

Non-Binding Calculation  
Recommendation for services  
of Consulting Engineers

**PERFORMANCE PROFILE FOR  
PLANT AND TECHNICAL  
OUTFITTING**



AUSTRIAN ECONOMIC CHAMBER  
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The non-binding calculation recommendation, **Performance Profile for Plant and Technical Outfitting**, for services of the Consulting Engineer/Firm (consulting engineers), is intended for the members of the Austrian Association of Consulting Engineers in the federal branch of Information and Consulting of the Austrian Economic Chamber and, in accordance with § 31 of the 1988 Cartel Law, is registered as non-binding association recommendation in the Register of Cartels under 25 Kt 582/05-6.

The Austrian Association of Consulting Engineers reserves the right to review the individual parts of the calculation recommendation in respect of economical developments and statutory framework conditions at reasonable intervals.

## **1. SCOPE**

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- 1.1 Plant and technical outfitting services encompass as uniform whole the service phases specified in point 4.3 for installations of buildings, civil-engineering structures, open-air facilities and room-creating interior works in the fields of
- a) Gas, water, sewage and fire extinguishing systems,
  - b) Central heating, domestic water heating, air conditioning systems,
  - c) Electrical systems and communications technology,
  - d) Metrology, open/closed-loop automatic control technology,
  - e) Lifts, material handling and warehouse systems,
  - f) Kitchen, laundry and dry cleaning plant,
  - g) Medical and laboratory equipment.
- 1.2 The plant and technical outfitting services can be defined and estimated according to this performance profile, whereby its application must take place in combination with the General Part of the Calculation Recommendation.
- 1.3 If services of other specialised fields are required, then for this competent consultants are to be called in or commissioned, who are to be remunerated separately.

## **2. PRINCIPLES OF THE PROCESSING TIME**

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- 2.1 If there are no reference projects available, for the plant and technical outfitting the following typical size and quantity specifications can be utilised:
- a) Empirical values concerning areas, lengths, cubatures, points and services.
  - b) Expenditure-determining fabrication costs of the project to be processed.
- 2.2 The remuneration of the engineering service for basic plant and technical outfitting services is therefore determined according to the forecast, estimated and agreed processing time expenditure, multiplied by the calculated and quoted hourly rate, insofar as not accounted for according to actual hourly expenditure or other principles of service remuneration in the sense of point C/2.2 of the General Part of the Calculation Recommendation.
- 2.3 If installations of the project to be processed are to be assigned to different processing classes, then the forecast processing time expenditure can be adapted accordingly.
- 2.4 If the time expenditure for basic services (from case to case also for special services) is estimated according to expenditure-determining fabrication costs, then these shall be complete costs exclusive of value added tax that are to be expended for the completion, respectively readiness for operation of the project.

Costs not expenditure-determining are:

- Purchase of land or real estate,
- Incidental expenses according to C/7 - General Part of the Calculation Recommendation,
- Fees,
- Connection costs, insofar as these are not decisively influenced by the consulting engineering firm,
- Charges and levies,
- The price component „Other“ of ready purchased objects of equipment and components, resulting from luxurious materials, respectively all expenditures not necessary for the technical realisation,
- The value added tax applicable on the project construction.

2.5 Existing plants and/or parts of plants as well as products or parts of plants procured in advance by the client, which are also processed or integrated technically, can be appropriately taken into account with the expenditure-determining fabrication costs.

### 3. PROCESSING CLASSES

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The following processing classes reflect the complexity, respectively the degree of difficulty of the requirements, take into consideration the relevant associated expenditure of the planning team normally required and thus represent a calculation aid in respect of the processing time to be expected.

