

Lecture 04-11-2015

8. Tendering and Implementation

EXCERPT

Chair of Architecture
and the Building Process



Axel Paulus



Tendering and Implementation

Contents

I The Same Difference

I Focus: Procurement Procedure

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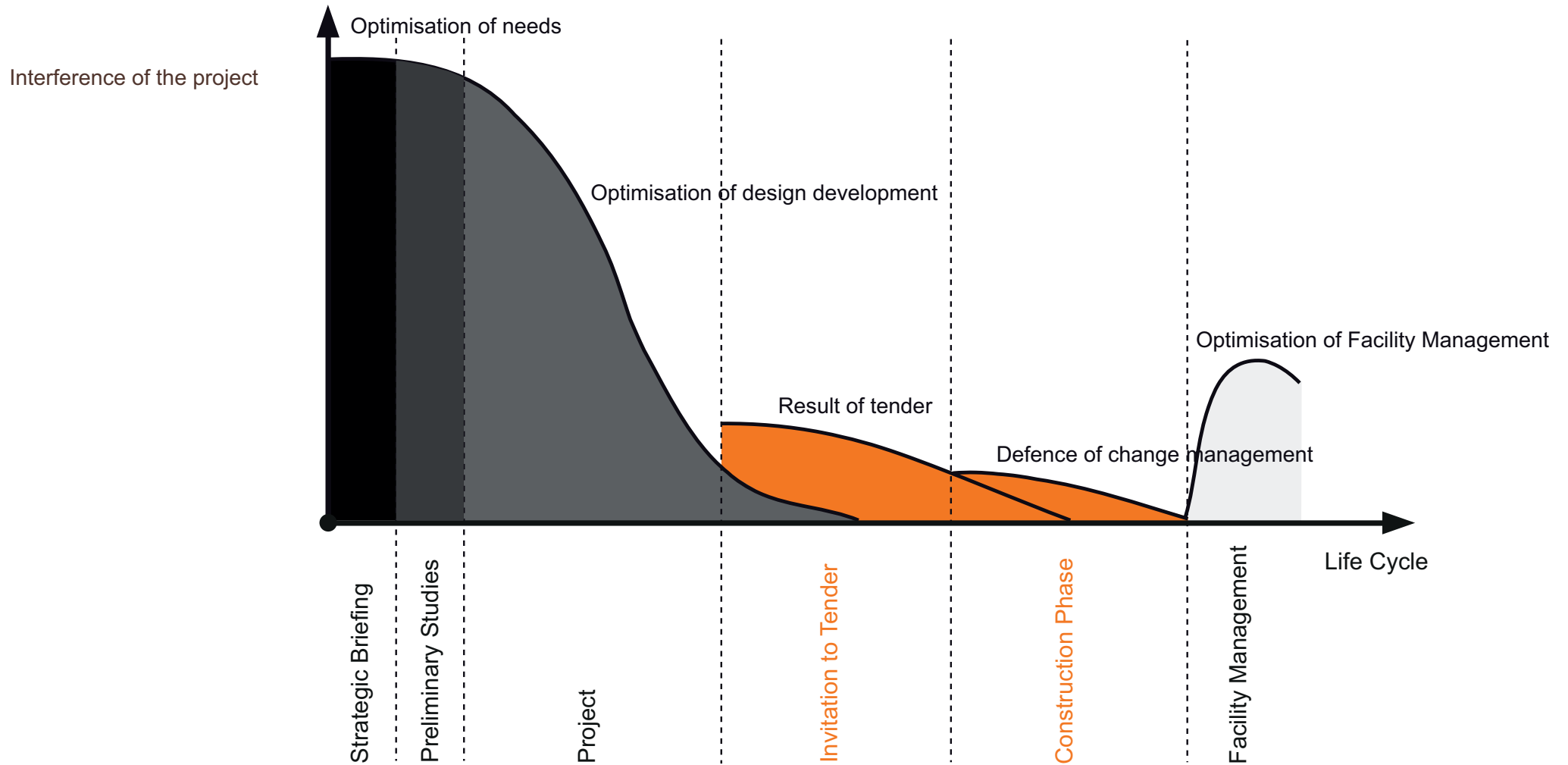
Construction Management and Design Quality Control

