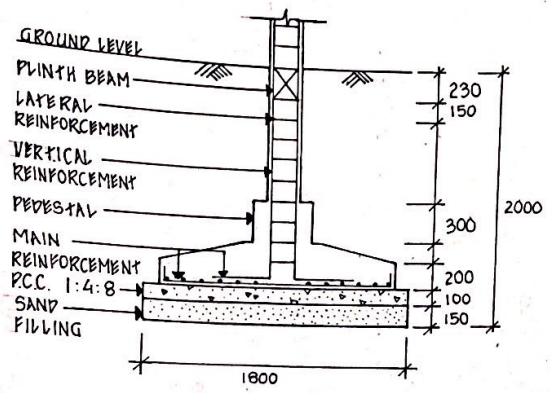

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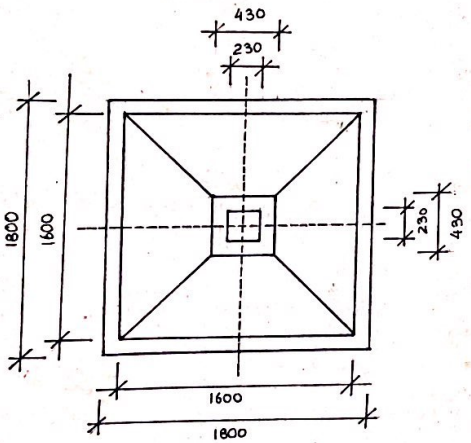
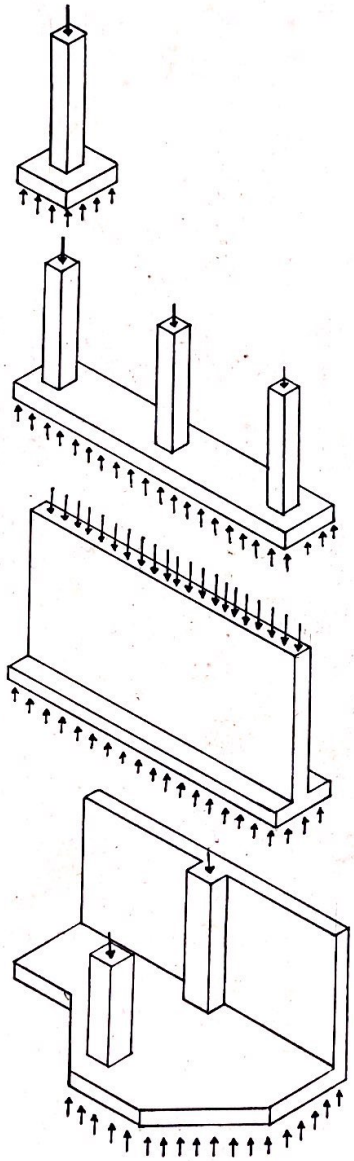


PLAN

DETAIL OF A TYPICAL ISOLATED FOOTING



ISOLATED FOOTINGS ARE THE INDIVIDUAL SPREAD FOOTINGS SUPPORTING FREESTANDING COLUMNS AND PIERS

A CONTINUOUS FOOTING IS A REINFORCED CONCRETE FOOTING EXTENDED TO SUPPORT A ROW OF COLUMNS

STRIP FOOTINGS ARE THE CONTINUOUS SPREAD FOOTINGS OF FOUNDATION WALLS.

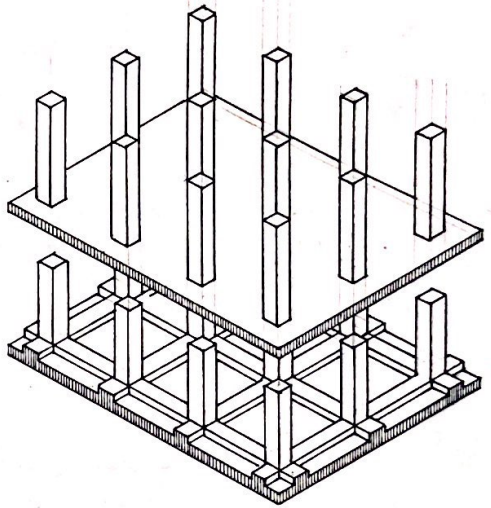
A COMBINED FOOTING IS A REINFORCED CONCRETE FOOTING FOR A PERIMETER FOUNDATION WALL OR COLUMN EXTENDED TO SUPPORT AN INTERIOR COLUMN LOAD.