The following plants are assigned to the following processing classes:

#### 3.1 Processing Class 1 (PC 1):

- a) Gas, water, waste water and sewage facilities with short simple pipe networks;
- b) Central heating systems with direct-fired single appliances and simple building-wide central heating plants without special requirements for regulation, air conditioning systems of a simple type;
- c) Lightning-protection and grounding installations, simple low-voltage and telecommunications facilities (e.g. social residential building);
- d) Chute systems for refuse or laundry, simple single lifts, high-rack storage systems, insofar as not mentioned in processing class 2 or 3;
- e) Chemical cleaning facilities;
- f) Medical and laboratory installations of electro-medicine, dental medicine, medical engineering, medical instrument and optical engineering, all for general practice surgeries.

#### 3.2 Processing Class 2 (PC 2):

- a) Gas, water, waste water and sewage facilities with extensive complex pipe networks, hoist facilities and pressure-boosting plant, manual fire-extinguishing and alarm systems;
- b) Building-wide central heating plants with special requirements for regulation, remote heating and ventilation networks with transmission stations, air

- conditioning systems with requirements in terms of noise level, freedom from draughts or with additional air treatment (excluding regulated air cooling);
- c) Compact stations, low-voltage supply and distribution facilities not mentioned in processing class 1 or 3, small telecommunications installations and networks, e.g. small exchanges as defined by the Telecommunications Order, lighting systems based on the efficiency-calculation method, lightning protection installations;
  - d) Lifting platforms, ground-controlled cranes, travelling, modular and rotating rack-storage systems, escalators and moving pavements, conveyor systems with up to two despatch and receive stations, difficult single lifts, simple lift clusters without special requirements, technical facilities for medium-size stages;
  - e) Medium-size kitchens and laundries;
  - f) Medical and laboratory installations for electro-medicine, dental medicine, medical engineering, medical instrument and optical engineering, small-dose X-ray and nuclear installations, all for specialist or group practices, clinics, old peoples' homes and simple hospital departments, laboratory facilities, for example for schools and photo-processing laboratories.

### 3.3

#### **Processing Class 3 (PC 3):**

- a) Gas production plants and pressure-regulating stations including associated pipe networks, plants for purifying, detoxifying and neutralising waste water, plants for the biological, chemical and physical treatment of water; water, waste water and sewage facilities with above-average hygiene requirements; automatic fire-extinguishing and alarm systems;
- b) Steam plants, hot water plants, difficult central-heating systems based on new technologies, heat-pump systems, remote heating and ventilation control centres, cooling plants, ventilation plants with regulated air cooling and air-conditioning plants, refrigeration plants;
- c) High and medium-voltage installations, low-voltage switching centres, private electricity generating and transformer plant, low-voltage supply and distribution facilities with short-circuit calculations, lighting system based on the point-to-point calculation method, large-scale telecommunications installations and networks; safety engineering plants, electroacoustic and audiovisual installations, theatre and video technology;
- d) Lift clusters with special requirements, controlled conveyor systems with more than two despatch and receive stations, high-rack servicing machinery with associated equipment, central disposal facilities for laundry, refuse or dust, technical equipment for large-scale stages, height-adjustable false floors and wave generating machines for swimming pools, automatically-operating solar-protection installations;
- e) Catering kitchens and laundries;
- f) Medical and laboratory installations for large hospitals with specialist examination and treatment rooms, for clinics and institutes with teaching and research functions, climate-control chambers and equipment for climate-control chambers, special temperature-controlled and dust-free rooms, vacuum plant, media supply and disposal facilities, chemical and physical facilities for large-scale enterprises, research and development, manufacturing, clinical and teaching purposes;
- g) Solar and photo-voltaic installations.

## **4. SCOPE OF PERFORMANCE**

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4.1 The performance profile for plant and technical outfitting services is grouped in service phases and encompasses the services for new facilities, rebuilding works, extensions, conversions, modernisation works, maintenance and repair works. Each service phase is split into basic services and special services.

4.2 The total processing time to be expended based on experience for all **Basic Services** according to point 4.3 can be split up proportionally over the individual service phases in accordance with the following table, whereby these table values serve only as a guide and the service supplier must estimate these individually himself and agree them with the client.

It is recommended, that at the conclusion of the contract, the client and service supplier precisely define and agree the allotment key for the service phases.