On Site Engineering Supervision



The Same Difference

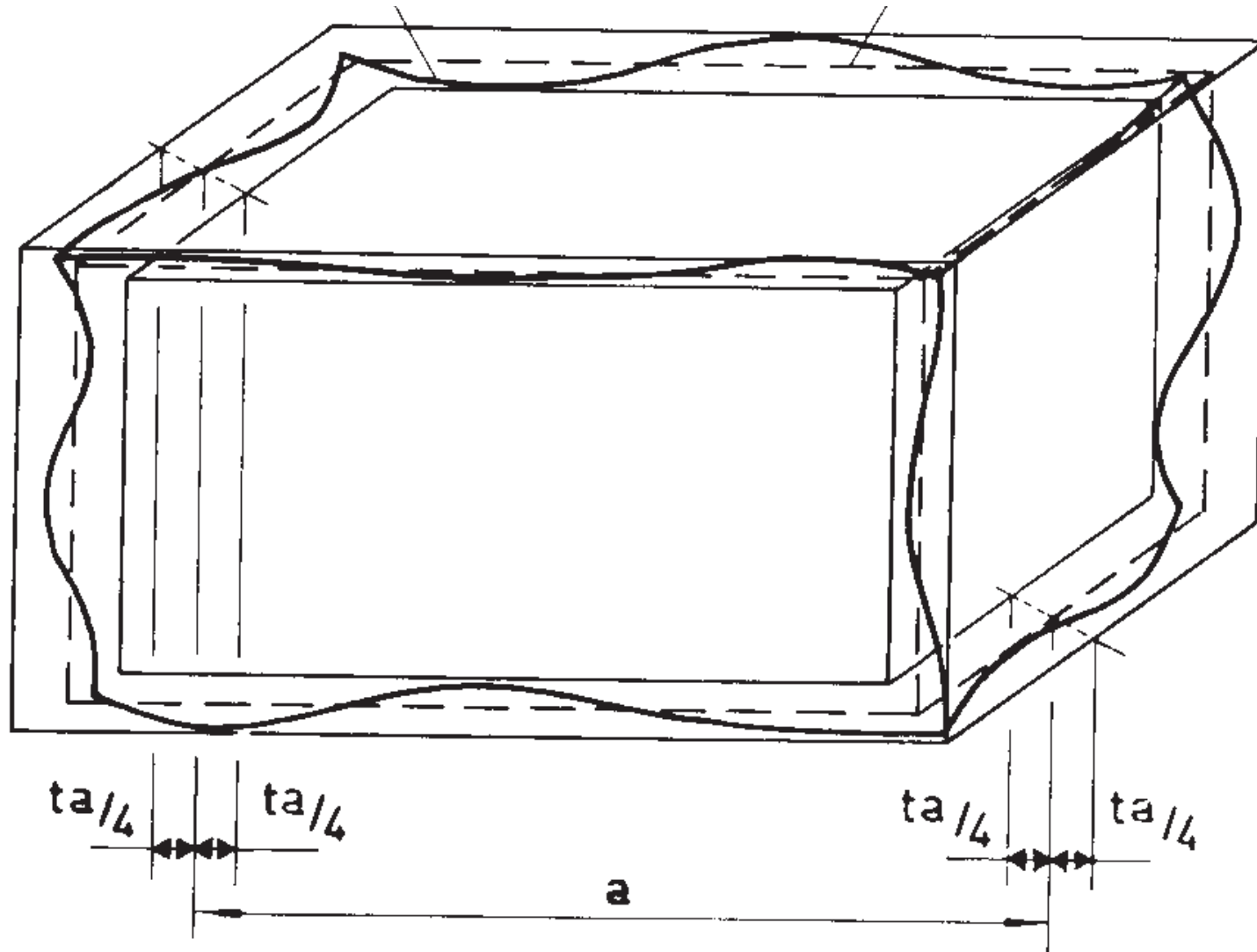
Tendering and Implementation



The Same Difference

Tendering and Implementation

Required versus as build



The Same Difference

Tendering and Implementation

Standard SIA 118 “General Conditions”, Contents

- | The contract for work in general
- | Compensation for contractor’s work services
- | Change orders
- | Construction execution
- | Quantity, partial payments and security provisions
- | Final cost settlement
- | Acceptance of work and liability for defective work
- | Premature termination of contract for work
- | Payment