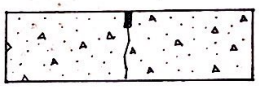
MAT FOUNDATION

MAT FOUNDATION OR RAFT FOUNDATION IS A THICK, HEAVILY REINFORCED CONCRETE SLAB THAT SERVES AS A SINGLE MONOLITHIC FOOTING FOR A NUMBER OF COLUMNS OR AN ENTIRE BUILDING

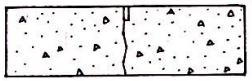
MAT FOUNDATION ARE USED WHEN THE ALLOWABLE BEARING CAPACITY OF A FOUNDATION SOIL IS LOW RELATIVE TO BUILDING LOADS AND INTERIOR COLUMN FOOTING BECOME SO LARGE THAT IT BECOMES MORE ECONOMICAL TO MERGE THEM INTO A SINGLE SLAB.

MAT FOUNDATIONS MAY BE STIFFENED BY A GRID OF RIBS, BEAMS OR WALLS

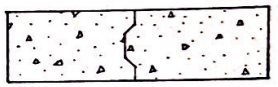




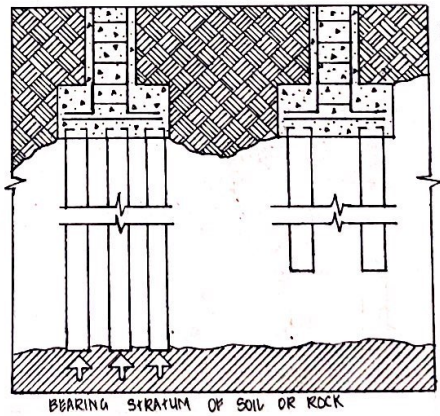
SAWN JOINT 1/8" (3mm) WIDE AND 1/4 OF SLAB DEPTH ; FILL WITH JOINT FILLER



1/8" (3mm) PREMOLDED OR METAL STRIP INSERTED WHEN CONCRETE IS PLACED; FINISH FLUSH WITH SURFACE.



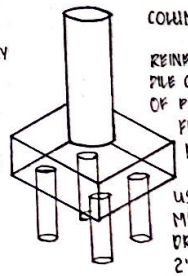
KEYED JOINT PREVENT BOND BY USING A PREFORMED METAL JOINT MATERIAL OR BY APPLYING CURING COMPOUND TO ONE SIDE BEFORE OTHER SIDE IS PLACED.



PILES ARE DRIVEN INTO THE EARTH BY A PILE DRIVER COMPOSED OF TALL FRAME WORK SUPPORTING MACHINERY FOR LIFTING THE PILE IN POSITION BEFORE DRIVING, DRIVING HAMMER AND VERTICAL RAILS OR LEADS FOR GUILDING THE HAMMER

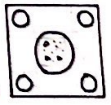
FRICTION PILES DEPEND ON FRICTIONAL RESISTANCE OF SURROUNDING EARTH MASS FOR SUPPORT

END BEARING PILES DEPEND ON FRICTIONAL RESISTANCE OF SOIL OR ROCK, BENEATH FOR SUPPORT



REINFORCED CONCRETE PILE CAP JOINS HEADS OF PILES TO DISTRIBUTE FROM A COLUMN, EQUALLY

USUALLY TWO OR MORE PILES ARE DRIVEN, SPACED 2'6" - 4'0"



TYPICAL PLAN OF PILES WITH PILE CAP AND COLUMN.

SHEET NO.:	R.C.C - TYPES OF FOUNDATION	DR. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE	SIGNED BY	NAME : RAHUL.R
01				II YEAR III SEM

COMBINED FOOTINGS :

WHEN TWO OR MORE COLUMNS ARE SUPPORTED BY A FOOTING IT IS CALLED COMBINED FOOTING. THIS FOOTING MAY BE OF
(i) RECTANGULAR OR
(ii) TRAPEZOIDAL IN PLAN