If only individual service phases are commissioned as scope of performance, then a possible extra expenditure is to be taken into consideration accordingly.

The totals for planning and supervision services respectively must produce 100 %.

	<b>SERVICE PHASES OF PLANNING (PLANNING SERVICES)</b>	Individual allotment key to be entered	Spread of the allotment key
1	<b>Preliminary Design</b> (project and planning preparation) Development and representation of the basic solution		16-20 %
2	<b>Final Design</b> (systems and integration planning) Development and representation of the final solution		22-26 %
3	<b>Approval Design</b> (presentation planning) Prepare and submit documents for necessary public approval procedures		3-7 %
4	<b>Execution Drawings</b> Preparation and presentation of the design solution in implementable form		30-36 %
5	<b>Preparation of Contract Award</b> Calculate quantities and prepare tender documentation		10-14 %
6	<b>Assist with the Award Process</b> Evaluation of bids and assistance with placing contracts		6-10 %
	<b>TOTAL PLANNING SERVICES</b>	<b>100 %</b>	

	<b>SERVICE PHASES OF PROJECT SUPERVISION (SUPERVISION SERVICES)</b>		
7	<b>Specialist Supervision</b> (construction supervision) Supervision of the on-site execution of the project		70-80 %
8	<b>Acceptance</b>		11-19 %
9	<b>Auditing of accounts</b>		6-14 %
	<b>TOTAL SUPERVISION SERVICES</b>	<b>100 %</b>	

4.3 The service phases of the performance profile for plant and technical outfitting consist of basic services which are in general necessary for the proper fulfilment of service, and/or special services, when special requirements are imposed on the fulfilment of service.

The basic services or special services for each service phase are comprised as follows:

<b>1. PRELIMINARY DESIGN (project and planning preparation)</b>	
<b>Basic Services</b>	<b>Special Services</b>
Clarification of the requirements as well as the conceived targets in consultation with the client and the project designer, specifically in relation to the main technical, functional and financial issues	Data entry, analysis and optimising processes for energy-saving and environment-compatible construction
Analysis of the requirements, documents and data	System study, energy study
Development of a solution concept with a superficial layout of the main systems and components including examining possible alternative solutions subject to the same conditions and presentation of outline drawings showing their integration into the project design, including preliminary economic-efficiency figures	Investigate building and systems optimisation in terms of energy consumption and emissions of pollutants (e.g. SO <sub>2</sub> , NO <sub>x</sub> )
Production of a functional grid or schematic diagram of the installations	Conduct trials and computer simulations
Analyse and explain the key specialist relationships, processes and conditions	Reworking and modification of the preliminary design as a result of changed requirements
Assist with preliminary negotiations with local authorities and other specialists involved in the project in respect of approval conditions	Inventories
Assist with the cost estimation	Development of optimised energy concepts
Summarise the results from the preliminary design	

<b>2. FINAL DESIGN (systems and integration planning)</b>	
<b>Basic Services</b>	<b>Special Services</b>
Advancement of the solution concept (development of a graphical solution in stages) as follow-on service to service phase 1, taking account of all specialist requirements and complying with all specialist drawings integrated into the project design, through to the final design	Produce data for third party planners, e.g. for central building control technique
Specify all systems and components Calculation and dimensioning as well as graphical representation and plant description (without dimensions)	Economic-efficiency and operating costs calculations Detailed economic-efficiency study
Identification and coordination of the access points and load data required for the preliminary structural calculation (excluding preparing channel and break-through drawings)	Produce the technical section of a building space utilisation book as a contribution to the project architect's project specification with schedule of works
Assist with negotiations with local authorities and other specialists involved in the project in respect of compliance with approval conditions	Detailed comparison of pollutant emissions as well as pollutant emission calculations
Assist with the cost calculation	
Summarise the results from the final design	