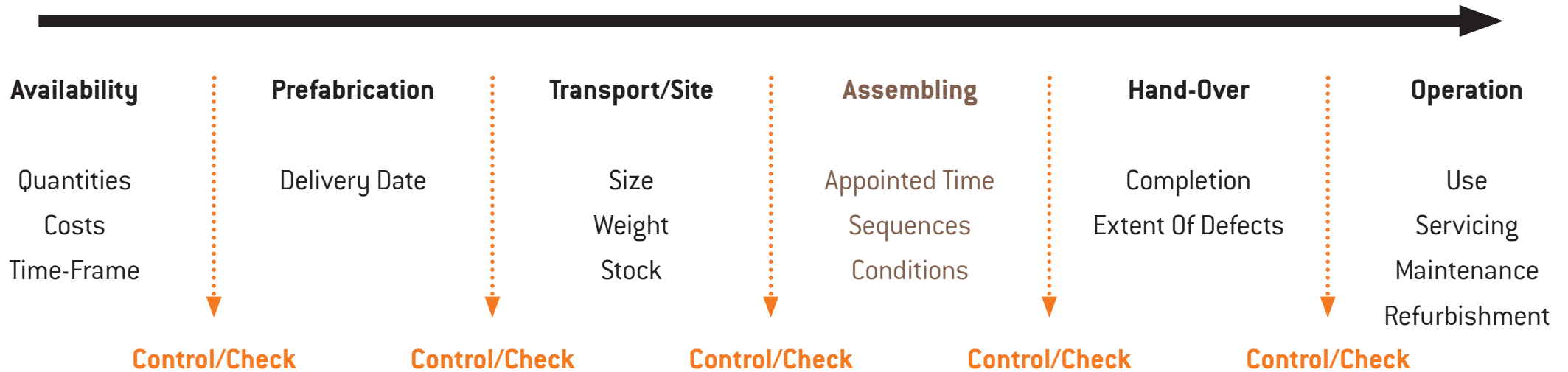


Logistic

Entirety of all resource-related activities

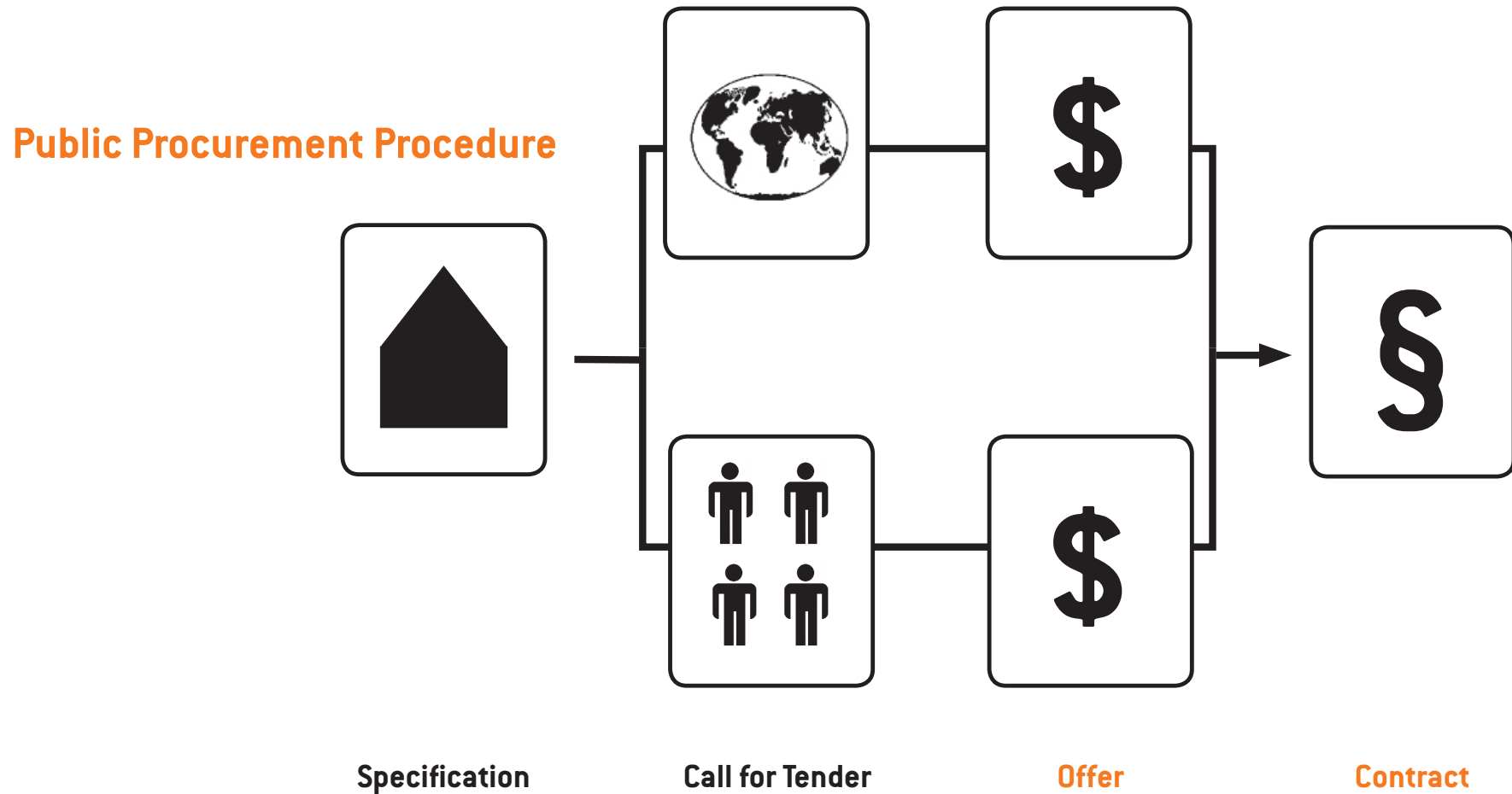


Design to Construction



Procurement Procedure

Principle of Equal Opportunities



Procurement Procedure

Principle of Equal Opportunities

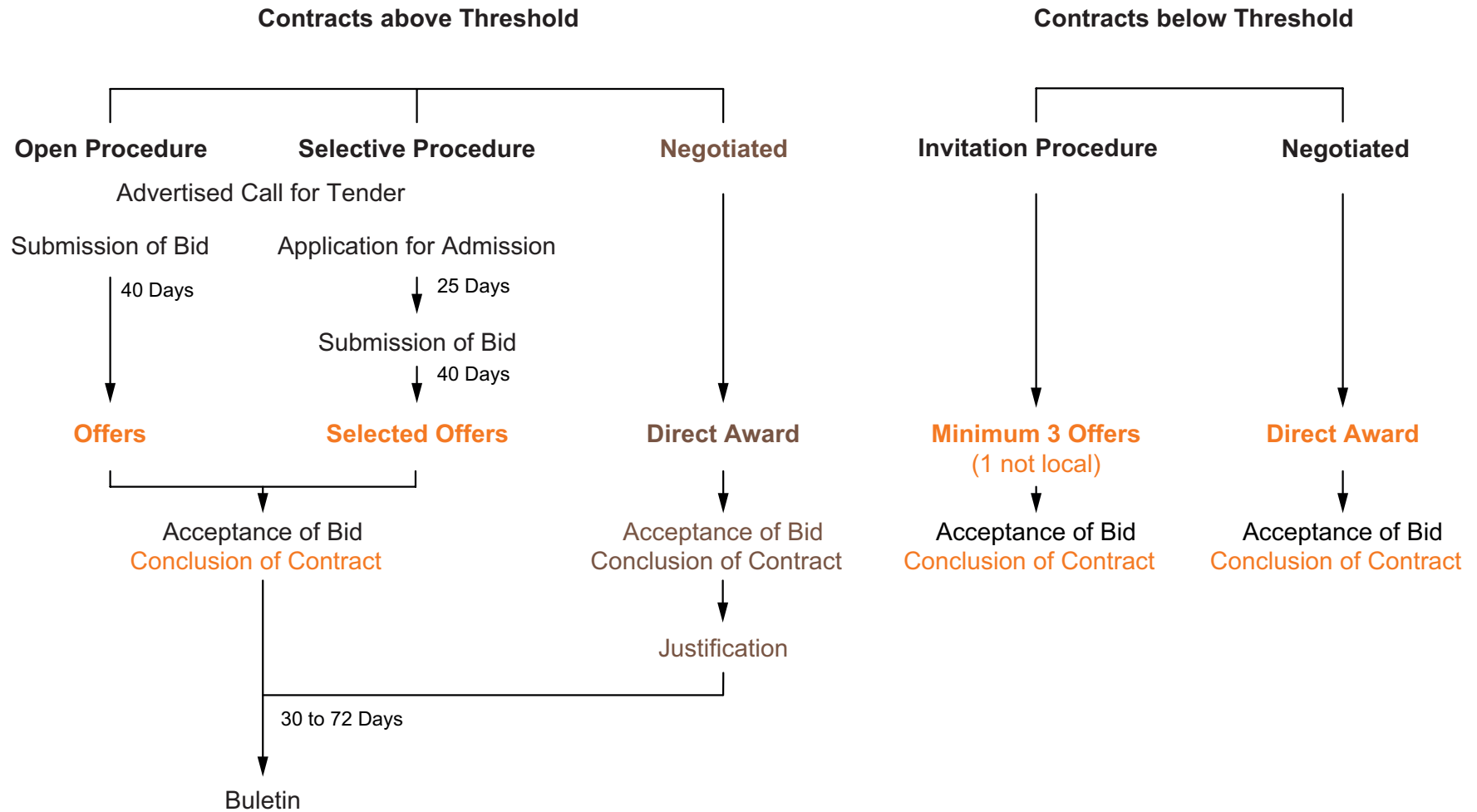
Examples of threshold values (CHF);
 GPA Government Procurement Agreement
 by WTO,
 Bilateral contracts Swiss/EU,
 Swiss Confederation, Cantons; 2011/2012

