



The country's contract act imposes upon each party, entering into a contract, a legal obligation (responsibility) to perform (observe) the terms of the contract and gives to the other party the right to enforce the fulfillment of these terms or to claim damages (compensation) in respect of the loss sustained (owned) in consequence of breach (violation) of the contract.

## **TYPES OF CIVIL ENGINEERING CONTRACTS**

Some of the commonly used types are explained below:

#### 1- Bill of Quantities Contract.

This type of contract which includes a BOQ (bill of quantities) priced by the contractor is the most commonly used form of contract for civil engineering works. The quantities of various items can be estimated with reasonable accuracy before the work is actually started.

	BILLSOF QUANTITIES OF A				
	SEMINARL				
TERS					
1-94	122 N				
15 0.03	BILLS OF QUANTITIES OF A	A PIGGERY	STRUCT	TURE OF ST. I	PETER'S
1.	ROTI MINOR S	SEMINARY	- MADER	RA	
80					
111	EM DESCRIPTION	UNITS	Q'TITY	RATE	AMOUNT
	SEC. A PRELIMINARIES				
1.0		Item	1		20,000
1.0		Item		1	10,000
1.0		Kg.	1	1,500	1,500
1.0		No.	3	3,000	9,000
1.0		No.	2	6,500	13,000
1.0		No.	2	7,000	14,000
1.0		No.	1	3,500	3,500
1.0		No.	2	60,000	120,000
1.0		No.	Roll	1	1,800
	10 Panga		1	3,500	3,500
(1.)		Job			30,000
1.1		Job	1		40,000
	foundations				
	Sub-Total				266,000
	Sec. B: Strip				
	Foundations	i			
2.0		Bag	20	16,000	320,000
	02 Sand	Trip	3	10,000	30,000
	03 Coarse aggregate 13mm		2	70,000	140,000
. 2.1	04 Water	Item			20,000
	Add labour costs				153,000
	Sub-total	-			663,000
	Section C: Plinth wall				
	01 Burnt clay Bricks	No.	2,500	60,000	150,000
	02 Portland cement	Bag	9	16,000	
	03 Sand	Trip	2	10,000	20,000
3.	04 Water	Item			20,000
	Add labour costs			1	100,000
	Sub-total				434,000
	Sec. D: Oversite concrete				
	01 Hardcore 150mm	Trip	7	50,000	350,000
	02 Portland cement	Bag	22	16,000	352,000
	03 Sand	Trip	2	10,000	20,000
	04 Coarse aggregate 13mm	Trip	2	70,000	140,000
4.	05 Water	item			50,000
	Add labour cost				250,000
	Sub-total				1,162,000
	Sec. E: Wall up to roofing	3			
	level				
5.	01 Damp proof course	Roll	1	15,000	15,000
Re man					

	tenders (on item rate basis) are invited f ation and Pakistan Engineering Council, for the			5. With 01			
Sr. No.	NAME OF WORK	APPROX. COST (m-Rs.)	COMPLETION PERIOD	TENDER FEE (Rs.)			
01.	Construction of Watch Towers	0.88	08 Months	200.00			
02.	External Electrification of Watch Towers.	2.60	10 Months	500.00			
interest	ed and capable parties may apply with following	testimonials:					
i)	Enlistment with Pakistan Engineering Coun						
ii)	Proof of execution of such type of jobs.	ana da kana ata kata da sa kana kana kana ka					
iii)	List of Equipment/T&P.						
iv)	List of jobs executed successfully during last	t five years.					
<ul> <li>v) List of works in hand and their present status.</li> </ul>							
vi)	Income Tax registration number, clearance	and other relevant certifica	tes.				
VII)	vii) Proof of Financial capacity and bank statement.						
viii)	Affidavit that the Firm is not involved in any dispute with any Government/Semi Government Department/Agency.						
approve	tions with above data will be received and tende ed by Senior Manager) upto 08-12-2009. Applic rtained.						
Chashn	s will be received on <b>09-12-2009</b> at <b>1100 hou</b> na, District Mianwali and will be opened on same intatives (who may wish to attend).						
In case same tir	of public/local holiday on the said date, the Ten me.	iders will be opened on ve	ry next working	g day at th			
earnest	s must accompany with all issued documents/ money equal to 02% of tendered cost. The ni Scheduled Banks in favour of the undersigned	deposit-at-call/demand d	raft must be	drawn fror			
Compe PPRA-2	tent Authority reserves the right to accept any 2004.	or reject any/all offers, a	s per prescrib	ed rules o			
	Senior Manager Chashma, Distr						