COMBINED FOOTING IS PROVIDED UNDER FOLLOWING SITUATIONS,

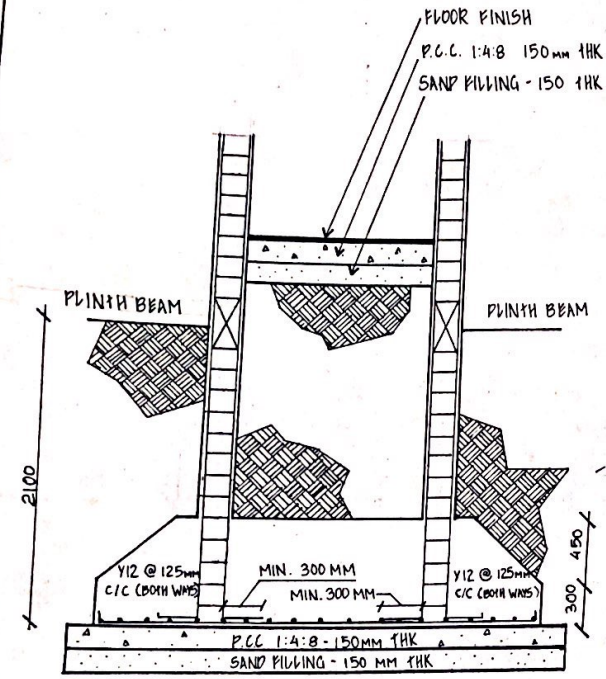
a) WHEN COLUMNS ARE CLOSE TO EACH OTHER AND THEIR INDIVIDUAL FOOTINGS OVERLAP

b) SOIL HAVING LOW BEARING CAPACITY AND REQUIRES MORE AREA UNDER INDIVIDUAL FOOTING

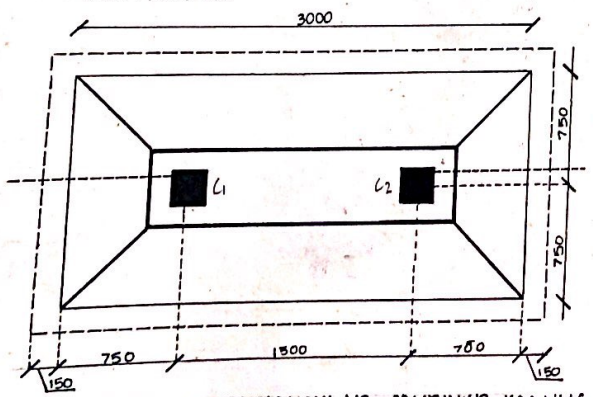
c) THE COLUMN END IS SITUATED NEAR THE PROPERTY LINE AND THE FOOTING CAN NOT BE EXTENDED.

THE FOUNDATIONS TO PIERS OF BRICK, MASONRY, AND REINFORCED CONCRETE AND STEEL COLUMNS IS OFTEN IN THE FORM OF SQUARE OR RECTANGLE ISOLATED PAD OF CONCRETE TO SPREAD A CONCENTRATED LOAD. THE AREA OF CONCRETE FOUNDATION DEPENDS ON THE LOAD ON THE FOUNDATION AND BEARING AND SHEAR STRENGTH OF THE SUB SOIL AND ITS THICKNESS ON THE STRENGTH OF THE FOUNDATION MATERIAL

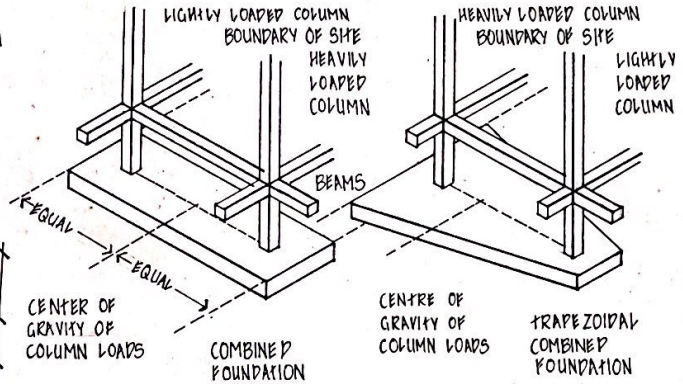
THE SIMPLEST FORM OF PAD FOUNDATION CONSISTS OF A PAD OF MASS CONCRETE. HEAVILY LOADED PAD FOUNDATIONS SUPPORTING COLUMNS OF FRAMED BUILDINGS ARE GENERALLY OF REINFORCED CONCRETE. THE AREA OF THE PAD FOUNDATION IS DETERMINED BY THE LOAD OF THE FOUNDATIONS AND THE ALLOWABLE BEARING PRESSURE ON THE SUBSOIL AND THE THICKNESS AND REINFORCEMENT FROM A CALCULATION OF BENDING AND SHEAR STRESSES