Types of Procedure		Supplies	Services Consultants	Construction works	
				Main Trade	Secondary Trade
Direct Award of Contract	GPA	-	-	-	-
	Bilateral EU	-	-	-	-
	Federation	-	-	-	-
	Canton	< 100.000 CHF	< 150.000 CHF	< 00.000 CHF	< 150.000 CHF
Invitation Procedure	GPA	-	-	-	-
	Bilateral EU	-	-	-	-
	Federation	-	-	-	-
	Canton	< 250.000 CHF	< 250.000 CHF	< 500.000 CHF	< 250.000 CHF
Open/Selective Procedure	GPA	-	> \$ 350.000	> \$ 8.700.000	
	Bilateral EU	-	> 350.000 CHF	> 8.000.000 CHF	
	Federation	-	> 350.000 CHF	> 500.000 CHF	> 250.000 CHF
	Canton	>350.000 CHF	> 350.000 CHF	> 500.000 CHF	> 250.000 CHF



Procurement Procedure

Principle of Equal Opportunities



Submission of Bid

How to Describe

Type 1 to 4 of formwork;
Related to Standard SIA 118/262

Instruments

- | Drawings
- | Form and appearance
- | Specification
- | Project-specific considerations
- | Codes and Standards

Description

- | Via quality and quantity
- | Via construction brief
- | Via functional brief



**Breaking down the entire planned building project
into subservices, elements or modules**

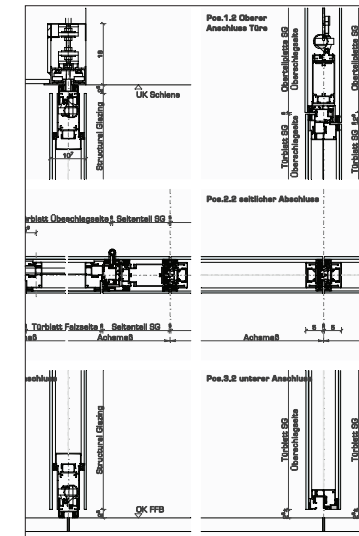
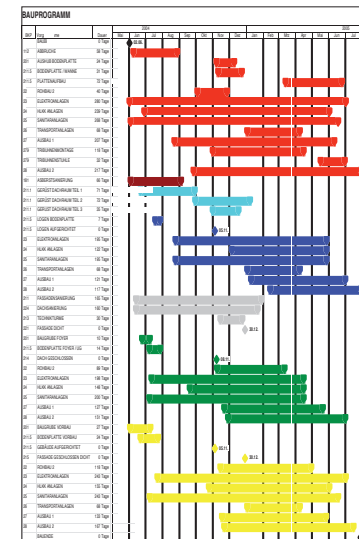
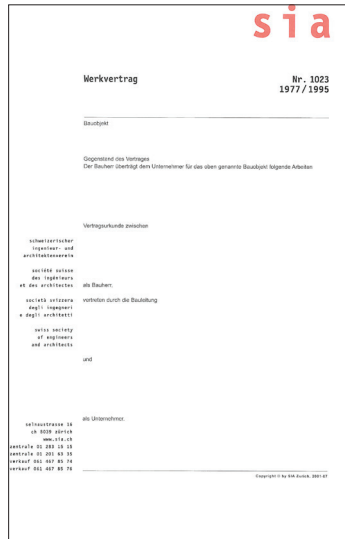
Submission of Bid

Individual Contractors

Tendering components

- Contract document
- Project-specific considerations
- Specifications and corresponding quantities
- Working drawings
- Standards

Note: All documents are hierarchically arranged

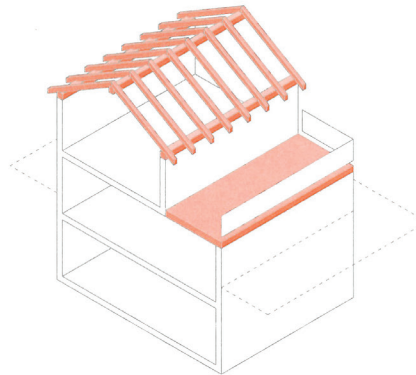
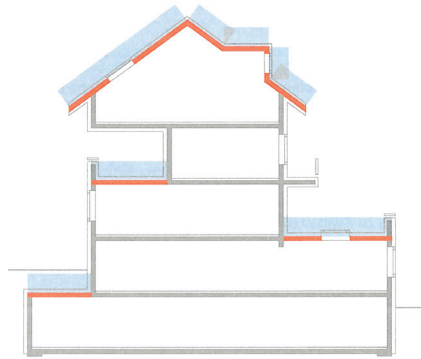


Submission of Bid

Individual Contractors

Pricing

- | Service unit price
- | Actual delivered quantity
- | Unusual: Global or fixed price



