## C.V. RAMAN POLYTECHNIC, BHUBANESWAR



## LECTURE NOTE

## ADVANCED CONSTRUCTION TECHNIQUES & EQUIPMENT (TH.3)

SEM-6<sup>TH</sup>

## **BRANCH-CIVIL ENGINEERING**

Prepared by

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(Asst. Prof. in Civil Engineering)

AS .	
	ch-1 Advance construction Material Date 21/3/22
• (a)	Fibers and Plastics:
(8)	Fibens are consider as a construction material to
	a binder that could combine portland cement in
	bonding With cement matrices.
	> Fibers is such as raintoning Material small pieces
	thanacteristics and properties.
45	The hip are prepared and reach anything roots of
701	> Fibers are usually used in encrete to control
(0.1) × (	chaeking due to plastic shainxage and daying
(b)	Turas of tilografi as qual property to an apply to the state of the st
(0)	Types of tibers: - to make a reconstruction
	(1) Glass tibens:
1 Jul	Chemical composition and characteristic
4 m/d	> (nease tiber have grade mechanical properties and ever in ferms of strength thermal properties and have good intertacial bonding to the matrics.
491	-> (nlass tibers are generally used to raintonce Polypropy
7	→ A composite is tormed between the element to torm an exillent material.

ė	
	in a real injustion without the state of the
-	The resulting composite is cost expective easy to
-	Proquere and Posseses and toughness
-	Characteristic to glass biber.
	(b) Ctool Kibon
	(b) (Steel Kiber :- war bligg midt more and
	Similar to traditional steel traintareament the ve
	incularity of steel tiber is they are bigh
-	renaite capacity serious course parameters of the
÷	Virginian to the Market of the
-	> Steel tibere have been broadly etadio in concrete
	They are all commander they are
	improve the mechanical properties of concrete.
	-> Steel tibers help in improving the concrete
-	behaviolen in terms of charking, shrinkage,
-	
-	
_	The etherath inchease is due to the steel bibers
-	characteristic of absorbing energy and controlling
_	-> Chock . Single And land of the Control of the Co
	-> Steel tibers can be an ideal aditive to specitie
	application as they possesse good electric magne
	GOVERNMENT OF THE PROPERTY OF THE PROPERTY OF THE PARTY O
	(c) carbon tiber; (carbon content in carbon tiber 93-95%)
	the state of the s
7	composite with improve properties
1	The addition of carbon biber create a composite
	Pentorm well in high temporature environment

A C	
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	and possess the benitit of durability
<b>→</b>	The diradvantage of cambon tiber one that due to
L vin	manutacturing carbon to ber is high.
<b>&gt;</b>	Similar to grass biber although their one many
TV .	positives and benitits to canbon tiber the production of carbon tiber leads to concern ton the environment and postraible sustanability.
1.	marib (1) 170 prostus par Ve Dole 1- 23-3-2029 1 5
1 1	Properties Of Biberi-  High tensile strength and modulus of elasticity
Autor I	> High resistance to weather, acidic environment and some
1	> Good thermal properties and stability east tollened and Pertorm Well in high temprature environment.
	Proporty
15	The state of the s
10001	> hood registance and stability against corresion, chemica
1 bo	Non reactive and Non-combastible:
4	> Absorb sound, vibration and isolation. > Resistant to registion UV light.
7	-> Strong , hand and rigid process.
1	> per cost etticient :
2000	V CONTRACTOR OF THE PARTY OF TH

	Date / /
	> Use to tour light wave composite with accelent
1,7 (1)	-> Require no chemical aditives.
	-> National and bio-degreedable.  -> Ecologically clean easy to handle and non toxic.
	DSE RA application?
41	tough ness, dunability, rigidity and of actility.
	-> Improve resistance and Pertomance in ditterent environment and against Physical and chemical connosion and other attach
-//(1	> Improve stability, thermal properties and operation
1 (1)	> Reduction of the specific weight and density
0 0 AU 01	rescutting in a light weight product that I
sat nod h	> Reduction and lower cost of design and
	raintorcement method.
8	-> prevent the occurrence of Shrinkage crack and
	ewellington from mountain board tracers to
	> Improved environmental -> Friendliness.
	→ Economic etticioney and surtainability
	Comment for citized and and and and and and and and and an

A STATE OF THE PARTY OF THE PAR	
	Page No. / 5 Date / /
	Plastie as constauction moterial:
No ti	Olanicasia a a a a a a a a a a a a a a a a a a
	-> Plastic is a general name given to a wide range
	of synthetic materials that are based on
	Polymera.
11	The cooperate in a feducated to a stable to a
121	> The construction industry use plastic bon a wide mange of application because of its
6-11	versatility etrength to weight ration durabili
	connosion hasistania and chow on.
	COMPACION VINASTANCY WIND SHOW OUT
	-) Diani, and he manufactured in the trained cuch
	as Pipes cables coverings cannot sheet etc.
47.18	as the capies conditions a contract to exemple
	low density materials and be dissolved in solvents
- 1	YOW density materials and be described to references
	-> some of these plastics main weres in the construct
	Some of these plantes many and the war of
	industry are j- many power with party party
	de IV-a Carlo
7	dadding Panels.
7	Capies
- 7	Pipes and gutters.
11.7	windows and doors to
- 7	Shu-Hering.
	Wall linings.
- 7	celling Panele 12 passeng pan laine on many
	O L' SYLVE (ALL LA
1/4	Sinker basing hather and chowere and continued
n Inn	Sinker barons and and load to a construction are the
7	
,	The advantages of cosing practice in commakes it earient it is light weight yet strong which makes it earient

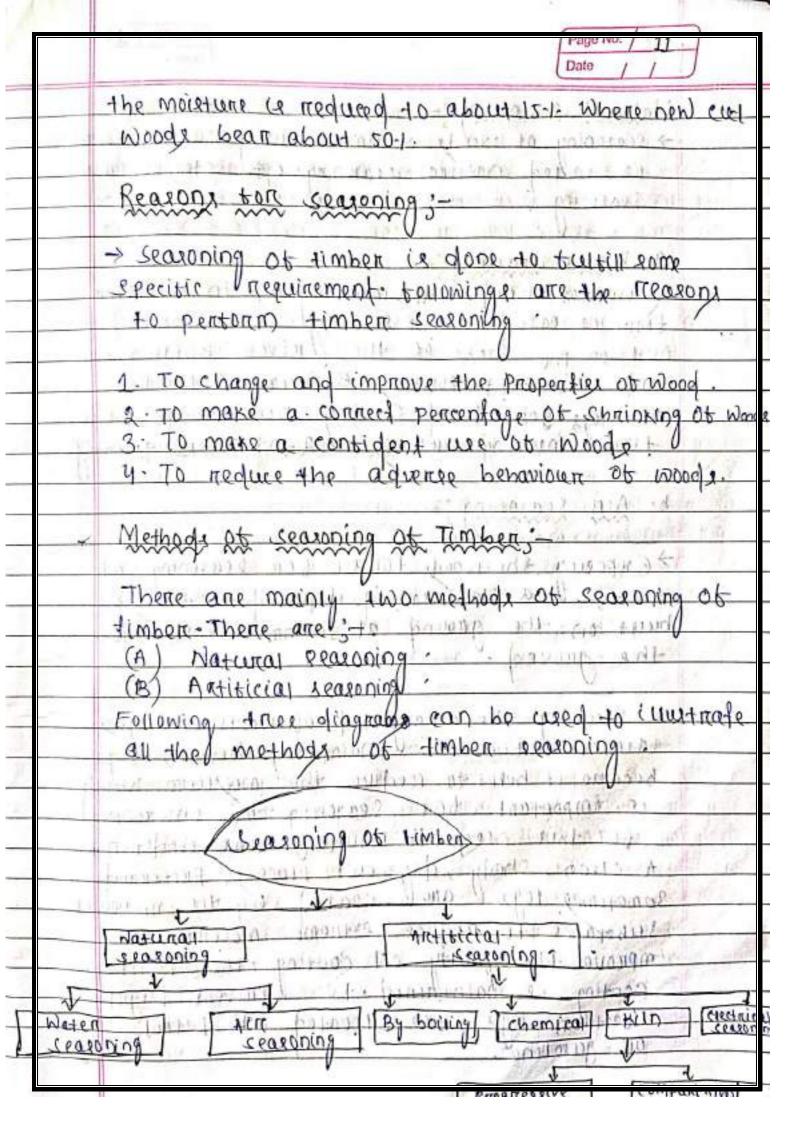
to transport and shat arroland sites. It is also resistante to not and commission and has strong weather ability due to it being capable of achieving teght seals with the trops of In the state of th -> The disadvantages of Plastic are that it has a thigh emhodied energy content and a low modern tor load bearing applications TOO IN THE PARTY OF LONG Properties: sommer higher had not arrestly be Typically, construction Protessionals gelect Plastic Materials based on the tollowing criteria. The courte man and a more appetential and a second 1. Dunability 10-8 ocost effective ness a variental mount of any 3. Recycling : The Party of the Party of the Carlotte and 4. Energy Usaving 5 · Satetyl 6. Eary to install - Use of Plantice in different aspects at the construction industry 1. Flooring :-+ plastic materials like polyvery chloride (Pvc) and polyethylene are used to make blooking leax prone to wear and tear it also decreased the sound Pollution level and can be cleaned easily after a new ment prior to wearing to 2. Rooting + what promes you interest to the

发	Page No. / T
17	-> To protect the outer surface of the root from dance
(F)	two layers of different plastic materials are
March 1	required the upper part is made of coined
W	
	thermoplastic otetin or vinge while the lower part
	consists of polyacethane boam which consumes
1807-120	less cenergy and keeps the interior of a house
	cooler Hamanage so mantes paner mo All
	The second of th
	3. Insulation:
YIR	> polywhethane spray (2) trequentry weed tok
1/23	ingulation when constructing green on low energy
Seriovo.	buildings Rigid polyunethan toam is known bor
MIL	Ctx high thermal registance which promoter temprate
1	consistency - Polycorothane boam is also popular
	because it is light weight - chemical intreviation to Due
4 (08)	to ital closed cell native polyweethare insulation
1	pentonne as an bannicken restuting in significant
	energy recovering out the spring of the
	GIVING TO THE REAL PROPERTY OF THE PARTY OF
	4. Mall;-
	VXXX 0
019	A structural insulated panel (SIP) is a candow
	ot expanded point tyring amidet two prim layers
	of oriented strang board this type of pre- fa
	composite wall board can be transferred to the
	Work place easily probon a Particular task and
	Provide good support to column, and other
14	associated excentialx during menovation.
0	Curoriated Extended discourse
	5. 22a-2
	5. Pipes 3-
	A DATE A STATE OF THE STATE OF
The latest	

	Date / /
10/12/03	cpue acry conitrile butadiene etymene (ABS) on
Jam	light in weight making them easy to instay.
4 (8)	All at those plastic materials are also highly
- 14	ton many extreme environments.
	Control of the second of the s
	" Township of the second
- 1	windows this Plastic materials is strong clear
J46913	and very right in weight pory carbonage windor are considered more bargiar - proof commonly
119.	Materials, vinys and tiberglass sare used
n Li	commonly in the production of window trames
	is quite durable and also inespensive
	7. 20071; - Juniane)
-,	CHO COLLEGE THE SECOND
1292	trom a latit polymenton projects use doors made
nd"	trom a stitt posyunothane foam core with a biben raintonced plactic (FRP) coating the
off of	cano wich structure of there doors makes
Day 1	them renered by stronguis on your abroad
	Types : 1 + 1 / 2 min   1 min   2 min
V	PVC
-52	

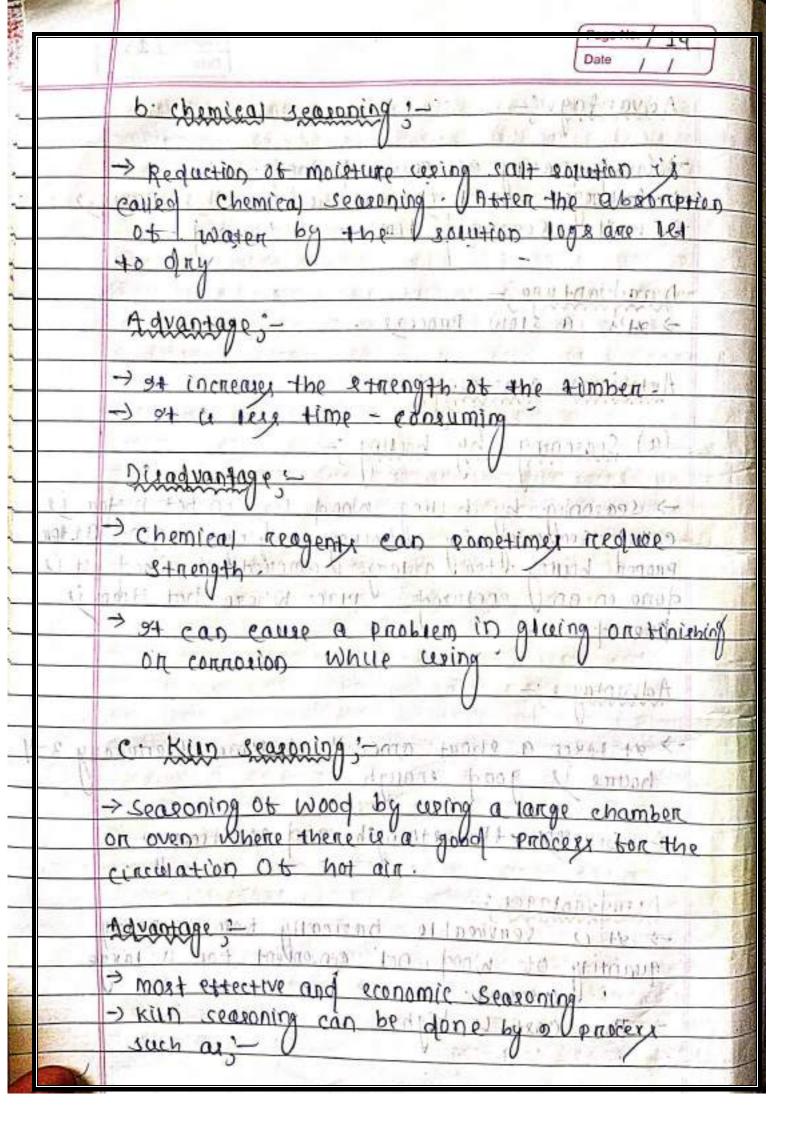
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un i	> polyving chloride (PVC), a synthetic resin made trom
	the polymenization of veryl chronide second only to
V	consumption pur is used in an enormous range o
2) 11	domestic and industrial Products, trom raincods
	plumbing. It light weight riegio plastic in its
	PUTE FORM, it is also manutactured in a
	tlezible "plasticized" borm.
Ned.	RPVC:-1 pomatored comment thanks and to
11	> REVC means "rigio" Polyviny he ebloride which comes
< 10×	trom pre polyvings chloride (pre), also known of
Bal	viny , is a common plastic polymen (a polymen bei
4	a longe molecule) it comes in two basic torms:
-	construction (expecially pipex), packaging etc. RPVC
	Piper with high impact strength and load bearing
	Capacity,
7).	Plastic triba is a thin engineer property
	HOPE I tomatory wighten a start tomator
	> High density polyethylene (HDPE) piping systems have
	book the de inter municipal and industrial water
	annication to the over 50 years in within bleinging an
	construction division, HI) PE PUPEL TORE CLEED TOR
	A troup course geothermal applications, also known
	av earth energy or geoexchange systems
v	ERPS-In their pages parents included a parents of
	the tan of the tack acide appropriate to pasta party that
HIN	> Fibre - neintonced Plante (FRP) (area cared tiber -

