawings with specifications and descriptions that will allow this clear control. Documentation is submitted in pdf format. The most common programmes used are autocad, archicad. BIM programmes are only beginning to be used and offices are resisting their use. Under the new standards the BIM method is considered an additional service.

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 changes in materials. With a large number of companies this means a lot of extra work for the architect.

4.CONSTRUCTION

4.1.pre-construction

4.2.construction

4.3.commissioning

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

If a supplier is chosen, the investor with the help of his project manager will conclude a contract with the supplier. The architect does not usually participate in this process.

Prior to 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.

The construction works formally commence when the building site is handed over. An architect may be invited along to this process.

4.2. construction

The 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 but they become binding on the contractor only if (and when) approved by the

technical controller.

The site is also inspected regularly by an official of the local municipality (the “Building Inspector” or “Building Control Officer”) who announces such inspections in advance, or creates an inspection schedule at the outset.

During the course of the construction works the investor’s technical controller will organise regular on-site inspections (“on-site meetings”). The architect will be invited to these inspections.

During the course of the works the architect, at the instigation of the technical controller, will make changes to the project arising as a result of changes in materials, structural design. In practice, the link between building contractor and architect is quite direct and it is largely up to the architect to what extent he will agree to this method with the risk being that it may not later be recognized by the investor’s technical controller as additional work. Modifications to the project are valued as additional service at an hourly rate.

If a large number of modifications are required during the course of the construction works, a so-called change of construction before completion is required. 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 in relation to the amount of acceptable modifications with the building authority. This is usually carried out by the investor’s representative, the investor’s technical controller. However, by law this is the contractor’s responsibility. The building authority will decide whether new documentation is required and whether any such documentation should be reassessed by any other authority and any change may only be approved through site inspection and entry in the site diary.

In practice, therefore, changes to construction works before their completion are from the architect’s point of view problematic as they do not require direct authorisation by the principal designer, only by the person who carried out the change.

Payments to the building supplier are carried out in arrears, according to the stages of finished parts based on handover and approval by the technical controller.

4.3. commissioning

In the course of construction of the building, revisions relating to individual pieces of technical equipment are carried out and a protocol is drawn up.

Tests of the heating, gas systems and a chimney inspection are carried out. The investor’s technical controller will then verify that all inspections are in order and are correct.

The legal warranty of the building contractor is a five year period by law unless a period is stated in the contract otherwise.

Preparation of use instructions is not part of the architect's standard work. This is regarded as the contractor's responsibility.

For larger structures a run in trial mode is set. This trial period may last up to a year.

4.4. handover

At completion the construction works contractor will carry out the geodetic survey for the Land Registry and will produce an "as build documentation". Its scope is set by the regulation and it is not a standard architect's service. The building contractor may commission it from the designer.

The investor's technical controller determines handover eligibility of the building; however, the standard contract for work states that "the 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 completion and final handover will a period for complaints relating to individual parts of the construction works commence, which is governed by law. For larger structures longer guarantee periods are agreed in the contracts, in some cases up to ten years.

The building contractor then hands over all revised documentation to the investor's technical controller (if he has not already done so) and sends the geodetic survey to the Land Registry. He then subsequently applies for regulatory approval by the building authority.

According to normal contractual relationships the work is regarded as completed once regulatory approval is granted which is a standard contractual condition.

4.5. regulatory approval

Completion of the building and its commissioning is based on regulatory approval. One building may require more than one regulatory approval (e.g. where the whole building is divided into a number of individual sub-units). These sub-units may undergo and achieve regulatory approval even during the course of the construction works, ahead of the other ones. The regulatory approval, according to the scale of the building, may include more inspections to approve and confirm that implementation of the project has occurred correctly e.g. fire safety, transport solutions exist, etc. If any faults are found, a protocol of faults that must be removed prior to the next inspection is produced.

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

The fee scale values this service 2%