600	Dachkonstruktionen			Dachkonstruktionen Holzbau
				<i>Holzschubensieche können mit U'abschnitt 010 beschrieben werden. Kniewände aus Holz können mit U'abschnitt 210 beschrieben werden.</i>
				Docu-Code (27)
610	Stehender Stuhl			Stuhl stehend
611	Pfosten, Büge, Sattelhölzer, Zangen und dgl. aus Vollholz. Auf bauseitiges, genaues Auflager.			Pfosten,Büge aus Vollholz
.001	Roh, Querschnitt cm 8x16 bis 16x16.	...m3...		Roh
.002	Gehobelt, Querschnitt cm 8x16 bis 16x16.	...m3...		Gehobelt
.003	01 Holzart, Oberfläche 02 Querschnitt cmX..... 03 Weiteresm3...		Uebrige
.004	bis .008 wie .003			
.009	Eiche. Querschnitt cm 14x14.	...m3...		Eiche cm 4x14
612	Pfosten, Büge, Sattelhölzer, Zangen und dgl. aus Brett-schichtholz. Auf bauseitiges, genaues Auflager.			Pfosten,Büge Brett-schichtholz
.100	Erscheinungsklasse I.			Erscheinungsklasse I
.101	Breite cm 10.	...m3...		Breite cm 10
.102	Breite cm 12.	...m3...		Breite cm 12
.103	Breite cm 14.	...m3...		Breite cm 14
.104	Breite cm 16.	...m3...		Breite cm 16
.105	01 Breite cmm3...		Uebrige Breiten
.106	bis .109 wie .105			
.200	Erscheinungsklasse N.			Erscheinungsklasse N
.201	Breite cm 10.	...m3...		Breite cm 10
.202	Breite cm 12.	...m3...		Breite cm 12
.203	Breite cm 14.	...m3...		Breite cm 14
.204	Breite cm 16.	...m3...		Breite cm 16

Submission of Bid

General Contractor/Design Build Contractor

Assumption of guarantee and risk,
SIA V 1025

Pricing

- | Global and fixed price
- | Fixed amount for a predetermined total output
- | Not dependent on the quantity
- | Inflation taken/not taken into account
- | Open account
- | Open account with maximum cost

4 Assumption of guarantee and risk

The General Contractor obligates himself to construct a building at the lowest possible price, taking into consideration all of the initial costs, operational costs and scheduling. He is to guarantee the fulfillment of the following obligations under contract:

4.1 Quality:

The General Contractor is responsible for the quality of the work (services, work, deliveries) to be furnished according to the stipulated standards of quality. The guarantee covers in particular:

- Quality of materials
- Quality of workmanship
- Fit for purpose of the work

4.2 Deadlines and time frames:

The General Contractor is responsible for adherence to deadlines and time frames according to Art. 5 of this contract. In the case of missed deadlines, the General Contractor is liable to the extent of the damage proven by the client.

4.3 Adherence to maximum price:

The General Contractor guarantees that the actual building costs according to the construction accounts, excl. the General Contractors fee, are not to be any higher than the maximum price stipulated in Art. 6.5.

If costs exceed the maximum price, they are incurred at the expense of the contractor; costs that do not reach the maximum price work to the client's advantage.



Acceptance of Bid

Contractor's Proposal

Criteria	Prioritisation (G)		Grade (N)	N x G = P
Pricing Offer Options/Proposed Alternatives	50%	45% 5%	0 to 5	300
Expertise of Key Personality	20%		0 to 5	150
Quality	10%		0 to 5	50
Organisation	10%		0 to 5	50
Schedule Achievable Guarantee	10%	5% 5%	0 to 5	50
Additional				
Life Cycle Costs Energy Consumption Maintenance Effort			0 to 5	
Services			0 to 5	
Others			0 to 5	
Total	100%			500



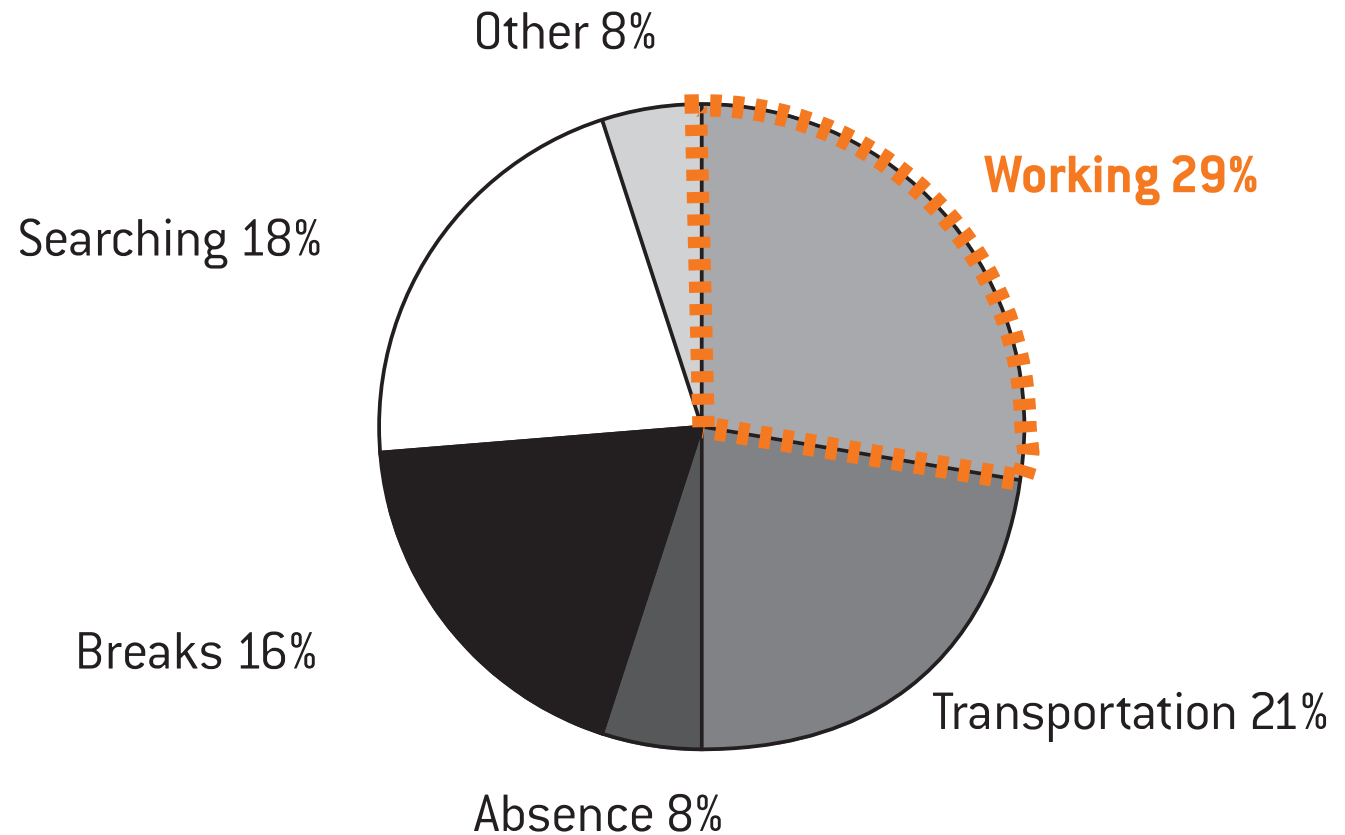
Construction Management...