CHP # 02: CONTRACTS
A bill of quantities is prepared giving as accurately as possible the quantities of each item of work to be executed and the contractor enters a unit rate against each item of work. This type of contract is also known as "Item rate contract". Bill of quantities greatly assists in keeping the tender cost as low as possible because there is maximum competition among the contractors.
<u>2- Scheduled Contract</u>
In this type of contract the client may refer to a schedule of unit rates covering each item of work and ask the contractors, when tendering, to quote a percentage above or below the given scheduled rates (when it is above, it is called premium and when below, it is called rebate or discount) for which the contractor would be willing to execute the work.

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CHP # 02: Contracts
When a contract includes both scheduled and non-scheduled items then the contractors are asked to quote an overall premium on the total cost of scheduled items but, as regards the non-scheduled items are concerned, the contractor will mention the item-rates and no extra premium would be permissible.
For non-scheduled items, technical specifications have to be very carefully written or drafted in order to avoid any dispute regarding the quality of materials, their manufacture or any particular sizes (cross-sections) to be used. A comparison of rates entered in BOQ will enable the most favorable tender to be accepted.
<u>3- Lump Sum Contract</u>
In a Lump Sum Contract, the contractor undertakes to execute certain specified works for a fixed amount of money. The nature and extent of the work are normally indicated on drawings and the nature of materials and workmanship are described in specifications but no BOQ is provided. L.S contract is most commonly used, for example, in dewatering operations and other small works.
Civil EnginEering practice

#### **<u>4- Labour Contract</u>**

This is a contract where labour and workmanship is provided by the contractor but all the materials are supplied by the client. It is suitable for those cases where an employer is in a position to buy large quantities of materials at favourable prices.

The advantage is that the speed of work will be increased but, at the same time, there will be more wastage of materials. Labour rates for the scheduled items are also given in the schedule of rates published by the competent authority.

#### 5- Cost Plus Percentage Contract

In the cost plus percentage contract, the accounts are properly maintained by the contractors showing the actual expenditure on the work. This is supported by proper receipts and invoices (bills, cash memos, etc). The profit of the contractor is decided as a negotiated percentage, which may vary from 10 to 25% of the actual cost of contract.

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No incentive exists for the contractor to complete the work as early as possible, rather, the contractor will try to increase the cost of the work in order to secure more profit.

### 6- Cost Plus Fixed Profit Contract

This is similar to the previous type of contract with the difference that the amount of profit is fixed and will not vary with increase or decrease of actual cost of the work. Proper maintenance of accounts by the contractor is must. However, in this category, the contractor will try to complete the work as early as possible.

Cost plus percentage and cost plus fixed profit contracts are together called 'Reimbursement contracts".

## 7- Package Deal Contract

If a contracting firm is well-reputed and provides both design and construction facilities, the project as a whole may be awarded to this firm; the agreement become a "Package Deal Contract".

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CHP # 02: CONTRACTS

Special type of buildings such as hotels, cinemas, shopping plazas, etc., may be built on the basis of package deal contract. However, the success of such a contract mostly depends upon the reputation and understanding of the firm with the client.