	(Part II I
	Page No. / 10 Date / /
1400	maintonced polymon). FRP bank are used as inte
11	main toucoment for concrete etructione FRE han
100	Sheets and strips are used for others thering
0.431	Ot various structures constructed from concreto
1711	Masonry, timber and even steel . Fibre raint
to long	polymens are used in the construction of
-1.13	special etructures requiring electrical neutrality
(6	an example means we see the true many the many
	CIRP?
	> GRP stands for "Glass Reinforced Plastic" @
- 80	Material made from a pony exter regio which is
100	reintorced by chopped stand mat grave tibe
411	to torm a wap laminate it is a very popula
Unit	composite material to use because not only i
	it very extrong but also sumprisingly right-
514	19 - DET VILLE OF THE PROPERTY
String	Coloured Plantic sheets
-1	· SALDWARD
	-> Plastic tilm is a thin continuous posymeric
	material. Thicken Playtic motorial is nitten
	called a "Sheet" Plastic Sheets are generally
W.BC.	LOW cost, early to manutacture, el unable,
11 - +1	strong bon their weight, electrically insulative,
F313 1374	and registant to shock ; comprise chemical
मधन प्रम	and water was the desire and and and
4-30-3-2	eric constitutoria itamicalente con all'annonale
41-51-2	Antiticial timber:
	> Reduction of moisture content along with improving beome
	some quantityies before the cure of woods is
	caused seasoning of tember by seasoning, generally



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1 = 3	Material ceasoning: - better the land control of
	> seasoning of words of timbers wing natural elements
	ie carried natural seasoning, eggl water and air
	ie carried natural ecasoning ego mater and air
	The second of th
	na. Water reasoning: - modern in moderniss of
- 1,10	skemeral of wood sap immersing logs on to water
	thow is called water seasoning. It is carried
	out on the banks of the tiver white thicken
	ends are kept towards apetream. Atten that
or do	the logs are allowed to dry . Diradvantage; it is
	+ ime consuming such as 2 to 4 weeks generally
-1	to the manufactor monte of the manufactor of the total
	b. Ain segroning:
	Var of partition of the state o
	> Exposing the woods to air for seasoning - At
100	binse, la Platform is required that is
<u>.</u>	built on the ground at 300 mm height above
	the ground. Emanage investor
	(F. Astition tout and the Astition
# EUR	- secondly the arrangement of woods in laying.
	Air cinemination is maintained between logs
	because it helps to reduce the moiture which
	is important ton seasoning . The environment
	for this need to maintain some conditions.
	A clean, shady, dry, cool place of preterned
	sometimes logs and coated by the impermeable
	Suberance to reduce extreme moieture to
	improve the quality oil coating , thick Paint
k	coating is mainthined to prevent tugel
######################################	intertion logs and treated with petrol
STATE OF THE PARTY	on Jacoline.

1	
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	Advantage: - : - : - : - : - : - : - : - : - : -
	-> Good quality of seasoned wood.
	-> A large amount le convenient in this process.
	the state of the s
	Diradvantage - Process.
	Artitician seasoning in the with months of the
	(a) Seasoning by boiling 3-
	called scaleoning by boiling wood logs in bot water is proper boiling ton a large amount of wood, it is
100	Paried and every alling commission
	Advantages;-
	hours is good enough.
	> Develops the etrength and elasticity.
	Disadvantages:  -> 9+ is serviceable basically ton a small
	quantity of wood, not conventent tori a large  amount.
	> The Cost to 1999



1. PROGRESSIVE KILD LEASONING: - WOOD LOGICS EMERCED THROUgh the KILD And the temperature and humidity disberentials are maintained frozen drying the length of the KilD to maintain Proper drying the length of the KilD to maintain Proper drying the length of the KilD to maintain Proper drying the length of enclosed container on bailiding.  2. Cameratheolal Sasoning the Process because externo energy is used on both the Process because externo energy is used on the method afternation current is used to not the method afternation current is measured at every interval of time. Electricity is measured at every interval of time. When the required resistance of timber process is stopped because resistance of timber process is stopped for maistance content in it. It is also caused as rapid seasoning and it is uneconomical.  Miscellaneous Material to have real and paper as essenting from and maistrals each are certain for the real massification for the process of the process		casoy > 2H20 (Gypsan) Page no. / 15
energy is used  of Electrical Reasoning i  Dry wood is non-conductor of electricity while green timber is a conductor, so can possibate make carreer that in this method atternating current is used to not the neitetance of timber against electricity is measured at every interval of timber process is stopped because resistance of timber increases by reducing maisture content in it concernations materials  Miscallaneous Materials  on category of tebestory containing ballding mate comprised mastly of non-tewable asbestory process and materials such as celling, tiles, than tiles, and materials each as celling, tiles, than tiles, and materials each as celling, tiles, than tiles,	110	disserentials are maintained through the length of
energy is cured  of Electrical Reasoning -  of Electricity white  green timber is a conductor of electricity white  green timber is a conductor, so can present atternate  current Thus in this method atternation current  current Thus in this method atternation current  electricity is measured at every interval of time.  When the required resistance is reached Seasoning  Process is stopped because resistance of timber of  process is stopped because resistance of timber of  increases by reducing moisture content in it.  increases by reducing moisture content in it.  uneconomical:  Miscellaneous Material;  A category of Asbestone containing building mate  comprised martly of non-tewable asbestone process  comprised martly of non-tewable asbestone process  and materials such as celling, tiles, thousand likes  rooting best transit pepe and panners extension  cieding testing transit pepe and panners extension		enclosed container for V buildings.
of Electrical Reasoning -  Dry Wood is non-conductor of electricity while  green timber is a conductor, so can past atternate  current thus in this method afternating current  current thus in the method afternating current  when the required resistance is reached seasoning  process is stopped because resistance of timber of  increases by reducing moisture content in it.  It is also cased as rapid seasoning and it is  ceneconomical  Miscellaneous Material;  A category of tebestory containing building mate  comprised mostly of non-tewable asbestory prose  comprised mostly of non-tewable asbestory prose  and materials such as celling tiles, thou tiles,  mooting tests transit pape and panners seasoning  cieding tests excelled	2 1-2	Advantage; - or accelerates the Process because externa
green timber (2 a conquetor, 20 carpation and a carrent thus in this method alternating current ce used to not the nesistance of timber against electricity is measured at every interval of time.  Electricity is measured at every interval of time.  Electricity is measured at every interval of time.  When the required resistance of timber process is stopped because resistance of timber process is stopped because resistance of timber the increases by reducing maisture content in it.  It is also leaved as rapid seasoning and it it is sense to be a category of telestory containing building materials.  Miscellaneous Materials containing building materials are carried as celling, tiles, thou tiles, and materials such as celling, tiles, thou tiles, and materials such as celling, tiles, the attention containing better transit paper.		of Electrical Reasoning;
cannest that in this method attending cannot be assistance of timber against electricity is measured at every interval of time.  Electricity is measured at every interval of time.  When the required resistance is reached seasoning process is stopped because resistance of timber process by reducing moisture content in it.  It cases by reducing moisture content in it.  Leneconomical as rapid seasoning and it is ceneconomical.  Miscellaneous Materials  A category of tebestory containing building materials are carried as certaining for process and materials such as certain, titles, thou titles, and materials such as certain proper and panners seasoning actions.	notsch	in a conductor i so can face asterna
When the nequined nexistance a nearly shore process as stopped because nexistance of timber process are stopped because nexistance of timber in it.  increases by neducing maisture content in it.  it is also leaged as napid seasoning and it it  teneconomical.  Miscellaneous Materials  A category of tebestone containing building mate  comprised mostly of non-tewable asbestone proceed to make the process of the	- 00	ce used ton the resistance of timber against
Miscellaneous Material;  Miscellaneous Material;  A category of tebestons containing building mater  comprised mostly of non-tewable asbestons proceeding materials such as celling, tiles, than tiles,  and materials such as celling, tiles, than tiles,  and materials such as celling, tiles, transition  cieding tests transit pape and panners, esternion  cieding tests etcontrib	kai	process a stopped because resistance of timber
Miscellaneous Material;  A category of Asbestone containing building mater  comprised mostly of non-tewakle asbestone prod  comprised mostly of non-tewakle asbestone prod  and materials such as celling, tiles, thou tiles,  and materials such as celling, tiles, thou tiles,  and materials such as celling, tiles, thou tiles,  and tobally transit pipe and panners, externion  cieding telting transit pipe and panners, externion		14 12 Dated Veated Var Mary
comprised mostly of non-tematic asbestons produced and materials such as celling, tiles, thou tiles, and materials such as celling, tiles, thou tiles, and mosting best stranger proportions and panners seasonism	-	
and materials such as celling, tiles, than tiles, and materials such as celling, tiles, than tiles, and materials transit proper and panners, extension cieding technics excertised	V	Miscellaneous Material; containing building mater
sieding tebrica et		and materials such as celling, tiles, then tiles,
	N. O.	sieding + tebrican et

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1	I when the sound intensity is more than it gives the
1	auditorium, cinema hall, etudio, entetenment hall
-	courge, reading hall etc.
1	In the same of the
1	Hence it is very important to make that area
	or room to be sound proof by wring a
	suitable material caused as acoustics material.
İ	Purpouting of Accounting
-	Properties et resusties material:
	> sound energy is capture and absorbed.
	-> at has a low retrection and high absorbtion
1	lot cound I would not a an interpretation
-	- Higher density improves the gound absorbtion
	-> Higher density improves the councy absorbtion
1	of the first of the formulation of the first
A	> Acoustice material reduces the energy of cound
	ways as they passed through.
	et protected on between production of a consistent
1	-> of suppresses eches niver benation
	and nettection.
	the second of th
	Uses at accustic materials?
	-> Acoustic material can be used for noise
	reduction and noise absorbtion or many
3	of world roll, ported on work expensional Box !
1	-> H makes the gound more ordiable which is
	clean to westen without any direturbunces.

> A viny 1 acoustic barrier block controls

3 1	Page No. / 1+ Date / /
0	ain bonne morke mike strict trattic, voice, musie
1	trom Passing Athrough a wall selling on thoon.
- Lid	-> sound proof of our and weight windows are
11	designed to reduce the transmission of cound.
	sound as to minimize echo and retrection within a room.
weig	Adhesive: 100 y name name no milie months
gritt	For consense as it ready to british not
1/10	> construction of adhesive is a general - Purpose
	Molding and tixtures to walls, cellings and
11111+110	troops. I it is most commonly available in
	tubes intended ton use-
The state of the s	intended to make a wall look like it is
	Made at a different sout of Material than it
- 10	examples on the outside of buildings, but
10	chadding can also be an antistic element
	in interior deconating
	> The most common types of cladoling are
	stone eladoling, Brick classoling, Timber cladoling
nioà:	offermed a to brain stone a bantage
130 : 150	Planten boarro - moderno Innomitari to
100000	tram adt wortent topiand prigation

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977	> Plaster board is a panel made of calcium
10	Quitate dinydrate (gypsum) usuany pressed
	between a facen and a backen it is
9.77.83	cered to make intermion walls and ceinings
· ha	this "Dry way" construction became popular
	as a quicken alternative to traditional lath
to well	application . The man land on no be offer wat Cal
AT DEE	latter V bas soldy a similaring of 20 hangs
	Micrositico - caron o la mesta 17
	> Mieno siliea on riliea tume a an excellent admit
	ton concrete as il heads to better engineering
35.00	Properties - it meduces - thermal enacking to Umpravor
34	durability and inchoosex retremely. Will sining from
1000	Concrete has a number of construction complication
- 1	1 Valdplinva plantes toom to the spoots
	Autiticial Rand not protoment regarded
	the substitute of the state of
Menno	Antiticial sand raiso called churched wand on
4	Mechanical of sand references to mooks mine thiling
11 01	on moustrial waste granulos with a
	particle size of less than you from which are
100	Processed by mechanical crishian and com
- 4	but doke not include soft and weathered
	granues pailonous de concellas la minima
	O CONTROL OF THE CONT
21)	Bending of Agents of the common from the
enilops	11) Vander T. Wilelant Tring, Pullshote vance
10/19	3 Bolding agents are mattereres compound advisor
3	material used to enhance the 100
	of challyclia members at a strike-rine with
200	employing mechanical tarteners. The most commo
	V V

A	
fi t	Page No. / 10 Date / /
	toom natural nubben, symbotic nubben on tram any other organic polymens. The polymens include polyviny chloride, polyviny) aceta etc. With the addition of bonding agent in nepair montan on concrete of he nedwed water cement natio can be adopted ton the same workability, there by neducing drying shrinkage.
v	Uses at Acoustic material :-
	1. Acoustic Materials can be used tor noise  Reduction and noise absorption  3 The suppresses schoes, reverbonation retiection  and resonance.  3 Important specitications ton noise reduction
	and noise absorbtion production conclude noise  Attenuation and noise reduction controls  4. A vings acoustic barrier brooks controls  airborne noise Cetreet trattic, volces, music broom passing through a wasse ceiting or thoor
9 1 V/	5. Acoustic toam and acoustic ceiving tirex absorb  sound so case to minimize scho and reverboration  Within a room.