By Contractor

Economic aspects of construction work;
Study, output of one working hour

Responsibilities

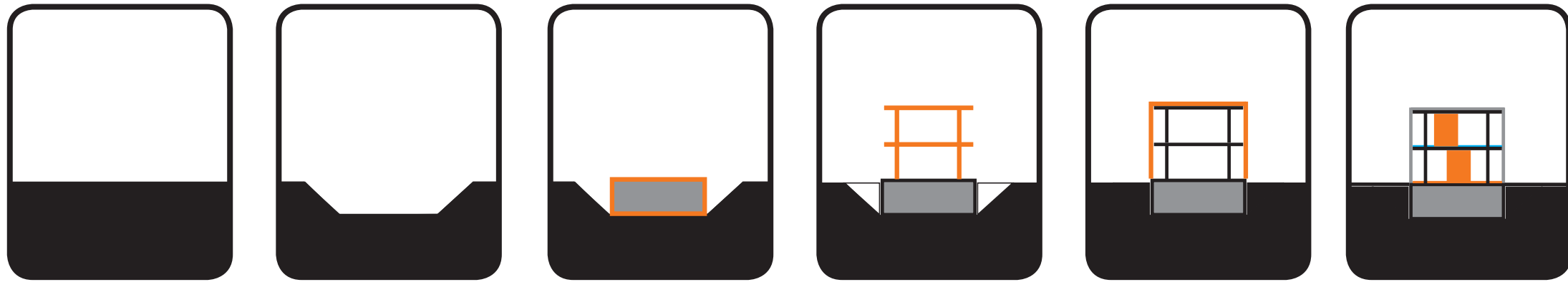
- I Organisation/Administration
- I Logistics
- I Demand Quality
- I Costs and Schedule
- I Safety





Construction Management...

Process Approach



Implementation



Preparation

Excavation

Base

Structure

Shell

Fit Out

Building plot
Ground water
Embankment

Foundation
Connection
Floor slab

Structural System
Technical System

Impermeability
Insulation
Appearance

Finishes
Assembly

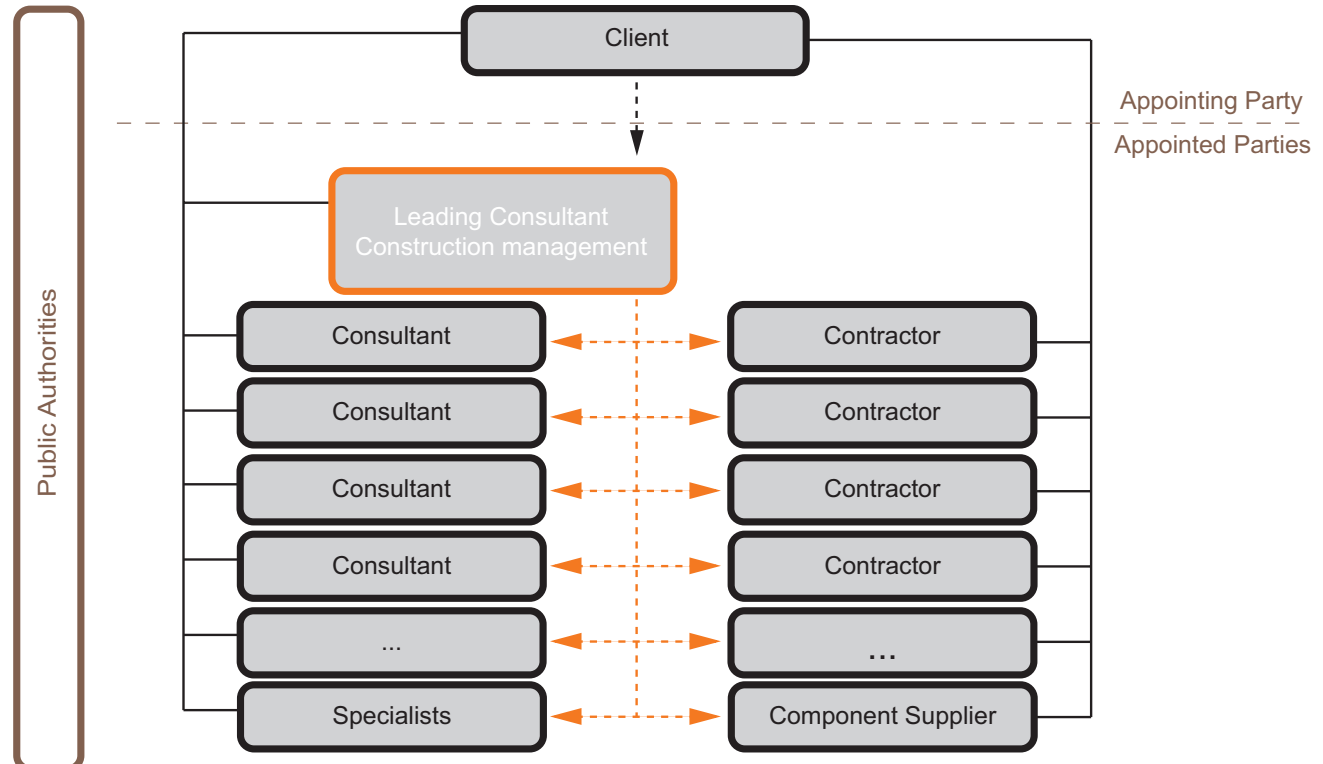


Construction Management...