## 8- Serial Contract

If a contractor is already working on certain contracts at a construction site and later on more works are planned on the same site, these works may be awarded to the same contractor, generally at the same rates, depending upon his previous performance. This becomes a serial contract. If the client is satisfied with the quality of work completed by a particular contractor, it is preferable to award subsequent contracts for other works to the same contractor rather than appointing another party with whom the client had no prior dealing.

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CHP # 02: CONTRACTS Some Common Terms **Contract Agreement** Agreement of contract, in general, includes: Specifications for works. 1. 2. Quality of materials. Time of completion. 3. 4. Mode and frequency of payment. 5. Procedure of payment, etc. Bid It is the offer or quotation of a certain rate at which a firm is willing to do work. Tender It is a signed offer or bid on a prescribed form submitted to the client according to certain rules. Tenderer/Bidder Who fills and submits the tender. 11 CIVIL ENGINEERING PRACTICE

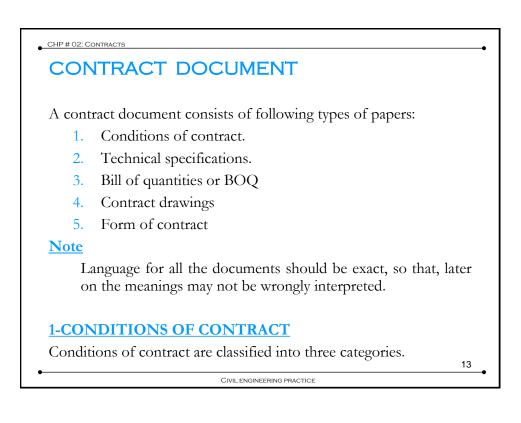
#### CHP # 02: CONTRACT

#### **Contractor**

Contractor is actually Tenderer or Bidder, whose tender is finally accepted and, after formal procedures, is allowed to work on the project.

#### Earnest Money

2-3 % of the quoted price is submitted along with tender in the form of bank draft or postal order. It is called Earnest Money. The purpose is to confirm the seriousness of Tenderers. If a Tenderer wins the tender but refuses to start work, his earnest money is forfeited. Earnest money of unsuccessful Tederers is returned.



## i) <u>General Conditions of Contract</u>

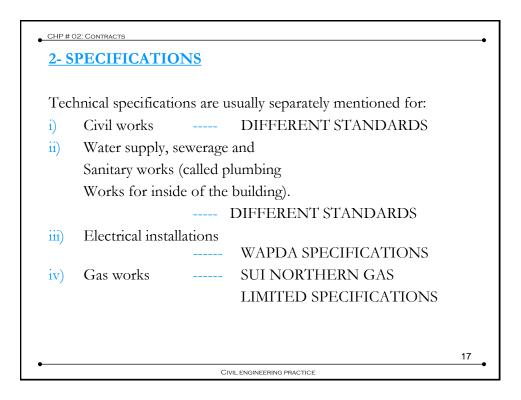
These conditions, in some form, are to be specified for nearly all types of the works. These define generally the terms under which the work is to be carried out like the relationship between the Engineer, the Contractor and the Client, the powers of the Engineer, and the terms of payments, etc. Various clauses dealing with contract laws are incorporated in the general conditions of contract.

ii) Additional Conditions of Contract:

These conditions are related to the type of project. Conditions left in general conditions of contract are specified in additional conditions of contract. These conditions generally differ from project to project and are mainly related with specifications to be used, ways of testing, start of work, and other relevant factors.

iii)	Special Conditions of Contract:
	These include some information about the site and the work, provisions of facilities at the site, site office, availability of surveying instrumend drawings and site order book (to note instructions from the engineer) the site, sign boards, materials and machinery issued by the department advances, and other related items.
Note	
	All the conditions or circumstances, which can give rise to a dispute lat on, should be well settled in the contract agreement. These agree solutions of various conditions become contract law.
	CIVIL ENGINEERING PRACTICE

<b>ECIFICATIONS</b>
The specifications amplify (magnify) the information given in the contract drawings and the BOQ. These describe, in detail, the work to be executed under the contract and nature and quality of materials and workmanship.
The specifications also give details of any special responsibilities to b borne by the contractor in addition to the general conditions of contract.
The use of a particular standard like British, American, European, etc help considerably in this respect. It ensures the use of good quality material complying with the latest requirements prepared by expert technica committees representing Users, Producers, Research workers and other interested.
The practice is to use brief description in BOQ and to give mor comprehensive and detailed information concerning the materials and workmanship etc. in the specifications.