6. sound proof doors and windows are designed to reduce the transmission of sound the colt of the present of the party of the party 7. A sound Proof Wall (treated by a accurate Material) can incorporate sound inouting and acoustic materials to meet desired sound Franemission Class (STC) Values 1. His ODULE 2 Windrapility a discussion in during Pretabrication" Uses of a Acoustic regard Protabrication is the practice of assembling components of a structure in a tactory or other Manufacturing site and Atransporting complete on sub-lassemblies to the assemblies construction site where the structure mis 10 be located the term is used to oceninguish this process trom the more conventional construction Practice of transporting the basic Material to the construction rite where assembly is carried out. Var 120 may 120 Paningan > the term pre-tebrication also applies to the manutacturing of things other than structures at a tized eine it is trequently weed when tabrication of a section of a machine on any movable structure - a shitted from the main manutacturing site to another location and I co supplied assembled and ready the section to tit it is not generally used to netch to electrical on electronic components of a machine On mechanical party such as pumps, gearboxes and compressions to which are wearly supplied

	( Paga No. / D)
t,	Page No. / 2
1	as separate items but to sections of the body o
4	the machine which in the part were tabricated
John	with the whole machine - Pretabricated parts of
	the body of the machine may be called sub-
	exxembries to distinguish them trom the other
	companents the un stated and the last in the companents
5,40	19 with many not the comment of a comment of the fact of
	History :-
	The state of the s
440	-> Pretabrication how been used since ancient time
	for example, it is claimed that the word's
	oldest known engineered roadway, the sweet to
	constituted in england around 3:800 Besemple
1970	pretabricated timber sections brought to the PH
16	Rather than assembled on-site [cliation needed
	the many that is an every extent and the contract
150	> sinhalege kings of ancient sailanka have used
1	pretabricated buildings rechnology to exect giard
	structures, which dates back as ton as 2000 y
	where come sections were prepared separately and
	their titled together specially in the kingdom of
in the second	Anunadhapuna and kingdom of Polomanuna
	no sent my Virginar to 12 page market and title
	> After the great Lisbon earthquake of 1755, the
	pontugue carnal respecially the Barda district, hi
200	rebuilt by wing pretabrication on an unprecedente
160	scale, unoten the guidance of sebastian jare ofe canvalho e melo, popularly known ax the marquis
1	
753	de pombal, the most powertal royal minister of
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	D- jose I, a new combatine style of manenitecture
2	and withan Planning a rage, which introduced learing
	anti-secumie delign teatures and minnovative
37	

		(Page No. / no.)
Sales S		Date / /
-	B/ 101	Pretabricated construction methods, according to
_	1 42	Which large multistory buildings invene ()
_	41 (1	entinery manutactured outside the city, transported
	-00	in piecel and then assembled on seitle. The
٠	11/2/1/1	Process which jarted into the nineteenth
		century hodged the city's residents in eate
-		new atructures unhearly-of before the quare.
		-': pmo +s 1 (1 = 7
_		Current uses?
	200 4	-> A house being built with prietabricated concrete
	/1	in panelly inch! homen to the configuration of the
-	1991-17	of a tribe train to our matter of the property of the tribe
-	13103	The most widery used torm of pretabrication
	103 11	in building and Vicivil engineering him the sure of
-	Dishi	Pretabricatele concrete and protabricated steel
<b>~</b> -		sections in etructures where a Pareticular
h	1 15 1	Pant on toum is nepeated many times it can be
	PROLI	dittaut to constauct the town work required
	D7: 00/	to mould concrete components on site and
	P. P. A	delivering wet concrete can be mized on the
	882	spot without having to be treansported to
		and pumped wet on a congested contraction
1		site. pretabricating steel section reduces on
	in Sal	Site cutting and welding coxts as well as the
	BOHTON	acroniated hazards
		> Parota baisaction Accessions and the state of the state
	1 1040	of apartment becomiques are used un the constructi
		ot apantment blocks and housing elevelopments with repeated housing units. The quality of
	No.	Pre tabricate of houring units had increased to
3	S 112)	THE DOINT THAT THEY MAN DOS TO A PROTECTION
	1	trom traditionally built units to those that live
	- Armineral and	The state of the s

in them. the technique is also used in ottice blocks ware houses and tactory buildings. Pretabricates steel and glass sections are widely used for The extention of large buildings . . . . . the market and the rest through the same property and a fall through > Detached houses, cottages, log cabin, saunals el. are also sold with pretabricated elements. Pretabrication of modular was elements allows building of complex thermal consulation, window trame U components etcomon an assembly line, which tends to improve quality over for-site construction of each individual wall on trame. wood construction in particular benetity tron the emproved quality However tradition often tovors building by habout in many countries and the image of Prietab as a cheap method only Chows it's adoption. However current practice U according to the eventoment requirements and severing the suntaring material e.g. a personalized brick barage can be maroned veven it the load surporting elements are timber and law on the contract Transportation of Pretabricated Airbus wing assembly > pretabrication eaver engineering time on the construction retering cover engineering Projects the can be vital to the success of projects such as bridge and avalanche galleries, where weather conditions may only allows brief periods of construction. problabricalted bridge ellements and system other bridge designers and contractors significant

7	Date / /
11300	advantages in terms of construction time
1.000	saterly, environmental impact constructibility,
11114	and cost pretabrication can also help
	minimize the impact on trattic trom
	bridge building. Additionally amay, commonly
19 (1)	cered structural such as concrete pyrone
-	ane in most casex pretabricated.
LVil	In there is the military by no parameters I was
L Art	-> Radio towers for mobile phone and other
(4.11)	services often consist of matters pretabilitated
1111	Sections modern lattice towers and ground
	mas is are also commonly assembled of
in pris	Pretabricated clements allements
	The court to mayor often et is to to a town marry reserve
in the second	> pretabrication has become widery wed
*	in the assembly of alrenatt and spacecraft
	with components such as wings and
-01:4+	true lage sections often being manutactured
10	In distances countries on stones thom the
brish or	tral assembly rise "Howeven this or
T D	componeral reappression tather than
	commencial reasons such as ton alabus.
11/4:32	Breeze statute of the test settem to the contribute of the Tall
	Types of Pastabajeated Sandan
Min fi	Types at Pretabricated Registers:
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1 A SECTION 1	

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	gavanised steel.
	Timber system can be relatively traditional
	such might be produced on site resing component
	ite epan with a relatively light weight bear.
	3 + thing option is structural insulated parne
	come and outer sheaphing Material ton streng h
	> one tacton that ditterentiate all Pretabricated
	timber eyetem trom, what might be traditional timber trame is the amount of work undertaking
	in the tactorium as remained property of
	Classification at the tabrication;
	(B) Medium ero Kalinication
	(e) Large pro tabrication.
- 1	(a) Partial Pro 1 tabrication.
	(F) close system Pre tabrication.
	(G) Total pre tabrication of the total
	(I) OFF side the tabrication.
11 20	Our Venna 12 countral at 19222 A proposition
186	Classification of the tabalcared construction system,-

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1. Smallen degree tabrication (Hence the tabrication (2 done in the tabrication) (3 done in the same scale)  2. Medium degree pre tabrication; (Hence the pretabrication is done in the moderate thape)  3. Lange degree pre tabrication; (Hence the shape)  3. Lange degree pre tabrication; (Hence the shape)  4. Moving Partial assemblise from a tastory  Other cost less than moving fre prediction resources to each side; from a tastory  > Deputying resources on side can add cost, pretabricating assemblise can save cost by reducing On side Work.  > Factory tools like crains conveyone etc. can made production tasten and more presides.  > Factory tools like crains conveyone etc. can obten added quality assumance to can obten added quality assumance to conveyone test can obten added quality assumance to convey the conveyone etc.		Page No. / 9( )
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12.11	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
à.	> Factory production can tacilitate more octimal cosage
	recycling, noise capture, dust capture etc.
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DE 180	Disagrantage: a margan some a sile forma
1 2	The real real residence of the real real real real real real real rea
1425-171	> Transportation cost may be higher for voluminous.
other H	Pre tabricated section than tone their constituent
Α,	Moterials. I was an a can be acted . Kninstown
Section 1	> Lange pretabricated section may require heavy dairy
function.	and as presiston neasurement and handaring
10 451	
John	end a no more property commended the among the and any ensured
100	Process and theory 3- profile and read and read and the second materials
131	> An example from house building illustrates the process
nai sa	Ot Pretabrication . The conventional method of building
Inn 91	a house is to transport bricks timber cement, sand
animah.	steel and construction aggregate str. to the Pite
	and to construct the house on site trom these
	materials. In pretabricated construction only the
-	toundations are constructed in this way, while
	Section of Walls , thoons and most are pretabilities of
- 0	(assembled) in a tactory (possibly with window)
	and doon trames included I transported to the
ar I	site, littled into phace by a crane and botted
101001	1-together in mound since the primary of
7 60	De tot service is treed in the tree of ships.
300	+ Pretabrication is used in the manufacture of ships
194	aircratt and all kinds of vehicles and machines

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14.5	Where sections previously assembled at the tinal point manufacture are assembled elsewhere instead, betone of elivered for tinal assembly
	> the theory behind the method cothat time and coe ix eaved, it similar construction tasks can be greated and accembly accembly techniques can be employed
0.41	in pretabrication at a location where arrembly election while congestion at the assembly elevation waster time can be reduced:
271	> Pretabrication avoids the need to transport to ma
	water, emposience to hand weather on a hazado environment are avoided against these advantages
in a	and be welling the cost of transporting
2., 11%	The destination destions and litting them into position as they woll usually be larger, more tragile.  More desticall to handle than the material
013	wing components of which they are made
91 ii ind i	The main measons to telepoone Brown
d.k	method over conventional in method to
20	1. Economy in large scale project with high degree repetition in work construction.
	2> specials requirement in thinkhing on the and

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	3. consistency in structural quality control.
	The milks at 1010000 with british tings and to de
	5. consistency in istauction of site resources (e.g. materials
	6. Fast speed of construction, and of the 170's
	- other space and environmental constrainter
	7. overall arresment of some of all of the above
2.3-1	bactore which points to the puperionity of adopting
	precast construction over convention method.
	DA, IF900
	> superiority of adopting precast construction over
	convention method.
	COLUMN PROPERTY COLUMN CARREST COLUM
-	The bollowing details gives the cost implications of
- 12	Precast construction and conventional in situ metho
	Out and a series of Autodina had reported by
	8 carge groups of buildings strom the reametype
	Monotonous.
	wint Course so purposens of the unried of my retter
	1. Local jobs are last to some to their adtes
-11	The same of the sa
	-> V the main reasons to choose . Precast construction
	method over conventional in vitu method.
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	repetition in work execution
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41.	2. Special anchitectural nequirement in tinishing
	3 · colysistonay on etructural quality control .
	4. Faxt speed of construction is portion
NA STATE	5' constraints in availability of site resources. eg
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	Materials and Mabour reto : 111 7 19 19 19 19 19
	6. other space and environmental constraints.
	7- overall agressment of some on all of the above
ACTION OF	tactors which points to the superiority of
	adopting precase construction over Uconventional
	method . 1000 to community to 10 mile in order
	World of the statute and the thousands to the source
f -190	the tollowing details gives the cost implications
h	at precase construction and conventional extu
	method.
300	The state of the same properties of the same of the same
	Pretabrication Elements - whomens no harrows
	1. Flooring   Rooting eyetem.
70 W	2 pricilet Beam x 200 a Dough prominent water
Law GIV	3. Precast icolumne. The contintant is prosent
	4. precast Walk panels.
1901	3 - receipt metable institud To reporte & pros 8
Lites	Personal of the property from the total and the second
	Claratication:
	> The pretabrication is classified as tough trom
	the view of degree of Precart construction:
	The way properly there were an an array of the
adhors	1. Small Pretabrication . MORNIN OLDER MIT V. 5
	2. medicim Pretabrication with wive podian
	3 - lange Pretabrication.
do sono	14. cast den lecte Pretabrication ! al Pinarasa
, M	5. ott- site (on) tactory pretabrication 1112
	6. open 14 stem of pretabilitation.
- 0	to closed eyetem of Pretabucation 12 1015-17
1	8 pantal pretabrication and product reproprie
10 L	9. Total Pretabrication . 2000 to both
	S constraints in another the sets meaningers.
100	

	Page No. / 31 Date / /
	Small Pretabrication? Mainly classified according to their indegree of precast construction force; brice it a small unst precast and used in building
- 70	This ce called as small Pretabrication that the degree of precast element is very position.  Medium pretabrication;
tiv a	→ Suppose the πooting systems and honizontal members are provided with presented elements those construction here are known as medium pretabricated construction here the degree of precast elements are moderate.
dhu	Lange Pretabrication; —  I ange Pretabrication most of the members like wall panels, rooting I tooning eyerems beams and columns are pretabricated there degree of precast elements are high.
e de la companya de l	Cast - In - site Pretabrication; OFF - site (tactory) eretabre  Tone of the main bactor which absect the tactory Pretabrication ce transport the wight of mad walls Mode of transport, vehiclex are the tactory which
po j	> suppose the tactory rituated at a doing dutance

thom the construction site and the vehicle have torenous a leongested trattic which heavy weighed elements the cost inside pretabnitation is pretented even through the same condition ane the eart insite pretabilitation is pretented only when number of bourginand more son email elements the conveyance crearier with mormal type lot ronny and tracters -Theretone we can adopt tactory (on) obt Alte pretabrication ton this type lot construction open system of pretabrication? Frenchore the resting entrema and buris-name 7 90 the fotal protabrication systems, the space tramers are casted as a single unit and enceted at the site the wan titting and other tixing are done on site. this type of construction is known as open system of pretabrication. Closed 14 stem of Pretabilitation ;- 9 anni country engraphed to partition of the trace 7 gn this eyetem the whole thing , are carted with trings and exerted on their position one Partial pretabrication' of construction the building element (mostly horizonal) required are precase and then e nected cince the costing of horizontal elements (noot) to objen take theme time vidue to encetion of them work the completion of the building is delayed and him this method is nettored and most of the building

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	sites this method is popular more son industrial
	building & Where the elements have longer & pang - Die
	of double teex, channel units, corred stable slebe.
	hyperboloid shall etc. are some ot the bortleontal
	elements.
	Modular a remainment of an infom
	> this method is esticient when the elements are readi
	available when the building reached the root level - The
4	delay caused due to Denniction of town work delay
1	due to removal eliminated completely in this method
	of construction suitable for any type of building provides
	litting and exection equipmente are available
	and the second and a company of the people o
	Total Pretabrication Mais so sand some to
	to the description of the description of the second of the
	> very high speed can be achieved by using this method
_	Of construction. The Method can be employed for trame
_	type of construction on ton panel type of on the total
	extraction Pretabrication can be on site on off site.
	The choice of these two methods of epends on the
+	situations when the tactory produced elements are
	transported and enected site we call it tott site
	Pretabrication - of this method is adopted then we have
_	a very good transportation of the Product x to site.
	of the elements are cost near the building site and
	enerted, the transportation of elements can be eliminated
	but we have consider the space availability for
	establish such tacilltles through it co temporary the
	choice at the method of construction also ofepended on the
	torioning;
	TOTAL OF FLORE LON-BED'S PASSESSED TO SERVER FOR
	1. Type of equipment available box exection and transpo

	Date / /
1 1121	2. Type of structural scheme (linear elements on
11.1.	B. Type of connections between elements / runel
_	4. special equipment devised for special method
_	Construction: serve in loss that belef nittle
-	2 to 5 to
T minus	Modular co-ordination;
-	- Annual relies of the relies
	5 Modular (co-ordination lier a concept fortal non
	co-ordinating olimentions and space for which building
look-tug	Module 1 m which is equal to soom me cx
	internationally accepted by the international
1.0	standard of longanization (Iso). The introduction
Tall .	of me in building tacilitate proper planning
0	design construction and assembly of building
	components. The principle Objective of implementation
orana)	of me ix to improve productivity more tresibility
1010	in design and constituction Cactivities.
	one of the state o
<u>                                     </u>	Modular co-adination (and) :- 18 40 sound and
931.7	A COLUMN TO THE PARTY OF THE PA
40	Structural grid;
OVINE	The seal continue would be a survey of
+0114	The standard with a con time and standard with the
Pro Pro	Planning grid - the contratement to be against
ROPALOID	and is luced ton locating the space tan building
- 11	components like rooms
101	a fine of the state of the stat
319 11 11 12	controusing waig;
-	2) of Co Color of the color of the color of the
DI I	po-ordinated grid to areg