<b>3. APPROVAL DESIGN (presentation planning)</b>	
<b>Basic Services</b>	<b>Special Services</b>
Assist in compiling the requisite specialist submission documents, as follow-on service to the service phases 1 and 2, for obtaining the official approvals and consents required under public planning procedures including applications for exemptions and waivers, plus any remaining negotiations with official authorities	Reworking and modification of the approval planning as a result of circumstances for which the service supplier is not accountable, such as e.g. unforeseeable official impositions as well as sustained objections of parties to the approval authorisation procedure
Completion and adaptation of the planning services, descriptions and calculations	Assistance with appeal proceedings
Collate the documentation necessary for the official approvals to the prescribed extent	
Assist with explanations and negotiations with local authorities	

<b>4. EXECUTION DRAWINGS</b>	
<b>Basic Services</b>	<b>Special Services</b>
Revise the outputs of service phases 2 and 3 (development and graphical representation of the solution in stages) taking account of all specialist requirements and the specialist drawings integrated into the project design as basis for the assembly planning for the contracting firms	Check formwork drawings from the loadbearing structure designer (structural engineer engaged in statical calculations)
Representation of the installations in drawing form with dimensions (not assembly and workshop drawings)	Production of drawings for connecting supplied plant and machinery
Production of channel and break-through drawings	Production of power-circuit diagrams, empty pipe planning, fitting plans in in-situ concrete or finished parts and assistance with the preparation of wall views

<b>5. PREPARATION OF CONTRACT AWARD</b>	
<b>Basic Services</b>	<b>Special Services</b>
Calculate quantities as a contribution to preparing schedules of works, coordinating with the contributions of other specialists on the project team	Produce tender drawings where project specifications and schedule of works exist
Produce project specifications with schedule of works by trades	Preparation of a cost estimate

<b>6. ASSIST WITH THE AWARD PROCESS</b>	
<b>Basic Services</b>	<b>Special Services</b>
Check and evaluate bids including producing a price list by service group	Check and evaluation of open alternatives
Assist with negotiations with bidders in specialised technical issues	
Assist with awarding the contract in specialised technical issues	

<b>7. SPECIALIST SUPERVISION (construction supervision)</b>	
<b>Basic Services</b>	<b>Special Services</b>
Supervise the execution of the technical installation for conformance with the official approvals, the assembly plans of the contracting companies, the project specifications or schedule of works as well as in accordance with the generally acknowledged rules of technology and applicable regulations	Check dimensions of works and perform functional and consumption tests
Assist with producing and monitoring a timetable (bar chart)	Supervision and correction of details by the manufacturer (works acceptance)
Assist with keeping a site diary	Production, updating and monitoring of work flow charts (critical path analysis if computerised)
Assistance with the cost follow-up	Constant presence on the building site
	Examination of the assembly drawings of the contracting companies for basic conformity with the project
	Examination of a project designed from another side

<b>8. ACCEPTANCE</b>	
<b>Basic Services</b>	<b>Special Services</b>
Specialist acceptance of the services and determination of defects	
Participation with official acceptances Examination of the revision documentation, operating instructions, test reports, inventory plans etc. to be prepared by the contracting companies, for completeness	
Assistance with the listing of the periods of limitation of the warranty claims	
Supervision of the rectification of the defects determined during the acceptance of the services	

<b>9. AUDITING OF ACCOUNTS</b>	
<b>Basic Services</b>	<b>Special Services</b>
Examination of the overmeasures prepared by the contracting companies (overmeasure lists, overmeasure plans)	
Auditing of accounts	
Assistance with the cost determination	

<b>10. PROJECT CONTROL AND DOCUMENTATION</b>	
<b>Basic Services</b>	<b>Special Services</b>
	Physical inspection of the project to identify defects prior to expiry of the warranty periods granted by contractors
	Supervise the correction of defects which become apparent before expiry of the above warranty claim periods or at the latest within 3 years of the acceptance of works
	Assist with the release of security bonds
	Production of maintenance drawings and maintenance schedule
	Training and induction of operators
	Supervision of energy consumption and emission of pollutants by specialist engineers
	Assist with the systematic collation of the drawings and calculations (in particular in file form) together with officially relevant papers to form a final project documentation
	Preparation for and assistance with extrajudicial dispute procedures in front of mediation establishments, arbitration tribunals as well as with litigation proceedings before ordinary law courts