SECTION X-X'



PLAN OF RECTANGULAR COMBINED FOOTING



RECTANGULAR COMBINED BASE FOUNDATION

TRAPEZOIDAL COMBINED BASE FOUNDATION

THE COMBINED FOOTING MAY BE RECTANGULAR, TRAPEZOIDAL OR TEE-SHAPED IN PLAN

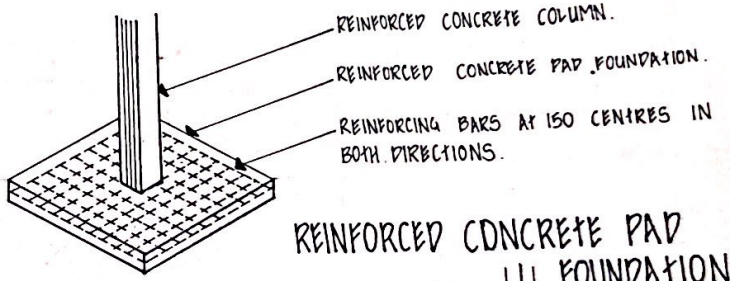
THE GEOMETRIC PROPORTIONS AND SHAPE ARE SO FIXED THAT THE CENTEROID OF THE FOLLOWING FOOTING AREA COINCIDES WITH RESULTANT OF THE COLUMN LOADS.

THIS RESULTS IN UNIFORM PRESSURE BELOW THE ENTIRE AREA OF FOOTING.

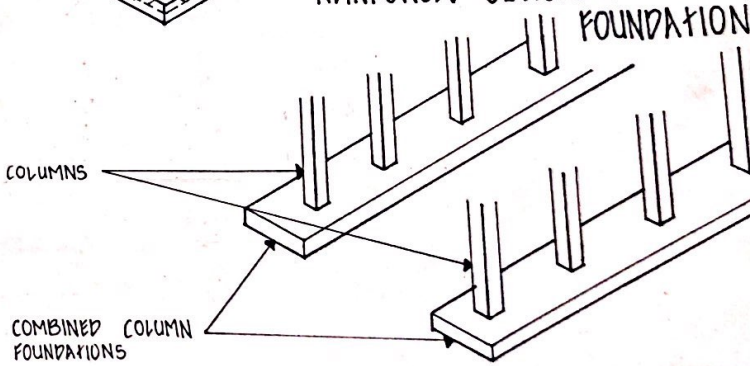
TRAPEZOIDAL FOOTING IS PROVIDED WHEN ONE COLUMN LOAD IS MUCH MORE THAN THE OTHER.

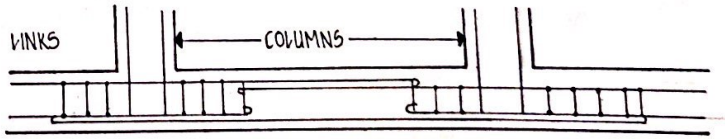
AS A RESULT, THE BOTH PROJECTIONS OF FOOTING BEYOND THE FACES OF THE COLUMNS WILL BE RESTRICTED

RECTANGULAR FOOTING IS PROVIDED WHEN ONE OF THE PROJECTIONS OF THE FOOTING IS RESTRICTED OR THE WIDTH OF THE FOOTING IS RESTRICTED



REINFORCED CONCRETE PAD FOUNDATION





LONGITUDINAL SECTION OF FOUNDATION

COMBINED COLUMN FOUNDATION

SHEET NO.:	COMBINED FOOTING	DR. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE	SIGNED BY	NAME : RAHUL
02				II YEAR III SE

PURPOSE OF SITE VISIT:

TO GET TO KNOW ABOUT MIVAN

LOCATION:

SAF GAMES VILLAGE, KOYEMBED.

PROJECT :

CPWD HOUSING PROJECT BY TAMIL NADU HOUSING BOARD.

CONTRACTOR:

DVR CONSTRUCTION.