P

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- 11	building components and the gride can be available in
11	Flor and and pentical planes.
	The grids are generated by measurement in modules.
	Dimeneronal anistima
	> modular co-andinated grid network detinex the
- 11	space available for placing the components. An importan
	bactor is that the component must always undersize
	to grid size ton providing space ton joint space.
	manufacture of length of unit I nominal length 11 12 inch
	grid size would be 12 inch because of units were
	designed to be placed with 1/2 inch joints.
	on a probability matter manual appointing of
0.11	> 90 modular co-ordination eystem, in place of geometric
	renious, a dittement rystem of presence of dimensions is
	used ton langen dimensions it is merrented in
an ter	modular like 1 m = 0.1 m, tor imaller dimensions sub
711147	+ 2 solivort san agricia so as throng
~	Advantages et modular co-ordination?
Alle	1. Facilitate co-operation between building designent manufag
V	4 madens contractors.
	2. Improves treedom (1) ofeeign and permits theibility
bin	3 concourages the Poesibility of interchanging the
00 6	components and all sold and a series of the
blival	4. Scorplitics Positioning and Placing tot components.
1 -11	5. Engurez dimensional conordination between componer
7	with the rest of the building -
	6 9+ (a possible to get water maximum reconomy
LANCIEL I	in the production of components.
	Reduces the need ton making ispecial sizes.
100	8. 20 cueases the vampour of Ochoiced not cambonents

X.		
5		Page No. / 35
4		Date /
	10 10	because of contenchangeability is
		9. Improvex quality and productivery of all
_	-	CONTRACTOR
-		To. Martage to broghester and the tare to
	3	10. Wastage on Production and time taken ton
		11. at peres to achieve is reduced 130000
-	Part and	11. 97 help's to achieve the responsibility on 6
-	and a M	The building we willing the ment over grant
-		Francisco of the force of the same
	ita	Earth barren regestant pronstruction
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		regardines and index the same of the same of
-	7	Buildings having simple mountain a
-	No. and and	SI STONE CIPCI MAGON
-	1.1 Dies	
-	1.15	as building control
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-	-	> The contiguention of building relan and country
-		> the contiguention of building (plan and Elevation
-		The some continues to
	NO. 12	be based on hard and should general
-	0	
-		The Member of Transport
-	-	be annange show that the territory
110	-	be annange show that the torrional detormation
-		be apprenically simple and designed the hourseling whole
	Intersoral	be appromically simple and afetinite the brame
_		of building structure enough have adequate
	# 11	draterity is addition to addit
-	4	the building shaped live
	. 4	
-	( ta saaq	in both man and elevation is in the month
		TO OPERONA
	S 11	

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	Stronger than one that is U-shaped exi-Abuciding
14	in some nearting to members of the building.
عد	Latera Lad Resisting structure 3—
	is to reject the lateral load nestating eystem.
	> The load resisting system must be relosed toops
	so that it is able to transter all borces acting either vertically on hunisontally on ground.
	Textering eystem such as trame to the terral
Ç.	(2) Bearing Wall Bystem.  (3) Dual Bystem.
	Building characteristics in earthquake registant
	be made in a fantiquake nexistant fexigo of
	> Canthouaxe causes (mpulsive ground) motion which are complex and innegular in character changing in period and amplitude each lasting ton
ja ja	a small ofunction theretone resonance lot the

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1)	built of puch amplitude.
45 vanua izme	> Earthquake is not likely to occur symatteneous With wind on maximum I tood on maximum Sea wave.
#7.211ka	> The value of elastic modulus of material  Nhenever required may be taken as for
,	Value le available ton une detinite
	The tond of the deplacement of the force of the force
	> A building that lacks usymmetry and has
	Resisting element is a called innegular.
	of tonce trow and these concentration
	of element May caused a large road stittness
luing i	coanse. the innegularities may be chaesitied as:- (a) Honizontal innegularities on plan (contigunation Problem)
dot	(1) Penticaloviaregularities completes de la complete de la comple
alto to	Honizontal (megularitles - m) home as more de
pp 197.19	A SA CONTRACTOR OF THE CASE OF THE PARTY AND ASSOCIATION OF THE PARTY AND

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	Geometry and Mass which results in largular distribution
	ob boncel and ofetonmotion over the beight of buildin
	they are also known as Plan contiguration problem.
	and they are tollows :-
_	5 They
	(i) Tontion innequanities :- Tontion unequian
	ce considered when the troom diphanged are
	rigio in their own plan in relation Uto
_	ventical etracetural element that resist the
_	lateral torce.
_	and the second s
	(ii) Niebangm ofigeontinisty
	The same of the property of and more than the season of
*	> Discontinuity in diphargm stittness load to plan
_	innegularity the diphangen una horizontal
_	resighant element that is treaponeible ton
_	transtoring torces beto Ventical resistance
-	elemente.
	(iv) 0 000
1	(m) Re entrand comper 3-
	Some of Parameter of the State of the superior
	> The reentrant on inword cutting corners is a
_	common innequarity in overall building
	contiguration that on plant assume the Ishape
	of Litt on combination of there shapes
	resulting lack of tensile capacity and tonce
	concen gration, moments and a modern
	The graph solver of die 1 . 21 h
	The reenfrant conner of the buildings are rebjecte
	they dend to Problem the tractice that
	and hence dittenential motions been dittenential
	Service differential motions periodistante

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building statetunal system length of the wars wing e I show and shought and they are beight and they are height oferth matio.  (D) Projection —  All Projections (ventical and horizontal) are most volumenable to damage during continuous and particular at their danction with the marks statement there is handly any ductuity at their danction with the marks statement and the marks statement and mexisting element and not parallel systems;  The name orthogonal rais of the training will tend to be mone treatible than the widen of toution ones which increases the transfer of toution in the darign of such type of bailding special cane most toution.		Country
concentration at the nodeh of the recentral compons  The second Problem is tortion the magnitude of the included torces depended upon mass of the building structural system length of the wings of the projection?  Described are basically confirment them is handly any questified at their Tuncture with make structure and their structure of the manual structure of the manual structure and structure are structure and the manual structure and properties of the winds of the manual structure and projection of the manual structure and the measure orthogonal axis of the training will then the name of the mone training about the wide of the mone training axis the training axis that the name of the mone training axis the training axis the total of the mone which increases the temperal of touchand a the money of touchand appears the temperal of touchand appears the touchand appears the touchand appears the touchand appears the touchand the action of touchand appears the		Date / /
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Ot the induced torces depends upon mass at the building stauctural system length of the Mings I they are beight and they are beight of they are basically cantinuous their is handly any quethity at their Tunction With the make stauture was formed the Make stauture was formed the Measure outhornal care to the vertical load mexisting elements are not parallel systems?  The narrower portion of the building will tend to be more tealble than the wider to be more tealble than the wider of toation, in the design of such the required of toation, in the design of tealback to taken to required the extract to toation.		
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(C) Des Panallel Systems -  The narrower portional axis. Of the building ration of teacher of the building ration with tend to the more than the modern to the medical tend of the modern of the modern of the medical and the tendency of the building special can make the taken to medical and the estimal to to medical and the estimation and the estimatio	3/4	height depth bration interpreter inter
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the make structure transform with  (E) Ros Panallel systems:  The narrower Pontion of the building will  tend to be Mone teather than them  Widen once which increases they tendency  of toution, in the design of such type  Treduced the affect of touther	ania o	as they are basically confirmens thend is handly
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The narrower Portion of the building will  tend to be Mone thereber than the  Widen once which increases the tendency  of toution, in the design of such type  Of building special cane must be taken to  reduced the effect of toution.		One not parallel on the load merceting elements
The narrower portion of the building will  tend to be Mone therebe than the wilding will  widen once which increases the tendency  of toution, in the design of such type  of building special care must be taken to  reduced the effect of toution.	2 (2	Medicine Otthogonal agie of the
The nannower pontion of the building will  tend to be Mone treather than the  Widen once which increases the tendency  of tontion, in the design of such type  Of building special care indet be taken to  reduced the effect of tontion.	10	TOO COLL DO I METON
tend to be Mone textible than the wilding will widen once which increases the tendency of toution, in the design of such type of building special cane must be taken to reduced the effect of toution.	agent	Land Harris Maria (1) 1) total a
widen once which increases the tendency of tention, in the design of such type of building special cane intest be taken to reduced the effect of tention.	2	The hanron/ent Pontion of the builty
of tontion, in the design of such type  of building special cane must be taken to  reduced the effect of tontion.	02 113	TROAT TO THE MIDIE TO THE TIME
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reduced in the esteet of toution,		ON TUICHOUN (II) THE OLDION AL
uniform to manual formation of the sale	bischeel	of battomy special care must be taus
DESTRUCTION TO SELECTION CONTROL OF THE CONTROL OF		TOP CENTER OF TOP TOP
Uranatile street grotten proposation of and when well	12.15 (0)	DIN TO STRUCTURE DESCRIPTION OF THE PROPERTY O
	Utan	with the de the differential modern bears of the
		V/2/11(2)(II)

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	Ventical innegalantites?
	> Retor to suddern change of strongth stittness geometry
	and mass which results in inregular distribution of borce
on or o	and determation over the height of building tollowing are
1	the ventical innequantities and commended
175 B. J. J.	3/2 (1) 300 - 100 (1/4 + 2/2) (1/2) V 100 (1/4 (1/4) (1/4) (1/4) (1/4) (1/4) (1/4)
1,-	Vertical discontinuities in 10ad path?
J	> one of the major course to structural damage in
	structures during throng parthquake is the disontinuities
711 400	on innegulariskes in the load path on load transfer
	it is of extrable that the structure should contain a
J. och	continences road path for transfer of the seismic
Lisano	tonces that develope due to acceptation of individual
0/1	element : together can restell in distresy or complete
1	collapse of the eyetem -theretone lan etructural or
	non - executural elements must be adequatetytical to the
	structural eyetem to act as a cent the load Path must
10	be complete and sufficiently strong . the sequence of general
norma to	road park must be complete and Use as tollows ;
110	of the second business of the second with the second second
A) 91	Earthquake borres ariginate in all elements of the building are
-	ideriversed through tructural connections to horizontal
At 1	odiaphagmani com rous o dillo maniferio
1100	THE THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PARTY OF THE P
	> The diaphragme distribute there torces to vertical resisting
	components such as columns thear walls trangs and
- 17/	other ventical determente in the structural eyotem which
galeste	custimatery their torress in to the boundarion
ba	The example of load path innequarity are descontinuous
	columns shear walls bracing , brames that arises is a
Salah	tacating box type eitachans with the northern

Take quianities in a frength and otithoese; of a weak on soft storey in a building contributes to insequiarily in either generally on stittness. A weak storely may be detired as one in the in which the stoness lateral strength ca less than 80%. of thet compress in the stoney above, where as a soft ston immediately above on less than 80% of the combined Stitteness Vot the three storey above ... Detrougable on some more properly and property of the Hene the storeys lateral strength as the total strength of all second nescoting elements shearing the store shear ton the direction under consideration is the Shear capacity of the column on the horizontal components of the axial capacity of the diagonals braces the desterency that usually make the storey weak is inadequate strength of Frame columns . thus the extential characteristic of a weak on robt stoney consust of a discontinuity of strength and stitute, which generally occurs at the second exoney connection of course this continuity caused by usen betweenth on increased tresibility on the staucture nexcests in -entreme dettections in U the tines stoney of the structure which in tann generally in contentration of forcex at the second shortey connections the result a concentration of inelegatic action in the annual conference of mall condition and object However the soft shorey concept has technical and Eunctional advantages over the conventional construction 1 First is the neduction in spectral acceleration and base shear due to increase or natural period of vibration of the structure as on a based isolated

V	Page No. / ya  Date / /
1/1	structure. But the advantage of this torce reduction
	is neuelitied by an increase in structural displacement
	and inter-stoney drist which is a threat to stability
	of the structure
-	A Carpodity a sallog Figure abagon An approximation is a
	2. Secondly a taller biret storey ix sometimes recessitated
	space for meeting room on a banking hall sue to
	this trunctional requirement, the tirest stoney has
1.1	user stitteress of columns as compared to stitteress
la constitución de la constituci	of upper floor tramer which a generally constructed
	-with majorately intace walls.
- (8)	The rest of the second to the second and the
Litra	> The failure of reinforced concrete buildings due to
wal.	306+ - Storreys have noinborreed the main ( nearon in
	part earthquake undoubtedly it is treeognized that this
	type of failure results from the combination of
70	sevenal other cotavourable reasons reuch as tension
2101	executive mass in appear \$10000. P- a effects and lack
	of ductivity, in the bottom thoney there tactory load to
65.	local stress concentration accomplished by large prastic
117.27	determation thenetone the rott stonege - ofesenve a special
7.5	consideration in analysus design and it is not always
-	necessary that and tires stoneys of the building are
mit.	soft stonely, it the column of the first stonery have been
(d)	designed on the basis of capacity of querinty
	Mars inneguianity;
	on a brook sike enimming pool. As pen Is 1893, mais
	transquitanities and considered in print Where the affective were

of any stoney on them is more their twice the effect of agjacent storey on those however NEHER 24 when the weight U exceeds 1 roy of that of adjacent floor/stoney / with att ant dol -> Here the effective many is the near many consists the dead weight of the floor prus the actual weight of the partiting and equipments. excess mass can read to increase in tateral inential to nedbered ductions of vertical road nearting element consensed tendenty towards contapse due to prosesse -) Innequanity of man ofertaibation in ventices and home Planes can nesures on innegurar nessoners and come dy namer. The chanacteristice swaying mode of a built during the pointhquake implies that masses placed in uppen stoney of the building produce considerably more un tavorable etterts than marrex placed lower down the centre of graveryot atenay tonces is shifted abo The base in the case of heavy masses in appear blooms resulting to large bending moments. Massin noots and healey plant rooms at high level thereton to be discounaged where even possible when mass innegwanturgs exhort , the vaterial tonce rescring relements to the checked wring a dynamic analysus a more registic lateral /100 of distribution of Planterania echi Ventical beamstor innequiarity -> All buildings with vertical offices fair in this caregories - Hiso a bading may have no apparent

Prof.	
	Page No. / US Date / /
7	oftset but its lateral road carrying elements may have
En 101	of the lateral tonce resisting systems in any stoney
ом пет Д	more than 1507 of that in an adjacente storey bon
	instance shear walk ringth may be suddenty neduced.
	niero When a building was ruch norger of mension above
002 314	and is underliable with the port of the small some
gading	There there at passenger than gothaute
0.00	The set back can also be to visualized as a vertical
1	The entrant conner the general solution of a set back
PUM	through reparation section so that the portion of the
	building are tree to vibrate independently when the
JO:	building is not reparated the lateral Utorce resisting
der såms	elements are checked intering a dynamic analysis
	aut of plane officet 32 ) is compared to be sold
	- This is a very senious innequianity where in there is
	an out of plane obtact of vertical element that caurie
00 WOMA	and lateral load ettects on honizontal elements which are
	difficult to design for adequatery in this case thear
	walls are not obvious.
- topley	Proximity et adjacent buildings: - 1
	-) pounding damage ix liking to be caused by mutual
	hitting of two buildings constructed in close
. bwi	proximily with each other pounding may never on
	reasonate desponse of adjacent buildings of different
7.11.17.11	sevenal examples of buildings tarune have been observed
	The state of the s