By Consultant

Key duties

- | Organise construction site
- | Set program and time-frames
- | Coordinate contractors
- | Supervise construction
- | Report and monitor
- | Control deliveries and materials
- | Control costs and schedule
- | Control technical and construction quality
- | Control technical execution of construction
- | Control architectural design execution
- | Take design quality control
- | Focus on Safety



Construction Management...

By Consultant



Manufacturing

Accord with Tender
Production Line
Fitness for Purpose



Material

Accord with Tender
Goods' Damage



Implementation

Assembling
Technical Check
Construction Defects



Engineering Design

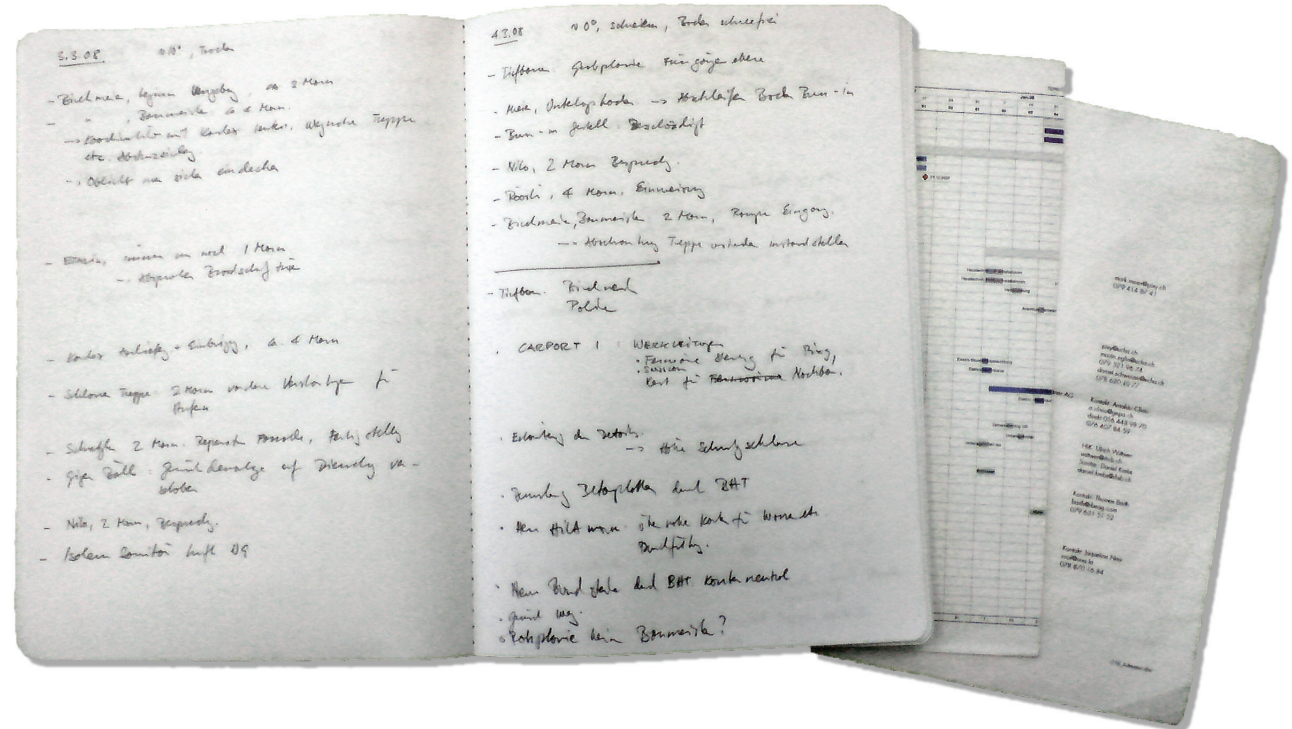
State of Surface
Colours
Detailing

Construction Management...

By Consultant

Construction journal

- | Design specification and location of building project
- | Date, time, weather, temperature and air humidity
- | Persons present (trades, number of workers)
- | Detailed description of construction progress
- | Detailed description of delays
- | Defects and approvals
- | Inspections and readings/measurements
- | Unusual circumstances/occurrences
- | Meetings with participants
- | Decisions, agreements and outcomes
- | Scheduled and rescheduled dates
- | Photographic documentation

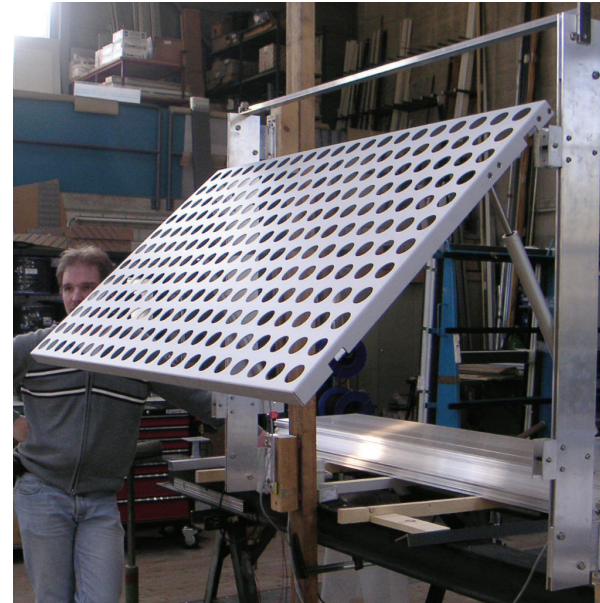
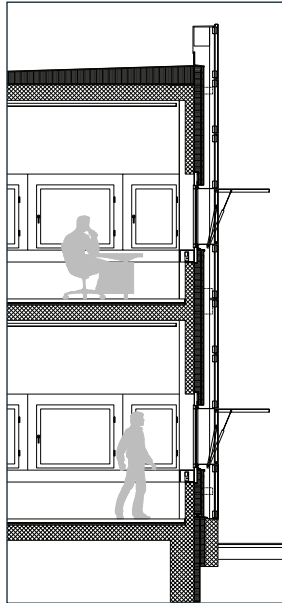


Construction Management...