CHP#02: CONTRACTS						
3. BILL OF QUANTITIES						
The BOQ consists of a schedule of items of work, to be carried out under the contract, with quantities entered against each item, the quantities being taken in accordance with the standard methods of measurement of civil works.						
One of the primary functions of a BOQ is to provide a basis on which tenders can be obtained and when it is priced, it provides a comparison of various tenders received.						
For a building, BOQs are given separately for each storey and separately for different types of works.						
1. BOQ for civil works						
2. BOQ for public health engg. works.						
3. BOQ for electrical works						
4. BOQ for gas works						
CIVIL ENGINEERING PRACTICE						

	Contract drawings illustrate the details and scope of the works to be executed under the contract. They must be prepared in sufficient details to enable the contractor to satisfactorily price the BOQ. The contract drawings will be subsequently used when executing the works and may be supplemental by further detailed drawings as the work proceeds. Ful description and explanatory notes should be entered on the drawings to avoid any sort of confusion.
<u>5. I</u>	FORM OF TENDER (FORMAL AGREEMENT)
	It constitutes a formal offer to execute the contract work in accordance with the various contract documents for the contract price as quoted in BOQ. It usually includes the contract period within which the contractor is to complete the work.
	The contractor is generally asked to enter into a bond whereby he provides two sureties who are prepared to pay upto 10-15 % of the contract price if the contract is not carried out satisfactorily or a bank-guarantee.

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● CHP # C	2: CONTRACTS
INV	<u>ITATION TO TENDER</u>
	The inviting of tenders for civil engineering works is usually performed by one of the following three choices.
1.	By advertising for competitive tenders. A typical tender notice is shown on next page.
2.	By inviting tenders from selected contractors (approved or prequalified).
•	Enlistment of approved contractors is mainly on the basis of financial status and employment of some highly qualified engineers. Depending upon financial status and cost of projects, approved contractors are divided into various categories. Enlistment is not for a particular work but it is general. Prequalification is for a particular large project depending upon factors as given in any example of Prequalification Notice including reputation of contractor, financial stability, technical staff, machinery available, works already in hand and experience of similar works.
	CIVIL ENGINEERING PRACTICE

3.	By negotiating a contract with a select contractor. This procedure is adopted for well-reputed and previously experienced contractor.					
OPE	ENING OF TENDERS					
	Tenders submitted by different parties should be under sealed covers and generally these are opened in the presence of tenderers or their representatives. Following procedure is adopted after opening of tenders.					
	1. List of tenders is prepared making sure that earnest money is also accompanied by each tender.					
	2. Tenders without any earnest money shall not be considered in the competition.					
	• A comparative statement of the tenders is prepared. Rates are given by tenderers for non-scheduled items and premium for scheduled items.					
	• Careful scrutiny (thorough checking) of all the tenders is a must to make sure that the tenders are properly signed and any corrections or erasures must be initialed by the tender.					
	2'					