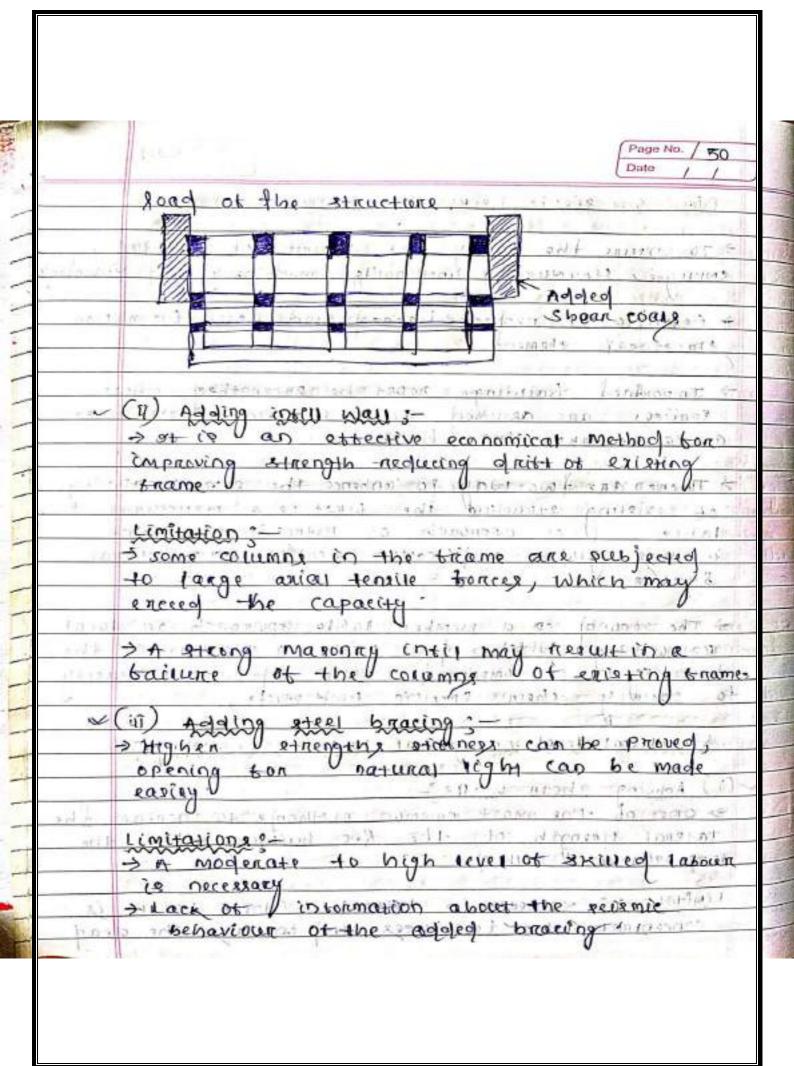
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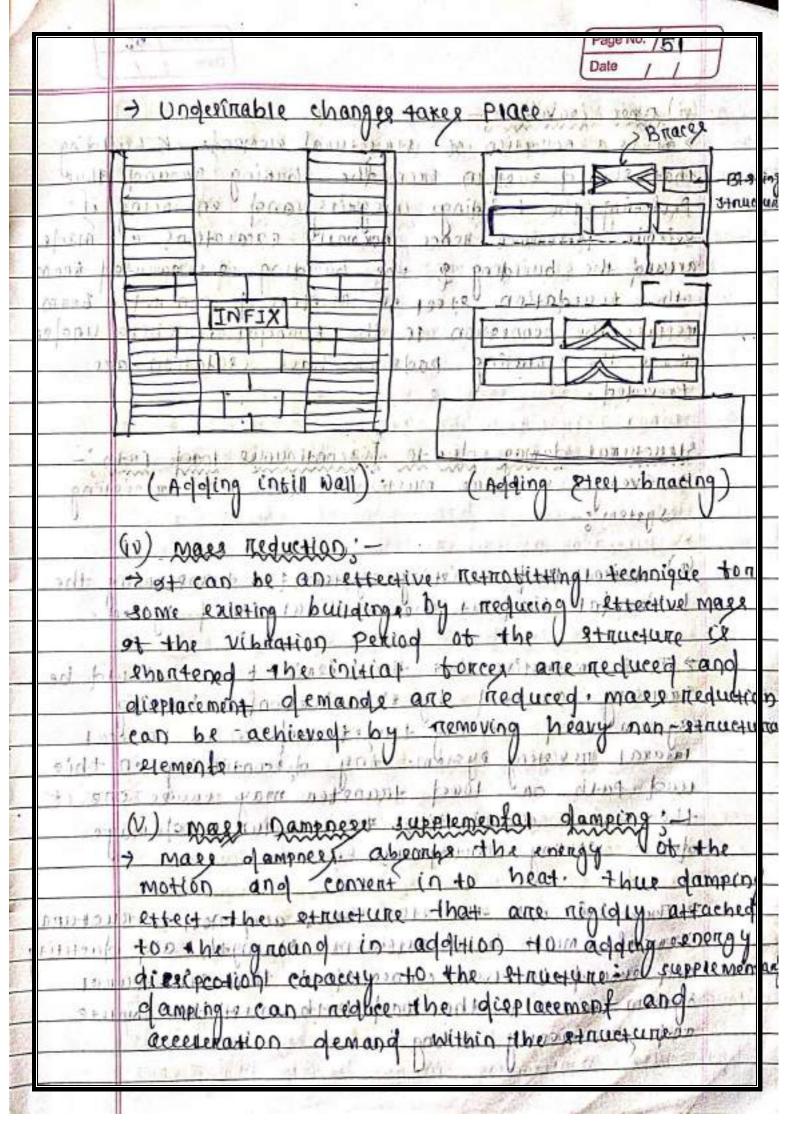
*	Date / /
d-	
torral	due to pounding during earthquaker 14 d 192 15
- College	Later which the war Visuality webs with which named
1192	This problem arises when buildings are built without
74-180	Separation right at to exopenty unix colorder to make
+ 5410	maximum ture of the space when U Hook of these building
1	are constructed at the same neight the damage due
1 11 11 11	case there may be two problems . Damage que to
	pounding can be minimized by drift control building
Lin	Separation and augnings broom in adjacent buildings.
Alari.	198 P 1- ADSPELL 2 1 MONTH WATER TO THE STATE OF THE STAT
11 (10)	Safery consideration during additional construction and
10 mm 7	attended of texisting buildings - 10777 de 1000
1	Hearth allamater-al about al ini and pointed the
2000	3 of sufficient precautions with respect to safety of
_ \	work aren't taken there are chances of serious accident
	involving heavy loss of men and materials fome of
-	the catety rules to be observed during the ensetted
12	process of thedictures are las tollings -
A 18 20	> All gage and anchorages thoug be closely views
	regularly so as to associate the stipping of
+ 100 6	ascentain their bearing capacity of roads.
	Contrato Para and California
7	> the chairs should not be dropped trom a height
1	but should be lowered graduary
	Applified and present as the trivial X I report a sparphorn to
5	-s suitable packing pieces must be provided at the
	required points so as to avoid the suppring of was
	All the do regulated Filmston do montain alling Out
The state of	- The equipments and ofevices employed in the eneces
Pavi	procedure should heven be over - waded innover

Fall of	Canada I ha
	Date / /
	The legs of brother chains should not be opened out to each as angle 20 as to endanger the Hability of the Work.
ý.	> The levers of panel points on the taux work should
	maintained as per desired comber ton truss to avoid strain and distortion during assembly
	The litting devices and mechanisms should be maintain in penteed munning onder so as to avoid their sudd
	The litting should be carried out smoothly without
	a sudden shocks and of the base of property of the party
	Adolitional trangthening measures in masoning building
7	dead was plus the percentage of imposed road.
. Corr	-> The propertions of imposed load indicating above to
	calculating the lateral design toures for Wearthquak
	-) Laterial design borress for earthquake shall not be calculated on contribution of impact effects from
	imposed loads . protected in the many section
	ordensed along outhogonal horizontal direction, the
r man for	full design earthquake 1000 (n the other direction.

No.	di mana	
1000		Date / /
. 1		-> When effect due to ventical continquake locale
	10	are to be considered the devigo ventical
-		tonce shall be calculated .
-		-) Other loads apart trom those given above
-		shall be considered as appropriate.
-		THE RESERVE TO THE PROPERTY OF STREET STREET
_	_ ch	apter-4
_	, , , , , , , , , , , , , , , , , , ,	Refrotiffing at Structures
-		Cambridge Santier Conce
-		65
-		7 of a the process of a second of the second
-	Elisali	on weaker to increasing nesistance of dame
-		on weak building by appropriate fechnique.
-	N.	Retnotiting Proots to be a better economyic consider
-	de de la constante	TO THE TO THE TO THE TOTAL OF
-	1,	that replacement of building
-	n in	COTE with Property OFC of Hintz annut assummenting of
-		-> 94 (8 the modification of said
-		The state of the s
-	\$11 1 1 1	
	E Sanothird	to ground motion on soil taleure due to
		earthquake the retrotiting fechnica are also
		applicable for other Datural bazard that k
-	-rel	tropical eyelone tornado and gievion wind brown
-		Theoder a storms as the wast of the periods of
-	1	Classification of molantinian
-	~	Classitication of refrotining fechniques
		CANAL
T		H Adding intill Wall. H mass reduction. H Tacketing of beaut.
	04 10/	+> Adding bearing . +> have capation . +> Tacketing of columns.
	the n	+ Adding wing way 1
	0,000	To The total fractions of the total for
	Section	

Page No. / L/9 Date / /
Meed ton gennie Metrotitung?
> To ensure the easily and signify of a building,
emproyee structure tunctionality, machinery and inven
> Essential to reclice hazard and losser trom non
stauctural element
> Important buildings Most be strengthed Whose
services are assumed to be essential tust atten
an earthquake like hospitalio and of the
Emperor of the party of according to the party of the par
> There are two way to enhance the seismic capacity
of existing structure the birst is a structural
lable of approach of netrositting which
involves global modification to the structural
System. 1 de constituent de la
-> The second is a member lable approach on loca
retrotiting which deals with an increase not the
- ductility ( ot) component with adequate (capacity
to satisty their specitic limit state
- pointed table college (in)
Structural level on global level netnotition;
Ci) had an place where the contract
 > one of the most common methods to increase fi
tateral strength of the R.c buildings - it is the
1084 SCMPLE Method) . April of the some
TOTAL STATE OF STATE
Linetations = socrease in lateral resestance but it is
conceptuated at a few places and incheases the dead

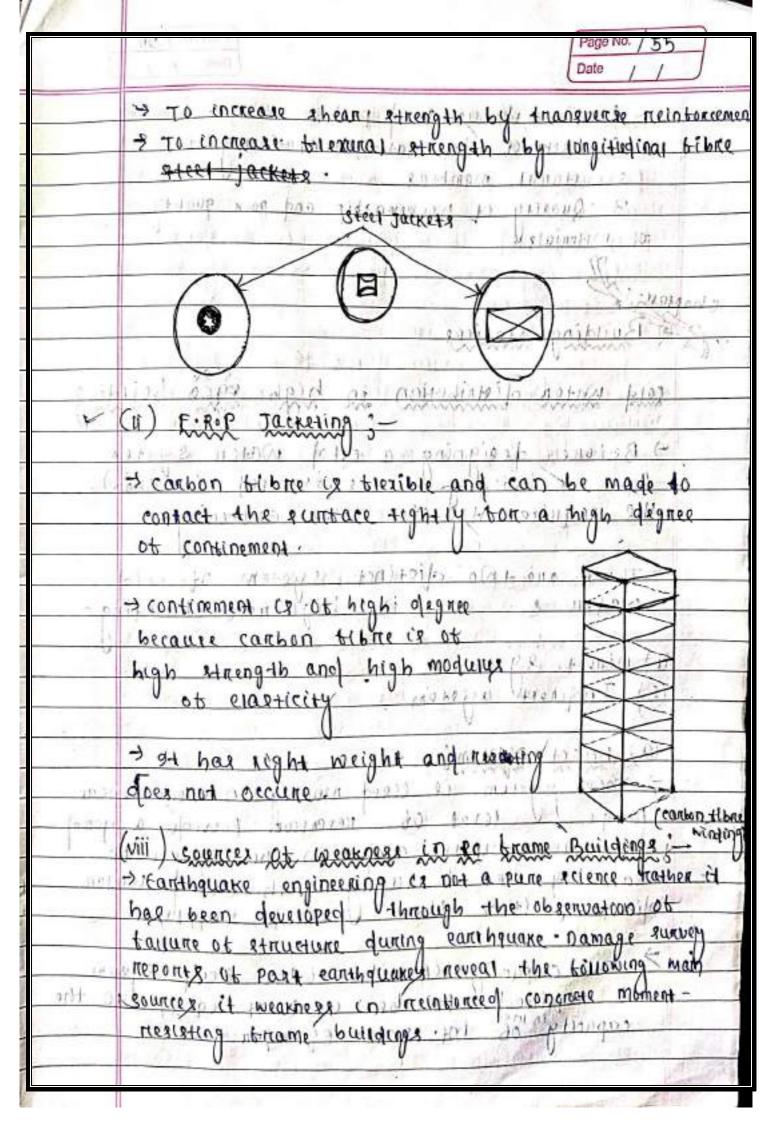


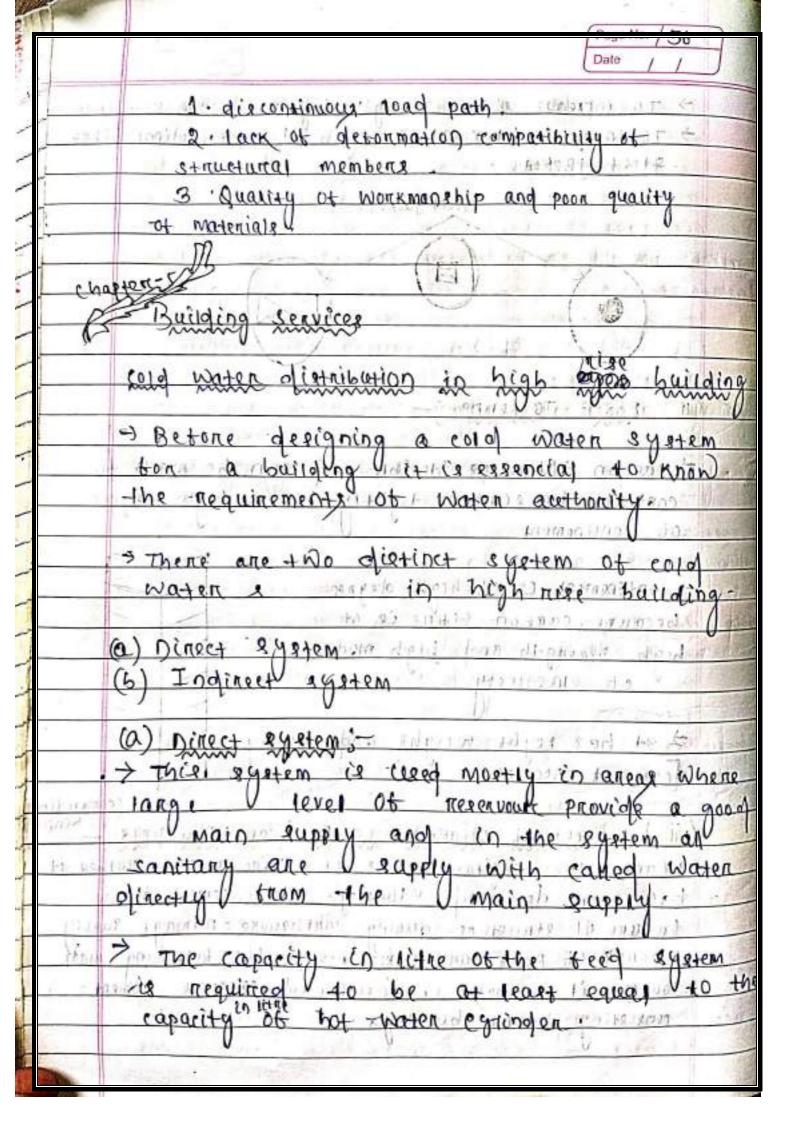


TAM!		
		Date , ,
1		
-		(vi) Base isolation? - west approvale atelonization (-)
_	1	> of is a collection of structural elements. of building
-	Lange College	that should quetain trom the shaking ground the
-		Protecting the buildings integrity and enhancing is
-		erismie pertomance Hence normally excavations are had
-		around the building & the building is separated the
_		replace the connection to the boundation while und
-		these the isolating pads on base isolation are
	4	Provided.
		The state of the s
		Structural damage due to discontinuous 1000 path;
-		> Every structure must have find 1000 mesisting
		agatem -
		(by) mages Reducation
	0.12	(a) vertical load registing eystem for transtenning the
	32 Ar	horizontal load at the vertical load system.
-	2.5	entering to the to british military of the to
_		> It is impenative that the seconic Konces should be
		Property collected by the horizonfal traming
-	20.01.00	system and property transferred in to vertica
-		lateral resisting system. Any discontinuity in this
-		road parts on road transter may eaute one of
-		the major contributions to structural plamage
	100	tolucing 3thong continguates in the continue
_	10100	> Theretore , all the structural and non - structu
-	- bida	elements must have sufficient strength and of eti
	97 1/31	and should be well connected to the structures
-	MIND OF A PR	system somethat the load path must be complete
-		and sutticiently watrong business and without the
		and Course
	The same of the sa	