ARCHITECT:

SHANKAR MAHESH, METAPHOR

DETAILS:

NO.OF FLOORS : 14
NO OF UNITS : 112
EACH UNIT IS DESIGNED AS 4BHK OF 1800 SQ.FT.

MIVAN FORMWORK:

MIVAN ALUMINIUM FORMWORK TECHNOLOGY IS A REVOLUTIONARY ALUMINIUM FORMWORK CONSTRUCTION SYSTEM, WHICH HAS BEEN SUCCESSFULLY USED AND DEVELOPED SINCE MANY YEARS, FOR FORMING CAST IN PLACE REINFORCED CONCRETE BUILDING STRUCTURE USING THIS UNIQUE FORMWORK, ALL WORKS, FLOOR SLABS, COLUMN, BEAMS, STAIRCASES, BALCONY, TOGETHER WITH DOOR AND WINDOW OPENINGS ARE CAST IN PLACE IN A SINGLE SHE BASED OPERATION.

THE RESULTING BUILDING STRUCTURE IS VERY STRONG, ACCURATE IN DIMENSIONS AND TOLERENCES WITH A HIGH QUALITY OF FINISHED CONCRETE SURFACE AND AT THE SAME TIME, THE MIVAN FORM WORK IS FAST, ADAPTABLE AND VERY COST EFFECTIVE

CHARACTERISTICS OF MIVAN TECHNOLOGY:

IT MAKES USE OF CONCRETE AS THE PRINCIPLE BUILDING MATERIALS FOR THE PRIME REASONS OF COST AND ACCESSIBILITY OF CEMENT SAND AND STONE THAT ARE READILY AVAILABLE IN MOST COUNTRIES

CONCRETE ALSO BRINGS ADDITIONAL BENIFITS IN TERM OF ITS BUILD QUALITY AND STRENGTH, ITS RESISTANCE TO FIRE, ROT AND VERMIN ATTACK, ITS LOW NOISE TRANSMISSION WITH GOOD THERMAL CAPACITY AND ITS PROVEN DURABILITY, GIVING IT A LONG-LIFE AND LITTLE MAINTENANCE

IT GIVES A SMOOTH FINISHING.

THE MAINTENANCE COST IS NEGLIGIBLE AS THE WALLS AND CEILING ARE MADE UP OF HIGH QUALITY CONCRETE WHICH DO NOT REQUIRE FREQUENT REPAIR WORK.

LESS LABOUR IS REQUIRED

FORM WORK CAN BE REUSED UPTO 150 TIMES AND ALSO CAN BE RECYCLED TO MAKE OTHER PRODUCTS.

DISADVANTAGES OF MIVAN FORMWORK

NO CUSTOMIZATION CAN BE DONE AFTER CONSTRUCTION.

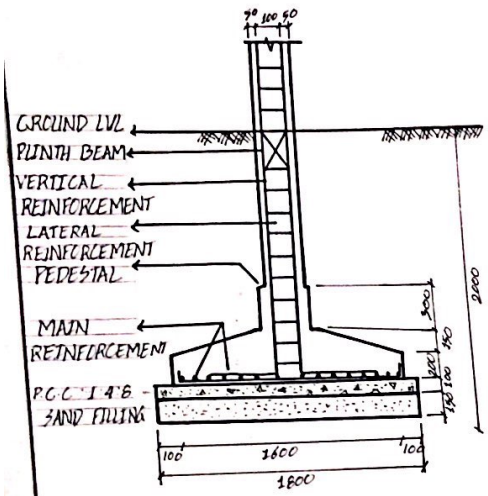
THE FORMWORK CAN BE COST EFFECTIVE ONLY IF IT IS USED IN SYMMETRICAL TYPE OF STRUCTURE.