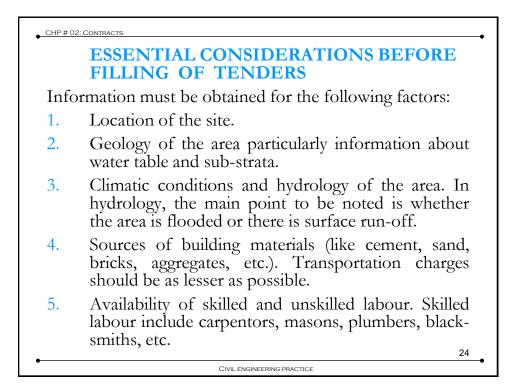
5. As far as possible, the minimum tender must be accepted. But, in certain cases, if the minimum tender is very low as compared with the estimated cost of the work, it is liable to be rejected because in such cases the contractor is liable to use sub-standard materials and violate the specifications/conditions of the contract, and thereby cause un-necessary litigation (court affairs).
 However, if the lowest tender/bid is very high as compared with the estimated cost of the work, again it is liable to be rejected because of the financial complications. Client must revise the estimate and must again invite the tenders after checking availability of funds and after obtaining fresh approval.

## FINAL AWARD OF CONTRACT

After the tender is accepted, the contractor is asked to enter into a legal agreement with the client and to provide a further sum of 5 to 10% of the total cost of the work (normally 10%) inclusive of earnest money which is known as Security Deposit.

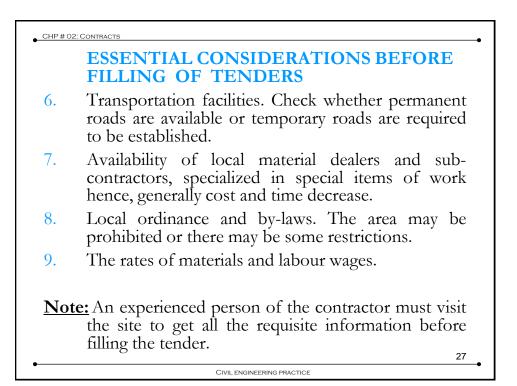
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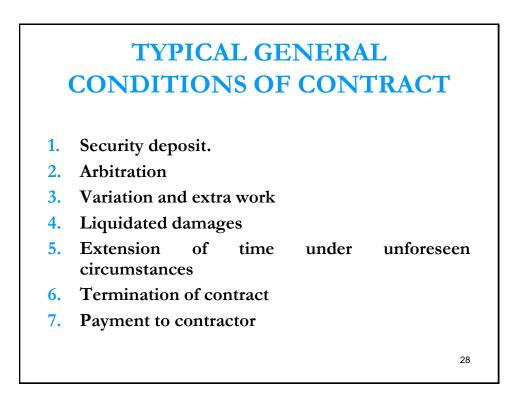
CHP # 02: Co	NTRACTS
t L	Before issuing any work order (order to start with the work), he contractor must deposit the security in the form of a pank guarantee or in cash. Otherwise, he must submit a performance bond and the security deposit is deducted from pills of completed works.
	lowing points must be considered before the final award of he contract.
a)	Prequalification of the contractor possessing the requisite experience.
b)	Make sure that his present position on other works allow the staff and machinery to be available for this project. In other words, works already in hand of contractor with the time of their completion must be considered.
c)	Reputation of the contractor in the market should be known.
d)	General behaviour and temperament (nature etc) of the contractor should be observed.
•	CIVIL ENGINEERING PRACTICE





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	؛ کیلئے رجبڑیشن فیس ڈاک موصول ہونے						
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# **<u>1- Security Deposit</u>**

When the tender of a particular contractor is accepted, he is asked to deposit a further amount with the client varying from 5 to 10% of the estimated cost of the project and is known as Security Deposit.

This amount includes the earnest money already deposited by the contractor at the time of submission of his tender. It is submitted either in cash or as retention money (10% deduction from each bill of the contractor) or in the form of a bank guarantee.

This amount is kept as a safe-guard so that the contractor fulfils all the terms and conditions of the contract, carries out the work to entire satisfaction of the client and maintains proper progress of the work.