10	
	Date / /
i i	(i) structural damage due to lack of deformetion:
	> the main Problems I in the structural members of
10	moment registing trame building are the timited amou
	of quetility and the readility to readistribute load
	in order of to rately with stand the detormation
161 0	in imposed buponing to the exponent to a seconic docts.
	menine from a being one Suppoids titanton
	-> The regions of tallure may be in collemns bean
	walls and beam column joins.
	to be described by the property of the propert
100	> It is important to consider the consequinces of
0	member tailune ot structura pentomance site
	The same of the sa
	> In adequate strength and ductivity of the structu
L.	member can and will result in lotal or complete
d	tailure of the Ry Rtemmen Small Characal 1 15
	the active to obey, while the fast white the property
1110	Quality of workmanship & materials;
	the stee whereas is not not not be well and an an annual street and
	-> there are numerous in stances where tauty construction
3	properious and lack of quality control have
ton	containused to damage
1 0	118 and the real of the part of a long the state of the s
Vi.	> T - LOUISIU CONSTRUCTION PRACTICES MAY be like lack
3	At another wand and a detaining of reintonement as per
	requirement of loge particletarily when the end of
	daterate reintorcement is not bent by 135 defree
	as the code specities
	THE RESERVE AS A SECOND OF THE RESERVE AS A SECO
	I many buildings have been damaged due to poor qualit
n,	at all along a malerials litreball at
	Sparling of concrete by the connocion of amberided

-	Construction of the constr
	Date / /
20	neintoning bank, ponous concrete, aget of
30	CONCRETE PROPOR Maintenance etc.
erchar.	soften to the one on butter's appear to policy to the country to
nt out	2 Lan or wember weed Retrotiting?
1	> Local netnotittings and typicarry used eithen whe
	netnotit objectives are ilmited on dinert treatmen
14795	of the vuinerables components is needed . It components
	-> The most populars, trequently used method in
-19	10 cal netrobitting to jacketing on continements by
	the jackets of R.C. steel; tibre; neintoned
	polymen (FRP), carbon bebre etc.
ogomisi.	The interior of cond the party of the state of the
55219	-> Jacketing around the existing membery increase
	its lateral load capacity of the structure in a
	unitormy distributed I way with a Minimal
	increase in mading on any single toundations of
	no alternative in the balic geometry of the
CHOLOR	rbailding + and in contract the the mount of the
	Topucation and tack of quality certain
	(ii) jacketing; - Jacketing is the most popularay week
18	Materiage ton strengthening of building conlimns
-	Thereseased common of the season of the seas
4 09 La	Jackets bibne neintonced polymen composite jacket
	Jacket with high dension materials like carbon
743 (7)	bibae, glass tibre etcontinen store the cares
	Same of the state
eriane.	Purpose - + To renense " concrete Gonainement by.
9	transvense Bebrouf reintoncement respecially ton cincula
V 0	LEUNS - Lectionalis columns : comme - of the
6	





T in	
	Page No. / 57 Date / /
-0	The Water tragulation required a existent of  114 litre minimum capacity and it thereton small  enough to be accomposated in the top of an  ain corphond, thus saving plugging of the  guetern and pipe work.  Fore etercient operation a high proposane water  supply is essential penticularly at a peniod  of peak of mand  In painted systems.
250	The system all the sanitary teittings accept of allowing water of news of at a sing and boutains are supplied indirectly know a cold water storage system.  The system supplies cold water to both basing shower excessions teed the bot water cylinder whose capacity in little will be approximately
#101	double that of required ton the direct  System.  The water regulation required to system of  Approximately and thereto  it will be accomposed in the most is pace.
	appliances and basin showen, both and water beed trom a stonage tank.
8	+ main water ton drinking is available at the kitchen top only this can also supply

	Page No. /58 Date / /
Vel	Washing machine gandening taperning out 6
~	Hat water supply in building;
	a) regular is peningen is nother tot to
21/16/11/	uteneils etc. o mornol 10 tops to 2107 to
Do India	Highen temprature melity oir trom poto
	and Pane make the cleaning work earier.
+	bathing with hot water opens booky poince
(c	in windlow
	> The requirement of hot water is very mu
- des	essential in onder meat the requirement of
nojonin Sp.	installed in acropance with the nequinement
	Of Particular + building of the part sides
do	11 No. Type of building my daily not water demand
est on or	a) - With shower and Tape 10 90 45/11 15
	(b) WHY barb + Lub 135
	(a) with ashower organ your gornough
1	(6) WELL tape only o mond 30-45+
20	11-3. Hespital creaning of station. 180
A COLUMN	

	(Francisco Lance)
	Date / /
2/	(b) statt of octor and nurses 1 290 state (d)
1	(c) & visitores 10 10 months
	4. O SHIFT MALES OF ORNAR SHIP OF OUR BE CARROLLED
	(a) office, school, college 145
	(b) Hostels mai no 101111 135 1 199 1119 (-)
lite:	A Land of your targeting of Empel white parties as De-
t	5. Loundnigs. 20 pen Kg of Laundnies.
-	(4D) 800.
	Las I had nother than the sase
	Soil and waste water instantion in high wise
	The year conding the group war as a surrey and a state of the
2/3	-> A lot of soil and Waste Water is produced
	dealy a top of Water 15 howen 11 dish washer,
	washing machine letc.
	V CONTROL CONTROL CONTROL OF THE CON
	-> It all has to be trained trom the buildings
	and transported to the sewage.
94	his takened and well and indications to mortalize and the
	-> There are various materials which are to be
	used in the soil and waste water in Hallati
	in high rise building min den (1)
_	THE PHINE I GET I SHEET TO VOYAGED STATE STATE OF
-	Material Application.
	(1) cast Inon - 50 mm & above, vent & diechange stage
-	(3) coppen - waste pipe & traps
1.8	(4) Lead - Watte pipe & discharge stage
	(5) Prancized pro- up to somm, waste & vent pipe.
	The second of the second perfect
D.A	Vestilation ?- 1 government of market of its of
165.	was a little it amp to offer order or many of the little
	CONTRACT OF THE PARTY OF THE PA

	Date / /
= 	torm a room is known as ventiletion
Ī	-> proper ventuation in a building region (1)
4-	condition of seath etticiency and Usyzenia
_	Necessity at ventilation?
4-	To c neare ain movement.
lang	Moistans accumulation of carbon dioxide and
636	Napour. and object and concentration of gas
- V	Sprem of yeatherien 1 - 1 of and up ft (
4. 901 9	the system of ventilation may be devided in two
Pipallalia i	(1) Natural (2002) 1108 (1) has in
	(1) Natural ventilation
on he	(1) Natural vertication 1-103
1	Small houses and not rultable ton by houses
9919	ate town many of persons ( and torium
	the actentitic location of door mindow vontilater

ALKANA"

	Date / /
lare	and other openings with everyone hope of side
	The rate of ventilation by natural means through
	trumbly stack effect famound invandered
1	(a) Wind ettech in the and Indication
2 (* d)	-) ventilation by wind extect (a attented by the direction and velocity of outside wind size and positions of opening , and pressure ditterence.
	-> when it blows against a building cause a tre  Pressure wind ward ride over the lower ward  side this pressure ditterere causes the wind
	it proper openings are provided.
	(b) Stack estect; - 1 was seen of the stand (D)
	cool and heavy air inside the building is
	This ain becomes hos, after romo times and
1	This litted air ce encaped through ventilators.
	mand repening & color (no (no m)
78 182	Fresh ain again compain the building and gets litted up by heating and again escape through openings provided.