ITS INITIAL SETUP TAKES TIME

SKILLED LABOUR IS REQUIRED FOR ALIGNMENT AND MAINTENANCE

HOLES CAUSED BY WALL SHOULD BE GROUPED PROPERLY WITH GI2 ELSE THERE WILL BE LEAKAGE IN COLUMN

08	SITE VISIT REPORT	DR. M.G.R. EDUCATIONAL AND REARCH INSTITUTE.	NAME : RAHUL.R II YEAR III SEM



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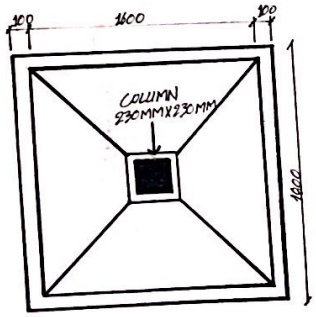
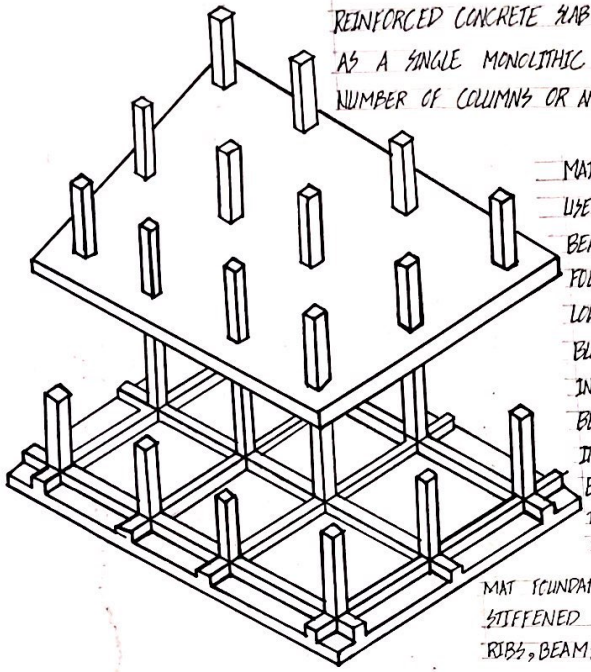


PLAN
SCALE :- 1:25

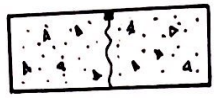
DETAIL OF A TYPICAL ISOLATED FOOTING

A MAT OR RAFT FOUNTAION IS A THICK, HEAVILY REINFORCED CONCRETE SLAB THAT SERVES AS A SINGLE MONOLITHIC FOOTING FOR A NUMBER OF COLUMNS OR AN ENTIRE BUILDING

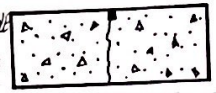


MAT FOUNTAION ARE USED WHEN THE ALLOWABLE BEARING CAPACITY OF A FOUNDATION SOIL IS LOW RELATIVE TO BUILDING LOADS AND INTERIOR COLUMN FOOTING BECOME SO LARGE THAT IT BECOMES MORE ECONOMICAL TO MERGE THEM INTO A SINGLE SLAB.

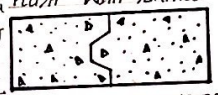
MAT FOUNDATIONS MAY BE STIFFENED BY A GRID OF RIBS, BEAMS, OR WALLS.



SAWN JOINT 1/8" (3MM) WIDE AND 1/4 OF SLAB DEPTH; FILL WITH JOINT FILLER.

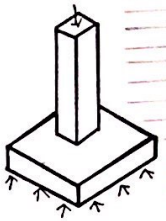


1/8"(3MM) PREMOLDED OR METAL STRIP INSERTED WHEN CONCRETE IS PLACED; FINISH FLUSH WITH SURFACE.



KEYED JOINT PREVENT BOND BY USING A PREFORMED METAL OR PLASTIC JOINT MATERIAL, OR BY APPLYING CURING COMPOUND TO ONE SIDE BEFORE OTHER SIDE IS PLACED

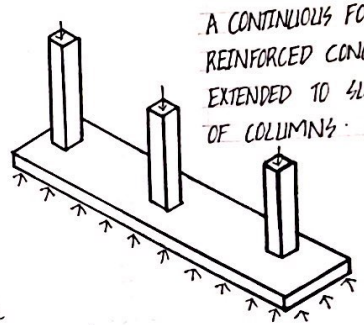
CONCRETE JOINTS

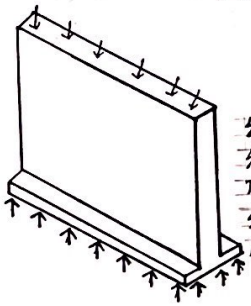


ISOLATED FOOTING ARE THE INDIVIDUAL SPREAD FOOTINGS SUPPORTING FREESTANDING COLUMNS AND PIERS.