By Consultant

Design quality control

- | Supervise compliance of works with concept
- | Supervise production
- | Supervise display of samples/mock-ups/prototypes
- | Develop specifications for design elements
- | Control the quality of design
- | Provide consultation services to client
- | Keep up-to-date document packages

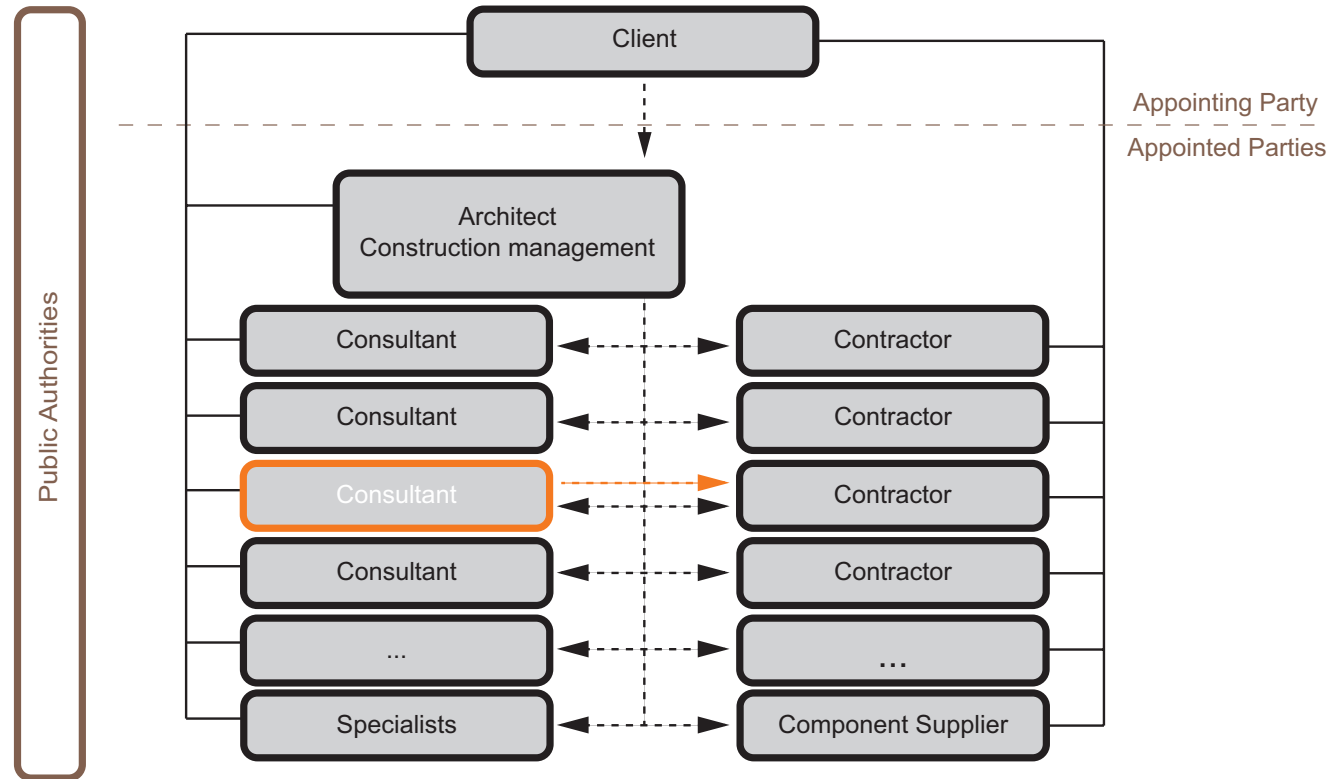


Construction Management...

By Consultant

On site engineering supervision

- | In conjunction with construction management
- | Control functions
- | Ensure performing comply with specifications
- | Focus on load carrying systems
- | Focus on plumbing and electricity
- | Focus on heating, ventilation and air conditioning
- | Focus on automation
- | Focus on facade
- | Focus on fire safety
- | Focus on lighting
- | Focus on industrial kitchens



Mangel des Werkes im Sinne dieser Norm ist nur eine Abweichung des Werkes vom Vertrag (sei es ein «Mangel» oder eine «sonstige Abweichung vom Vertrag» gemäss Art. 368 OR). Der Mangel besteht entweder darin, dass das Werk eine zugesicherte oder sonst wie vereinbarte Eigenschaft nicht aufweist; oder darin, dass ihm eine Eigenschaft fehlt, die der Bauherr auch ohne besondere Vereinbarung in guten Treuen erwarten durfte (zum Beispiel: Tauglichkeit des Werkes für den vertraglich vorausgesetzten oder üblichen Gebrauch).

SIA 118 Art. 166 Abs. 1 und 2

«Wesentlich» im Sinne der Norm sind Mängel, an deren raschen und reibungslosen Behebung der Bauherr ein gesteigertes Interesse hat. (...) blosse «Schönheitsfehler» sind dagegen keine «wesentlichen» Mängel, es sei denn, es komme für den Gebrauch des Werkes entscheidend auch auf dessen Schönheit an.

Kommentar zur SIA 118 Art. 157-190



Tender Documents

Procurement Procedure

Invitation to Tender

Procurement Procedure

Unit Price
Global and Fixed Price
Open Account
Open Account with Maximum Cost

Logistic

Construction Management
Quality Control
On Site Engineering Supervision

Site supervisor
Foreman
Working Foreman
Worker