This effect cause blowlot wind in upward direction and is known as stack extect.  (B) Mechanical on autiticial ventilation.  This system of ventilation in kinch some mechanical annangement and made to provide adequate ventilation in the room is known as the machanical on autiticial ventilation.  The mechanical ventilation is preminent because it provides better compent than notical condition.  The mechanical ventilation is preminent because it provides better compent than notical condition.  The mechanical ventilation is preminent because it provides better compent system.  (a) Estracted on exhaust system.  (b) Suppry & phenom system.  (c) sauminent system.  (d) An conditioning system.  (d) An conditioning system.  (d) An conditioning system.  (d) An conditioning system.  (e) Provides inside the room being and the outlest.  (e) The pressure inside the moom being and the outlest.  (f) The pressure inside the moom being and the outlest.  (he doon, window) and every available openings.  (d) This system is used too extracted smoke colour duri the troop with the plant extraction industrial plant extraction	341	(Paralle )
(3) Mechanical on antiticial ventilation?  This system of ventilation in this some mechanical anangement and made to provide adequate ventilation in the noom is known a mechanical on antiticial ventilation.  The mechanical ventilation is pne mineral because it provides betten compend than matural condition.  The mechanical ventilation is pne mineral because it provides betten compend than matural condition.  The mechanical ventilation is premiment because it provides betten compend than matural condition.  The condition of phenometry system.  (a) Extracted on exhaust system.  (b) Supply & phenometry system.  (c) har conditioning system.  (d) An conditioning system.  (d) An inconditioning system.  (e) An this system the pantial vaccione is developed inside the noom by extracting and the outlet.  The pressure inside the noom being town the tresh air tram outside ferral theory.  The pressure inside the noom being town the tresh air tram outside ferral theory.  The pressure inside the read system is smoke, or and duri the tresh air tram outside ferral theory.  This system is used too extracting smoke, or and duri the troop with the industry.	4	
(3) Mechanical on antiticial ventilation?  This system of ventilation in this some mechanical anangement and made to provide adequate ventilation in the noom is known a mechanical on antiticial ventilation.  The mechanical ventilation is pne mineral because it provides betten compend than matural condition.  The mechanical ventilation is pne mineral because it provides betten compend than matural condition.  The mechanical ventilation is premiment because it provides betten compend than matural condition.  The condition of phenometry system.  (a) Extracted on exhaust system.  (b) Supply & phenometry system.  (c) har conditioning system.  (d) An conditioning system.  (d) An inconditioning system.  (e) An this system the pantial vaccione is developed inside the noom by extracting and the outlet.  The pressure inside the noom being town the tresh air tram outside ferral theory.  The pressure inside the noom being town the tresh air tram outside ferral theory.  The pressure inside the read system is smoke, or and duri the tresh air tram outside ferral theory.  This system is used too extracting smoke, or and duri the troop with the industry.	=	-> This ettect cause trouble minding
(B) Mechanical on antiticial ventilation?  This system of ventilation in histor some mechanical annangement and made to provide adequate ventilation in the noom is known as mechanical on antiticial ventilation is prominent because it provides better compent than matural condition.  The mechanical ventilation is prominent because it provides better compent than matural condition.  The mechanical ventilation is green mineral because it provides better compent than matural condition.  The condition of the normal system is a extracted on exhaust system is a extracted on exhaust system.  (a) Extracted on exhaust system is an exhaust system in the system is exhaust system in the partial variation and the outlet in this system the partial variation and the outlet in the partial variation and the outlet in the partial variation and the outlet in the partial variation of the tresh air trains outside tends theory.  The pressure inside the noom being town the tresh air trains outside tends theory.  This system is used too extracted smoke, or and dust the tresh air trains industrial plant etc.	Ť	direction and is known as stack elect
This system of ventilation in which some mechanical annuagement and made to provide adequate ventilation in the moom is known a mechanical on antiticial ventilation is pre-minent because it provides bettern compared than matural condition.  The mechanical ventilation is pre-minent because it provides bettern compared than matural condition.  The mechanical ventilation is pre-minent because it provides bettern compared than matural condition.  The provides bettern compared than matural condition.  The canacted on exhaust system.  Condition system system.  Condition system the partical varecement of the room by extracting and developed inside the room by extracting and the outlet.  The pressure inside the room being tond themsylves the tresh air train outside tends themsylves the tresh air train outside tends themsylves available opening.  The pressure inside the room being some colour the tresh air train outside the room being some the tresh air train outside tends themsylves available opening.  This system is used too extracting smoke, adams duri the tresh air train outside industrial plant etc.		I Course toughter a great the individual to the transfer of
This system of ventilation in history some  mechanical annangement and made to provide adequate ventilation in the moom is known as  mechanical on antiticial ventilation in known as  mechanical on antiticial ventilation in  The mechanical ventilation is premiment because it provides betten compent than notional  condition  The mechanical ventilation is premiment because it provides betten compent than notional  condition  The conditioning system  a) extracted on exhaust system  b) supply & phentum system  c) harandom system  c) harandom system  d) his conditioning system  developed inside the moom by extraction  contaminated ain thining tan brown and  the outlet  The pressure inside the noom being some  the door, winder and every available openings  the door, winder and every available openings  dust etc. thorn existency industrial plant etc.	T	(B) Mechanical on antiticial exensitation?
mechanical annangement and mode to provide adequate ventuation in the moom is known as mechanical on antiticial ventuation in the mechanical on antiticial ventuation in the mechanical better compared than matural condition.  The mechanical ventuation is preminent because it provides better compared than matural condition.  The mechanical ventuation is preminent because it provides better compared in an antiticial and it is a preminent in a system.  The pressure inside the moom by extraction and the outlet.  The pressure inside the moom being and the door, winder and every available openings the dust it is a system is used too extracting spenings.  This system is used too extracting smoke relative dust it to the moom with changes and every available openings.	Ī	man of same same same same same same same same
mechanical annangement and mode to provide adequate ventuation in the moom is known as mechanical on antiticial ventuation in the mechanical on antiticial ventuation in the mechanical better compared than matural condition.  The mechanical ventuation is preminent because it provides better compared than matural condition.  The mechanical ventuation is preminent because it provides better compared in an antiticial and it is a preminent in a system.  The pressure inside the moom by extraction and the outlet.  The pressure inside the moom being and the door, winder and every available openings the dust it is a system is used too extracting spenings.  This system is used too extracting smoke relative dust it to the moom with changes and every available openings.		- This system of ventilation in what some
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The mechanical ventilation is the minent because it provides better compared than matural condition  The mechanical ventilation is the minent because it provides better compared than matural condition  The mechanical ventilation is than matural because it is a provided in a conditioning system  (a) Extracted on exhaut system  (b) Supply & phentum system  (c) Air conditioning system  (d) Air conditioning system  (d) Air conditioning system  (e) Extracted on exhaust system;  (d) Air conditioning system  (e) Extracted on exhaust system;  (d) Air conditioning system  (e) Extracted on exhaust system;  (d) Air conditioning system  (e) Extracted on exhaust system;  (d) Air conditioning system  (e) Extracted on exhaust system;  (f) Air conditioning system  (h) Extracted on exhaust system;  (f) Air conditioning system  (g) Extracted on exhaust system;  (h) Extracted on exhaust system;  (h) Extracted on exhaust system;  (h) Extracted on exhaust system;  (e) Extracted on exhaust system;  (f) Air conditioning system  (g) Extracted on exhaust system;  (h) E		adedadde revisioner in the second to hande
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the mechanical ventilation as preminent because it provides betten compent than natural condition  -) 94 can be classified in to 4 categories as extracted on extract system.  (a) Extracted on extract system.  (b) Supply & phentum system.  (c) Balancino system.  (d) An conditioning system.  (d) An conditioning system.  (d) An endiabning system.  (e) An this system the partial vaccump de developed inside the room by extracting condaminated air thing tan blower and the outlet.  (f) The pressure inside the room being tond.  The trest air trom outside terral things the door, window and every available openings dust etc. trom kitchen sindustrial plant etc.	gdF	The state of the s
Condition  -> 94 can be classified an to 4 categories a  -> 94 can be classified an to 4 categories a  -> a) extracted on exhaust system  -> b) supply a phentum system  -> b) supply a phentum system  -> c) parametry system  -> d) Air conditioning system  -> d) Air conditioning system  -> d) Air conditioning system  -> developed inside the moom by extraction  -> contaminated air tixing tan blower and  -> the outlet  -> The pressure inside the moom being towl  -> the door; window and every available openings  -> This system is used too extracting smoke oclour  -> This system is used too extracting smoke oclour  -> This system is used too extracting smoke oclour  -> This system is used too extracting smoke oclour	luna a	-> The mechanical ventilation be reasoninged .
-> 94 can be claritized an to 4 categories a  a) extracted on exhaust system  c) supply & phentum system  d) Ain condisoning system  d) Ain condisoning system  developed inside the noom by extraction  contaminated ain string tan brown and  the outlet  The pressure inside the moom being some  the door, window and every available openings  the door, window and every available openings  This system is used too extracting smoke oclour  dust etc. thom kitchen; industrial plant etc.	1	The provider the trotmes metted rebivered
-7 94 can be clarritized an to 4 categories and a cremated on exhaust system of company of phenium system of continuous system of continuous system of continuous system.  (a) Extracted on exhaust system;  (a) Extracted on exhaust system;  (b) Ain condisoning system.  (c) Ain condisoning system.  (d) Extracted on exhaust system;  (e) Extracted o		condition continue and that the
-7 94 can be classified in to 4 categories a a extracted on extraut system  6 Supply & phentum system  C randomna system  C) An condisoning system  (d) An condisoning system  (a) Extracted on exhaust system;  -1 on this system the particul vaccume as developed inside the room by extraction and the outlet  The pressure inside the room being town the outlet  The pressure inside the room being though the outlet  The pressure inside the room outside terrals thanky he doom; window and every available openings  -> This system is used too extracting smoke; octour dust etc. troom kitchen; industrial plant etc.	1 0.04	
a) extracted on exhaust system.  C) sawnering system.  C) townering system.  C) Arn condisoning system.  C) Arn co		
C) salanding system  C) salanding system  (d) Ain condisoning system.  (a) Extracted on exhaust system  I an this system the partial vaccume it developed inside the room by extracting contaminated ain stixing tan blower and the outlet  The pressure inside the room being town the tresh air trom outside tends through the door, window and every available openings  This system is used too extracting smoke oclose dust the tresh air known industrial plant etc.	T- Bala	a) entracted or ontravel or attack
An condisoning system.  (a) Extracted on exhaust system;  I an this system the paintial vaccume its developed inside the moom by extraction contaminated air tixing tan brown and the outlet.  The pressure inside the moom being some the tresh air tram outside terral traby the door; window and every available openings.  This system is used too extracting smoke octour dust etc. tram kitchen; industrial plant etc.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6) Supply & phonem tecosom
An condidating system.  (a) Extracted on exhaust system;  I an this system the partial vaccume is developed inside the room by extraction.  Contaminated air straing tan brown and the outlet.  The pressure inside the room being town.  The pressure inside the room being town.  The tresh air trom outside terral through the door; window and every available openings.  This system is used too extracting smoke oclose dust etc. trom kitchen; industrial plant etc.	T- V-	C) Balandrag dy stem
a) Extracted on exhaust shetem;  I on this system the partial vaceceme de developed inside the room by extracting contaminated air tixing tan browen and the outlet.  The pressure inside the room being town.  The tresh air trom outside terral through the door, winder and every available openings.  This system is used too extracting smoke oclour dust etc. trom kitchen; industrial plant etc.		
a) Extracted on exhaust system;  I an this system the partial vaccume it the developed inside the room by extraction contaminated air tixing tan brown and the outlet.  The pressure inside the room being town the tresh air trom outside terral theory has a door, window and every available openings.  This system is used too extracting smoke, oclouded and every industrial plant etc.	Ť	YEN BURNES
The pressure inside the room being town the tresh air trom outside terral what the about the door, window and every available openings.  This system is used too extracting smoke, adous dust etc. trom kitchen; industrial plant etc.	1	
developed inside the noom by extracting  contaminated air string tan brower and  the outlet  The pressure inside the room being town  The tresh air tram outside terral through  the door; window and every available openings  This system is used too extracting smake, octour  dust etc. tram kitchen; industrial plant etc.	£.	-1 on this system the partial vaccume it
The pressure inside the room being town the tresh air trom outside terral theory the door, window and every available openings.  This system is used too extracting smake, oclour dust etc. trom kitchen; industrial plant etc.	T .	
The pressure inside the room being town  The tresh air trom outside terral thabush  the door, window and every available openings  This system is used too extracting smoke oclour  dust etc. trom kitchen; industrial plant etc.	1	contaminated air Itizing tan brown and
The pressure inside the room being sow the tresh air trom outside terral theory has doon, window and every available openings.  This system is used too extracting smoke oclous dust etc. trom kitchen; industrial plant etc.	T has	
The door, window and every available openings.  This system is used too extracting smoke, octour dust etc. trom kitchen, industrial plant etc.		
The door, window and every available openings.  This system is used too extracting smoke, octour dust etc. trom kitchen, industrial plant etc.		
the door, window) and every available openings  This system is used for extracting smoke, octour dust etc. from kitchen; industrial plant etc.	17080	
-> This system is used for extracting smoke, octour dust etc. trom kitchen; industrial plant etc.		
quet etc. brom kitchen; industrial plant etc		
quet etc. brom kitchen; industrial plant etc	510	- This system is used for extracting smoke, octour
	A Paidric's	dust etc. U trom kitchen; industrial plant etc
	MATERIAL :	

	7
	Page No. / 63 Date / /
	(b) supply and planum a system of the
	-) This system is neverse of at enhaut system.
	- Fresh air is borced with the held of copyed
	take and blower in to the moom by iteels.)
	-) you this case the presquire inside the room is
	growing than the of muse benic Pressure.
	The experem to mainly used in tractories.
	1 1 Mr 12 Mr
19	(c) Balancing 3 Henry 3
	The system uses ton to supply and abstract  air.  -> The system uses ton to supply and abstract  -> of it enable tull control over air movement and  should be used where accurate pertomance co
_	note of air supply and ventually bean the
_	-) on most cases it is designable to extract only
Ti.	about 15% of the quantity of all supply -
	+ Recinemation of air is possible in this sym
	Air condisening abovem:
	-) The process of creating, controlling and maintaning
	CE KNOWN OX OUR CONDINGENTY OF inquity

	Date / /
	- This process consists of condistationing air
	with nespect to humidity temproture 1. hadania
10.21	content dust content and are movement to
falls	the comportable condition maintain there in
58 ta 1 1 3	toom server and the state heart want
140	and the most of the supplemental falling the second
	Mechanical Cervices?
- 11	In with the part manager of tadle 128 part of the post of
- 10	(a) Elevator ; A reage, car on plattory no
	on lower vertically in Permanent months
	(alla including V operating Mechanicia
	used to transport portion un material
1.14.4	is known as elevator.
[619]	The Good of not enter of the part of the p
lones t	There are three type of elevator
10.0	Tunest of (1) Handson:
	(2) cable litt elevator.
	(3) Preumetic elevator.
	Cal programme and the second of the second o
	(1) Hydrautic glexator;
	Marine Million 10 107
Pino	Hydrowice Model counses the elevator
1/2-	Olympia Street On Street and the second state
-	Drom below and is to modulated by
nation of the	hystratuic oil filling chamber
	(2) cable 17++ elavolon 2
Oran DE	Terraturi, -
1 Ven	
	residential and commencial model.
	/ mmenecal model.

	Page No. / 65 Date / /
	by the help of a pulli and cables.
	(3) Preumatic elevator in a seit supporting
	sta comply near on the existing ground bloom and donor require pre construction shart or machine room to operate
	Excalater/:
Si e	ton cannying people been bloode of a building.
Page 1	The of evice consist of a motor of niver chains of indivisual linked steps that waves oft on of own to hack allowing the treads to remain in horizontal.
0	There are many type of excalater with the moving stain case that we see in mohis and airports being the most common.
	The mann angle of constant inclination of an excavaten to the troon level is 300 with a standard Rise up to 18 mapon
44	Uses: - There are used to move pedestrial tratti

	Page No. / 66 Date / /
T-11V/	People at same of time
- 12.2 - 12.2	> They can be placed in same physical pare whome one stain care might be <
	Hearing;
-13 1.02   3 	insulated conductors are supported woods
ated w marketing menoral	The cleate have two haives, one existes and other is cap the cables are placed in the base and then the cap is blaced.
	by your Tong Screw. This wearing is
- 0.0 - (1.1) - (1	The second of the contract of the second of the
Ni dent	That rial can be receed.  Therefore on Provision ton inspection, model and expansion.

	Date / /
	> Relatively economical con required.
	) Appearence : Esmont good , not
	-) open system of wearing is required regular
	Cléaning Francis of Joseph State of Claude &
	Trighen possibility of Material injury
10.15	(TRS) Wearing (CTS / Topugh truthber sheather
9	in tough class number which are quite
esto	t terible = 1212 2 20 de 25 2 factoria. Orto 6
2	tized on the way.
64	> These cables are moleture and chemical Prook.
120	>TRS Wearing is sustable ton literion low
	· Voltage Vinteraliation
	1dvantages 3
Li n	> Easy constantion and durable
	and capting system of wearing gives of

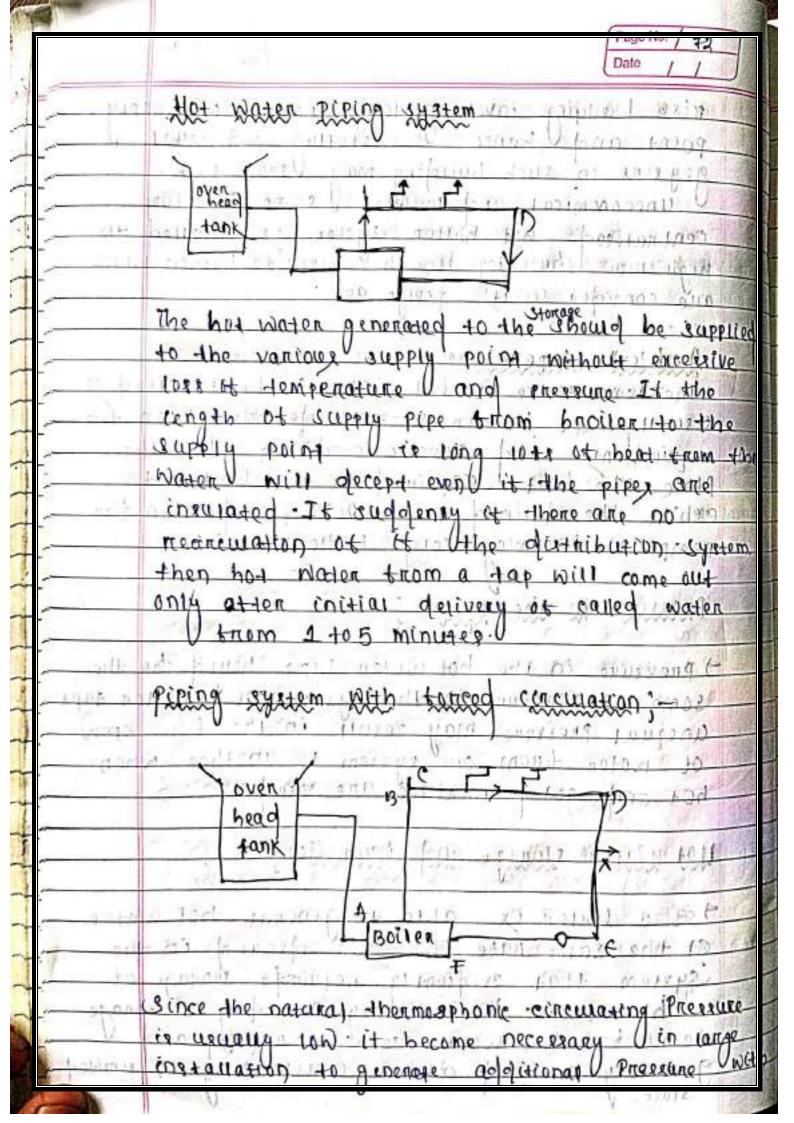
RITING THE	
	Date / Date
3 =	Disadvantage;
	3 Dangoneous for mechanical injury
1 2000	- Dangoreoux ton tine harande.
	-> should not exposed to direct santight
7	> metal ship weaking lead ship weaking
-suradi.	the wearing is similar to that of
Tool Lead Lead	insulated and covered with as scammon lead. allumingum:
T	→ the sheated is to come every section to
-isemal a	provide a path to ground for the legent
1 - (1)2	Advantages;
Ann I	1 - 1 - V form TILEOS SOL DELL
T- (a	-> Gasy installation. and asthetic in appearance
1	> condition.
	Disadvantages;
T-	ton chemical endustry.
-000	> caring and caring
No.	