## 5. AVERAGE HOURLY EXPENDITURE BASED ON PAST EXPERIENCE FOR BASIC PLANT AND TECHNICAL OUTFITTING SERVICES

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5.1 In the following time table, the processing times to be expended based on experience for the basic services specified in point 4 Scope of Performance can be entered as calculation aid, dependent on the expenditure-determining fabrication costs and the processing classes. These processing times should refer to single and continuous processing within the agreed service provision period.

Insofar as there are no reference projects or empirical values available for the calculation of the concrete processing times, reference is made to Attachment A – Plant and Technical Outfitting, that can be downloaded from the website of the Austrian Association of Consulting Engineers. There are tables in this which provide guidance for the estimation of the processing times. The table values provided reflect processing times based on experience dependent on the expenditure-determining fabrication costs and the processing classes.

Link: [www.ingenieurbueros.at](http://www.ingenieurbueros.at)

5.2 Processing times to be expended for planning services. The table serves for better clarity and can be used as a specimen. The individual processing times can be entered independently.

Expenditure-determining fabrication costs  in EURO	Processing times based on experience for complete planning services (service phases 1 to 6) are to be entered individually		
	Processing Class 1 (PC 1) according to point 3.1 from/to	Processing Class 2 (PC 2) according to point 3.2 from/to	Processing Class 3 (PC 3) according to point 3.3 from/to
50,000			
60,000			
70,000			
80,000			
90,000			
100,000			
200,000			
300,000			
400,000			
500,000			
600,000			
700,000			
800,000			
900,000			
1,000,000			
2,000,000			
3,000,000			
4,000,000			
5,000,000			

- 5.3 Processing times to be expended for supervision services. The table serves for better clarity and can be used as a specimen. The individual processing times can be entered independently.

Expenditure-determining fabrication costs  in EURO	Processing times based on experience for complete supervision services (service phases 7 to 9) are to be entered individually		
	Processing Class 1 (PC 1) according to point 3.1 from/to	Processing Class 2 (PC 2) according to point 3.2 from/to	Processing Class 3 (PC 3) according to point 3.3 from/to
50,000			
60,000			
70,000			
80,000			
90,000			
100,000			
200,000			
300,000			
400,000			
500,000			
600,000			
700,000			
800,000			
900,000			
1,000,000			
2,000,000			
3,000,000			
4,000,000			
5,000,000			

With supervision services, the agreed service provision period of the execution (building time) can be taken into account accordingly.

- 5.4 Special services from the service phases 1 to 10 can be calculated according to C/6 of the General Part of the Calculation Recommendation, insofar as these do not replace basic services.

## 6. MULTIPLE PRELIMINARY OR FINAL DESIGNS

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- 6.1 If several preliminary or final designs are produced for the same project according to the same or similar requirements at the request or with the consent of the client, then for the most comprehensive preliminary or final design, the full processing time of these service phases can be charged.  
The remuneration of every further preliminary or final design is to be agreed individually.
- 6.2 If several preliminary or final designs are produced for the same project according to fundamentally different requirements at the request or with the consent of the client,

then for every preliminary or final design, the full or actual processing time of these service phases can be charged or individually agreed.

- 6.3 Modifications and variants are not regarded as multiple preliminary or final designs.

## 7. SEVERAL APPROVAL PLANS

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If several approval authorisation procedures are necessary or prescribed for the same project, which cannot be handled in one operation (e.g. building license, industrial plant permit, approvals according to the laws for the preservation or protection of nature or water respectively, grants according to Hospitals Law etc.), for which separate and different documents are to be prepared, then for the most comprehensive approval planning, the full processing time of this service phase can be charged. The remuneration of every further approval planning is to be agreed individually.