CIVIL ENGINEERING PRACTICE

CHP # 02: CONTRACTS	
-	50% of the security deposit is returned to the contractor after virtual (practical) completion of the work, however, remaining 50% of the security deposit is paid after the defect liability period is over. Defect liability period may be up to 3 to 6 months normally.
	Purpose of security deposit
i)	The rectify any defect in the work due to bad workmanship before final completion of the work and during the maintenance period (defect liability period).
ii)	To meet the liquidated damages or any other compensation to be made to contractor's workmen (for example, in case of injured or died person).
iii)	It can be utilized to make necessary payments to the nominated sub-contractors in case the main contractor refuses to do so.
iv)	Any work left out by the contractor before virtual completion can be executed by this amount. 30
•	CIVIL ENGINEERING PRACTICE

# 2- Arbitration

Generally when a dispute arises between the contractor and the client, the matter is referred to the consultant (Architects and Civil Engineer) for settlement of the dispute. However, the consultants can only give binding decision (acceptable to both parties) on such questions as quality of materials, standards of workmanship and interpretation of technical aspects of the contract drawing and specifications.

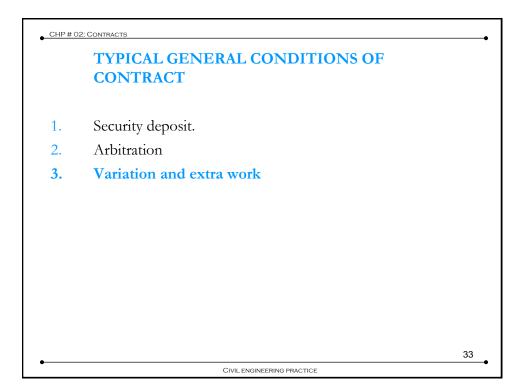
Disputes concerning wilful (intentional) or alleged (stated but unproved) breach of contract (violation), interpretation of contact clauses, claims for extra work, liquidated damages and other matters of law can be settled by the courts of law or through a process of Arbitration.

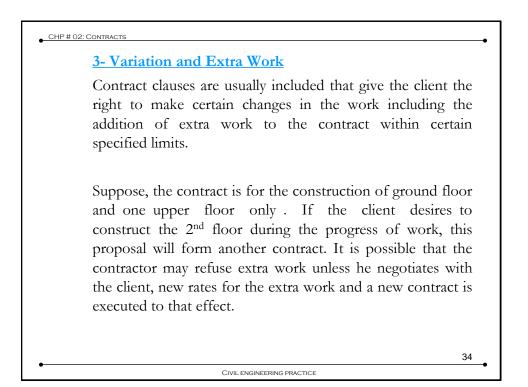
#### CHP # 02: CONTRACTS

## **2-** Arbitration

Arbitration is a reference of a dispute to one or more impartial person for final and binding decisions (both parties are bound to accept the decision). Court action can cause delay, expense, and inconvenience for both the contractor and the client.

For this reason, most construction contractors provide for the arbitration of disputes. It gives the advantages of a settlement that is prompt, quick, private (confidential-dispute does not appear in papers) and economical.





# **3- Variation and Extra Work**

However, if small changes are to be made in existing plan of the first contract and, as a consequence of these changes, the quantities of certain items of work may be increased or decreased within certain limit (may be specified as 10% to 25% of the original estimated cost of the work), the contractor is obliged to execute the extra work at the same rates as negotiated in the first contract. .