	Page No. / 6q Date / /
	teak wood on the por pariole rectangular
	well who which bearing belows and good to
17	bavings same wielth and as that ob easing
	-) Both the casing and caping are skew together at every 15 cm
	Advantage of the first of the desire of
	Advantages ; nich er mand min bering is
11/52	Placed appart reducing river of short circuit.
	-> tas(14 encessible ton inspection and mepalins.
	The insulateon is place abtected, dust, of or and climatic variation.
	Disadvantage? - 13 marsh 2000 100 100 100 100 100 100 100 100 10
-	Highly intrameable use of conseasoned wood get damaged by termed.
	-> skin wonkmanship is nequined.
	-> con Conduit Wearing; - 1 multilitier
- 1	-> on this wearing pre cables are used pro pipes
	V

4	
	Date / /
- paleign	Providing good protection against mechanical injury and time trom short circuit.
	>. They are embeded inside the walls
1000	Known as conduct I wearing on tred on-
physic	the suntace called as I suntace epoquit
-	Wearing. It would some frames
	Advantager;
-	The risk of three and good protection
	againet mechanical injuny sportanuba
21135	- Farthing its sassured the read and return
	came tube
- vnina	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
ou telaja s	- Water Proofing it eary.
40 0	resp. harrotto and timbersone at
-	Diradvantage; - marional manie 600
	- veny enpensive system of wearing
- parCa	-) Required skilled workmanship misk of short eineuit under weight condition
	centralised tot water System
/c piper	> Individual gresen proved to be useful in Small installation such as house hostel etc. However a large installation in hotels, high
	U V

The state of the s

	Date / /
	rise building involving large number of supply
1	gegrere in such building may Prove to be.
	uneconomical and truble: I some. Theretone
	centralized but water system is installed in
	nigh rise building etc. the various bactor which
	ane consider in it design are.
1	The od purity tall it populated a report ting off
3	Ambient dempenature
	The temperature of hot water to be supplied is
	asually kept between 55-80°C depending upon the
1-	Place. The heat required in the boiler to
	achive the desired temp will depend upon the
	temp of incoming cold water
	LUL 1000 HIN 101 D nout notice tod nout
	Pressure in the System !-
	A THE PERSON OF THE PROPERTY OF
-	-) prieseure in the hot water laps should be the
	some as pressure in the system cold water tape
	unequal pressure may result in the back ston
	of woten trom one system to another when hot and cold mixture are used.
	not and cord mixiale are
	Hot water storage and perenation?
	Tot a boilen is able to generate but water
	at the same rate the Pick ofemand in the
	system that evidiently required a storage of
73	hot water- Howeverl by providing a storage
	tank ton not water can be reduced and
	generally avoided due to evailability of limited
	V



This helps in using necluce pipe size in a pants and of the legislation of general of the quick drop in the hot water.	110 N 0-
This helps in using necluce pipe size in a pants and of the volcataibution system to quick drop in the hot water.	110 N 0-
Pants and of the volcetion system to quick anop in the hot water.	or .
(Solan Daten Heaten :- * Houseld 480) 2 and h	
obtective and save to saile tuel on electricity  ane schace. solan water heaten have	y which
gained popularity in countries like Japan	14
> Iskile · Australia and DOA Where water	en heate
are required mortly	9 4
- the designes of solan water beaten	and
particularly the area of observer unition	lable
at the place of installation of the sola	<i>n</i>
heaten.	
A color water beaten is occupy unit of	100
a) A solar energy collector or connection	unit
(b) ctonggo tank	BAC I
Fuse; - Hand to the control former or hanner	- 6
Fuse is strip of metal meits when curre	ut
maximum number amperes than can carry	without
0	AL SECTION .

without melting trues allow a small over load cannony ton a vehone time. Purpose of tage ;- - million a saved sint -) It ture is a satety of evice used born the Purpose of projecting a icentuit against acces current. In the levent of excessive current the face elements morter and open up the cincuit their by protective it trom damage or and said ( ) took in grantal rabe & word to Types of twee; - street javan then minimates Following the the type of twee of horizon Rewinable type (up to 12004) THE PERM HOUSEPAR SUDI + The trese exement in this type of twe consist of a wine Which may be replaced when necessary these tuess and employing construction and the initial east of well as nenewer coet ce very low. cont - Ridge ture; -) cant nidge ture ane developed diradvantages of memerable buse due to high temp. englaping acitaloiro pur possu popularion detonates and inschupted the supply even when carrying normals current as cant I readed Velement are enclosed in ain tight chamber the detoriation does not take place plante cette actile a designan distribution com spen

- 1	
	Page No. / ₹5 Date / /
	3. Ferruse - centact cant - midge tweedig
	electronic circuit there are available in
	25,50,100,000,050, mampa and also in 1,2,5,6,10,
	16 and 32 Amp capacity it & body is made up
	+ wo metalica capes in many botween
	On in Vice-is a pige dispose of the publication
<i>e1</i>	4. Diazed screw type cast-ridge tures;
1	+ this type of ture is commonly used in domestic
	and industrial electrical installation in many
Pr	ivolit did bab artiri and be
1/	5. High - Rupturing capacity tuses;
	AT THE REAL PROPERTY OF THE PARTY OF THE PAR
2	- they are cylindrical in shape and are made
	up leconomic body fixed in with a chemicary
	the acting powdler on rilica to quench (
	The acting of the property of the state of t
estă.	Earthing 12 100 months anomy 120 months
	A Charles to South the Comment of th
	carthing is a process of creating and ulternative
0	current satety in to the ground in the Presence
	A C to a line and a li
hr go	ot milimal V resistance of order empergance.
	Uses of Earthing ]-
- 17	Prince 1- and all Virginia (100 marsh 100 mars
	- canthing is done ton pensonal and Equipment
/	protection purpose farthing provides the cobjucting

	Date / /
	The constraints and tactors include the following:
	(a) Specitic construction and operation  (b) job specitication require ments.
	(c) condition not the job site and solt sol
10	(t) Time allowed to do the jub.
19	(3) monthly acquirement of the equipment.
	> 4 teaxible solution to the equipment selection
15	to may requires a no of these tactors to be
∓n3	considered intert this wood he unusual construction it the charce made its dependent
	on only long tactor.
	Various lyres at earth Moving equipment:
J.V.A	(a) Excavator:
(-3)	they are mainly used to shove the dut and
atty	its long bucket and that is attached
() ( <del>)</del> () ()	The encavators are operated by an operator
	The Control of the Co

-	
	Date / /
and the latest	who is in the cab combas high visibility
	over the work area.
-	(b) 2000 - 100 000 000 000 000 000 000 000 00
_	(b) backboe lagofer :- milion (1)
-	The back hoe loeders are mounted on time
-	and are great ton use esub-unban pron
	The second secon
	The equipment have a shovel in 2.
- 1	That can be adjusted and a charge at at
	Tean that is use ton oligging
	and the state of t
ranta I w	> These locations is 7
	These loading are best choice ton email
	Jub That have to be completed in a
	Contined Space
-	The state of the s
Louisna	the back hop loaders hold to this
	Shovel menchere and position pipersin
	Place.
	(c) Bundazer in denna to east moved
	> Bundozen's are considered to be the heavy
	equipment available
	TO PROPERTY OF THE PARTY OF THE
obnet !	> They are your strong and the
hann 1	the best choice
	V I I I WILL I WILL I WAS INCOME.
in him	The state of the s
110 1300	gradeling of rocks taker p
10.24.7	the true buriers that the second
	- The bull dozen can easily be identitied
	with a huge brade at the knowl
The Santage of	which is controlled using hydrautic enter
	Control Col hard control Partie

	Date / /
	Skip steen Loadens - mid in 100 mos
	> The skid steen loaders can be used for money
	PLETEPOSES. it is an equipment that can be V
1	operated easily as it is an wheels and has
17)	a very tight by turning range skid steen
	waderel are a good option ton smaller sites
	they help tower woll compaction and work
	well in ditticult conditions such as mud
10	and whom. Also the skide steen loaders have
d	a lumited impact on tinished zones
	because bot their tread to yetem.
711	E DOD THE PERSON AND THE THE PROPERTY OF THE SECURITY OF THE
1	5. Treschere: - 1 1911 Bank - 2 1/12 141
1	-> Generally trenchers one used to dig trenches before
	the piper laid down + mange at trenchers are
	available encluding small sized trenchers, walk-behind
350	modules and heavy equipment used to trench timen
-16	grounds Arenchers are highly vereatile and they use
-2	attendating digging options based on the requirement
s of	of the jobs based admin and ribited 1931
3/0	and your system removed the mostly still to being the
/	(e) yanious compacting Equipments
_	1. smooth wheel rolleds.
1	-> Smooth Wheeled prollegs are of 2 types & static
	smooth wheeled mottered a things of the
_	* vibrating smooth wheeled trailers.
_	The same of the sa
-	-> the most suitable soils for these mollers are well
-	graded sand graves etcushed nock asphalt etc.
_	no work are governally used for tinishing the upper
	suntage of the soil These noten are not need for
	Sent dee of the xort - these waters are the area for

	A A steel Date / /
1	The vibrating compactors are used for compaction of cohesis
-	soils. These compactors are used because the vibration
- 4	eneates empact tonces which negults greater compacting
U	energy than equivalent static load and this can be
ard f	abre to thee the inter-locked cincular particiles
118	woot t conecionies well alexand and word the transmit
ij.	and as years become known to produce to the state of the factorial
1	(4) OWOLDS & Operating COST - DIMMS FORM
12	the state of the company of the franch was part
1	- ownership coeffect the total cost associated with the
ped	construction equipment + to m a owning it in asspective of
21	the equipment ice employed on not in the project.
	the ownership cost consists of the tollowing.
to	For the agree of the anadone in the other hands with Uptill
V.119	14- Initial cost in a marks that have some lake and
	-> or ce the capital investment required to own the
13(1)	equipment: (+) includes purchaire bost a cater tax,
	+ mans portation cost con tregist changes) Ho bring the
	equipment 10 company's stonage yand on construction
4	site and cost of assembly and chet allation of
rs=	The equipment of the equipment is mounted on
	author times (promotic times) then the times) then
Line	the time cost is ideducted them (nitia) cost
satifi	ton calculating ownership - cost mont
	Committee of straight of
	8. sarvage value;-
	- carrage value re presents the expected carh (oblow)
F 1	that will be received by deposing of esulpment at
75	the end of eta weeful lited. The estethation of
-11	expected servage value of equipment can be carried ou
	by referring 1 to the data obtained trom part
	projects where in same equipment was used on

intermation obtained trom other relevant sources 3 Interest cost of cost at capital Lovestments -) of the annual cost of conterest charged on the bornowed money or that of caipted investment of acquire the U ownership of the equipment of the equipment is purchased by bornowing the money from a lender then I interest east a the interest changed on the borrowed amount on the other hand it the equipment is purchased using constauction tirms own tund then cost of caritary coverement is the interest inchanged on capital investment at interest hate equal to construction frame nate of getten. Even though the construction term uses its own funds to punchase the equipment cost of capital investment is changed as part of the ownership cost because the construction than could have invested the find refree where to earn the meture tristend of purchasing the equipment many war all the Kind and at the man who 4. Tazes :- of represents the property tones to be paid to the state on central government of depend on the value of the equipment owned and the applicable tax rate tor a given theatron theneral it rames from 91-5-1. Of the Giverage annual investor on book value of equipment. SHOWING TRANSPORTER 5 Insurance cost 1 - at represents the annual premium to be paid to the insurance companies to cover the cost concumred - que to accident theta etc. ton the construction equipment in other words it represents the cost that protects the owner of the equipment against there damages

	Date / /
	on book value of equipment.
. 1	5. Stonage cost = at is the not openating at work site - stonage
	cost includes the remain and maintenance changes it storage
gytti.	ganderwages at security guards and wages at workers employed for bringing it in and out of the stonage gards.
	of is abound o. th. I 1.24. Of the average annual investment
V	Prematic fined roller:
4	> This tupe of notion consider of a box mounted on
\$	two excel- the noon has one wheel and are
1000	the suntace between the tront wheels to
(50	ecomplete envenage of the surface.
F	> Generally they are 4 wheels in the trant and
	The state of the s
	12 to Us fons are common.
	and southable for compacting non
Grite	e plastice and oil anolis scrip source
- 5	
	The layer thickness of these Mollers.
· V	Sheep toot callen i-
)	anguint at button) etacular
10	This type of mollers consist of hollow encular tell projection in the
1	torm of sheeps tool:

M	
	Date / /
1	These Projection are called tamping teet.
li ang i	> The steel of rum is 1.2 to 1.5 m dong and
	0.91. to 1.2 m in diameter.
1	A CALL OF CHIPMAN IN TOTAL OF CALL COLOR OF THE CALL O
1	> The tamping teet on the drume are
- 1310/15	stargened to traine the length of the to
+	should be yet least the Achticion to pass
+-	Through 3-4 of the thickness of the loose
T-	Payen and is weally 150 to somm
T- 100 100	of with an generally formed by fractors a trans
2 3 11 7	OF ASUM COUNTY COUNTY OF THE C
were to	That the there is the tent of
1	attack of Astanta of April - Arganisha de la classica de la companya de la compan
4.	Mose nollers are suctable ton consider
1	Jolls the no of Passes of sheep, fort
19.00	and depends upon the fype of coil
	and elensity desired.
T W	Dragline exercater:
Adr wa	to project the state of the sta
	3 A dragime is a piece of heavy equipment
-	used in construction and courtace
Minus na	+ Minting - Color Comment - Maritie of the street of
+-	A CO IS IN THE PROPERTY OF THE PARTY OF THE
	- 94 is used to strip the over buddenous
	trom the lower seams.
- HOUSE	> They are relarge piece of equipment and
2016	require large lable areas from which to
	Work. Hard and brown which to
1	

Pawer Shavel 1820 horket equip machine Usually electrically power theed for of egginy and loading earth and or transmitted moc and ton himmenal excatation, when the engineer characteristic of soil reinteneers.  Soil reinteneement - Horizontally for improve the engineer characteristic of soil in this way using natural tiberty to reintenees soil is any using natural to soil reintenees are soil recompacting to improve soil bearing capacity, oken fone und improve soil bearing capacity, oken fone und road base in highway construction.  2. Installing plastic or composite weight layer caped as seamed soil to proofuce a strongent sloped coil to improve a strongent sloped soil structure, oten slone and strongent sloped soil structure, oten slone and strongent sloped soil structure, oten slone and strongent stability.  Whenesh 3 and slectric tuston welded pretably pretably welded pretably with the welded wingers is an alectric tuston welded pretably		
Lecentry electrically power used ton of gentry  and loading earth and a transmitted nor  and ton mineral execution,  conferent (Soil reinkontiens executation),  conferent (Soil reinkontiens executation)  conferent (Soil reinkontiens executation)  conferent (Soil reinkontiens)  conferent (Soil		Date / /
Lecentry electrically power used ton of gentry  and loading earth and a transmitted nor  and ton mineral execution,  conferent (Soil reinkontiens executation),  conferent (Soil reinkontiens executation)  conferent (Soil reinkontiens executation)  conferent (Soil reinkontiens)  conferent (Soil		Pawer Shovels - with some in I wast strongt
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	Sider stabilization;
	> slope stability is the potential of soil covered slopes to which stand and undergo movement.
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