## 8. MODIFICATIONS AND VARIANTS FOR INDIVIDUAL AREAS

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- 8.1 Additional services due to **modifications** (multiple processing) as a result of circumstances for which the service supplier is not accountable (e.g. modified data and requirements), which involve a reprocessing or reworking of services already provided, can be charged according to actual time expenditure.
- 8.2 If, at the request or with the consent of the client, **Variants** of all kinds are prepared for individual areas of the project to be processed, regardless of whether according to the same, similar or different requirements, the additional services can be charged according to actual time expenditure.

## 9. CONVERSIONS AND MODERNISATIONS OR MAINTENANCE AND REPAIRS

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- 9.1 The remuneration of the engineering service for basic services with conversions and modernisation works, respectively maintenance and repair works, can be invoiced based on the forecast, estimated and agreed processing time expenditure, multiplied by the calculated or quoted hourly rate, insofar as not accounted for according to actual time expenditure.
- 9.2 The processing time expenditure can be derived from the processing times based on experience according to point 5.2 and 5.3, whereby the possible additional expenditure necessary is to be taken into consideration individually.

- 9.3 If, for conversions and modernisations, increased requirements are imposed on the service phases of preliminary and final design (e.g. investigation of the existing structural substance for its suitability for incorporation into the design) or on the service phase Specialist Supervision, the additional expenditure can be charged according to actual time expenditure.

## **10. COMPLEX WORKS**

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- 10.1 A complex works is a linking together or joining one above the other of individual components or sections.
- 10.2 A complex works, for which the functioning capability of the works is first produced from the interlocking combination of the functionally interdependent components, is to be regarded for the calculation of the engineering service as one works.
- 10.3 A complex works, for which the individual sections form functionally self-contained contract-related units (e.g. heating installation, sanitation plant, emergency power unit, transformer station, high-voltage power plant, lighting installation, telephone system etc.), is to be divided into the respective commissioned sections. The calculation of the engineering service is thereby performed separately according to the expenditure-determining fabrication costs of the respective commissioned sections, consequently as for several dissimilar works.

## **11. SEVERAL PROJECTS**

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- 11.1 If an order comprises several dissimilar projects, then the calculation of the engineering service can be carried out separately for each project, dependent on its expenditure-determining fabrication costs and the processing class.
- 11.2 If an order comprises several similar projects, then for the planning services of the first project, the calculation of the engineering service can be carried out dependent on its expenditure-determining fabrication costs and the processing class. For the planning services of the other similar objects, for the calculation of the engineering service, individual discounts can be agreed.
- 11.3 Similar projects are to be regarded as those that can be created according to the planning services already provided.
- 11.4 The remuneration of the engineering service for the supervision services as well as the proportional remuneration for the service phase 3 (approval planning) is, insofar as not otherwise agreed, not subject to any reduction.

## **12. SCHEDULING THE EXECUTION STAGE**

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If a contract extending to one or more projects is not carried out uniformly in one operation, but in stages separated by significant intervals in time, then an equivalent fee can be charged for works carried out consecutively in respect of the entire project proportional to the overall chargeable costs of the first performance stage. The remuneration of the engineering service for the remaining services can be calculated from the respective expenditure-determining fabrication costs of the remaining performance stages.

## **13. SERVICE PROVISION PERIOD – EXTENDED SERVICE PROVISION**

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- 13.1 The service provision periods for planning and supervision services on which the contract is based are to be agreed.
- 13.2 If the agreed service provision period for the planning services extends due to circumstances for which the service supplier is not accountable, essentially the additional expenditure can be charged separately.
- 13.3 If the agreed service provision period for the supervision services extends due to circumstances for which the service supplier is not accountable, essentially, for the extended period the service supplier can then invoice an additional remuneration up to a maximum amount of remuneration per month, which is calculated from the agreed remuneration for the supervision services divided by the agreed service provision period in months.
- 13.4 Remunerations for exceeding the agreed service provision periods can be agreed individually.