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# CHP # 02: CONTRACTS **TYPICAL GENERAL CONDITIONS OF CONTRACT** Security deposit. 1. Arbitration 2. 3. Variation and extra work 4. Liquidated damages 36

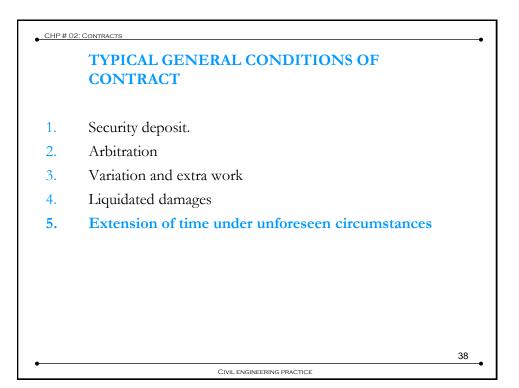
CIVIL ENGINEERING PRACTICE

# 4- Liquidated Damages

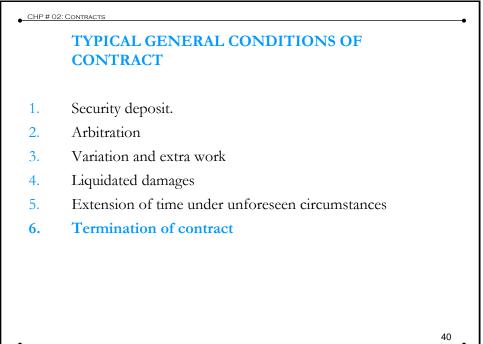
In case the contractor fails to complete the work under the contract within the specified period mentioned in the contract or beyond the extension of time which might have been granted on certain genuine reasons, the contractor shall pay to the client a sort of penalty (liquidated damage) as a fixed and agreed amount for each calendar day of delay in completion of the work up to a maximum limit of 10% of the total cost of the tender (equal to general profit of contractor).

The client may deduct such liquidated damages from any money, which is due to the contractor or thereafter to become due under the contract.

CIVIL ENGINEERING PRACTICE



CUD#/	D2: CONTRACTS
• <u>CHP # (</u>	5- Extension of Time Under Unforeseen Circumstances
	The time of completion of the contract shall be subject to extension due to unforeseen circumstances such as war, military operation, revolution, strike, riot (conflict), fire, flood, epidemic (spreading of infections disease) and similar events beyond the control and remedy of the contractor which make the performance of the contract impossible.
•	Such cases shall be considered for extension of time in the completion of work as decided by the engineer. The period of extension of completion time shall not exceed the actual period of delay caused by unforeseen circumstances.
	CIVIL ENGINEERING PRACTICE

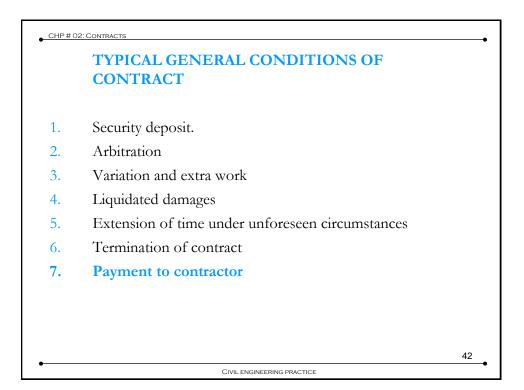


# 6- Termination of Contract

The client reserves the right to terminate the contract by giving advance notice of such termination to the contractor for causes provided under contract law and especially for the following reasons:

- 1. If the contractor violates any of the provisions of the contract.
- 2. If the contractor's rate of progress is such that the work would not be completed within the expected time.
- 3. If the contractor declares himself or is declared dissolved, liquidated, bankrupt or in arrears or if he sub-lets the contract obligations without prior approval of the client.

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## 7- Payments to the Contractor

The Contractor shall prepare and submit his bills at the end of each month or after any agreed period. The Engineer shall examine all such bills and certify the amount to be paid to the contractor after deducting 10 % of the amount towards security deposit. Payments shall be made to the contractor by the client within 15 days (usually) of contractor's submission of bills.

Payment shall be based on actual measurements of the work done by the Contractor. The measurement shall be recorded in a standard measurement book (M.B.) by the Engineer or his representative such as Sub Engineer. The measurement book shall be signed by the person making measurements and by the Contractor or his representative. Each set of measurements shall be signed by the Engineer/Executive Engineer.

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