CONTINUOUS FOOTING:-

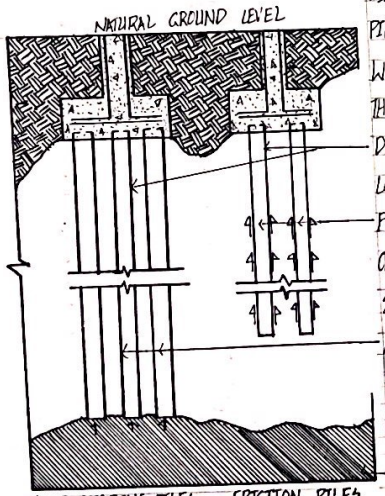
A CONTINUOUS FOOTING IS A REINFORCED CONCRETE FOOTING EXTENDED TO SUPPORT A ROW OF COLUMNS.





STRIP FOOTING:-

STRIP FOOTINGS ARE THE CONTINOUS SPREAD FOOTINGS OF FOUNDATION WALLS.

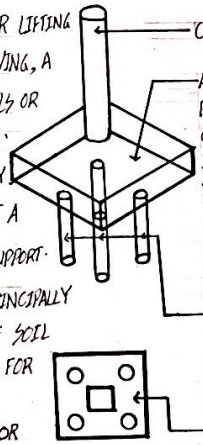


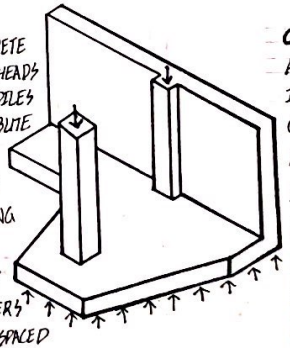
PILES ARE DRIVEN INTO THE EARTH BY A PILE DRIVER, COMPOSED OF A TALL FRAME WORK SUPPORTING MACHINERY FOR LIFTING THE PILE IN POSITION BEFORE DRIVING, A DRIVING HAMMER AND VERTICAL RAILS OR LEADS FOR GUIDING THE HAMMER.

FRICTION PILES DEPEND PRINCIPALLY ON THE FRICTIONAL RESISTANCE OF A SURROUNDING EARTH MASS FOR SUPPORT.

END-BEARING PILES DEPEND PRINCIPALLY ON THE BEARING RESISTANCE OF SOIL OR ROCK BENEATH THEIR FEET FOR SUPPORT.

BEARING STRATUM OF SOIL OR ROCK.





COMBINED FOOTING:

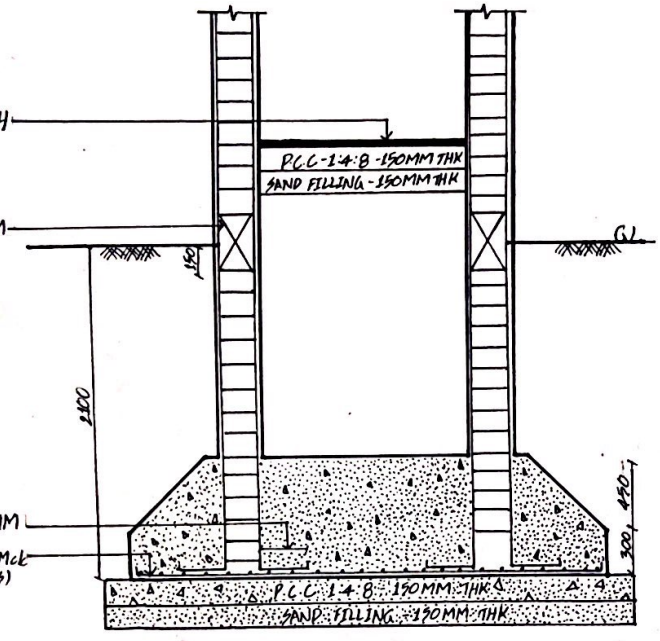
A COMBINED FOOTING IS A REINFORCED CONCRETE FOOTING FOR A PERIMETER FOUNDATION WALL OR COLUMN EXTENDED TO SUPPORT AN INTERIOR COLUMN LOAD

R.C.C - TYPES OF FOUNDATION
BUILDING CONSTRUCTION - III

01

FACULTY OF ARCHITECTURE
DR. M.G.R EDUCATIONAL AND RESEARCH INSTITUTE

NAME :- V. SRI DIVYA
REG.NO :- 18101110145



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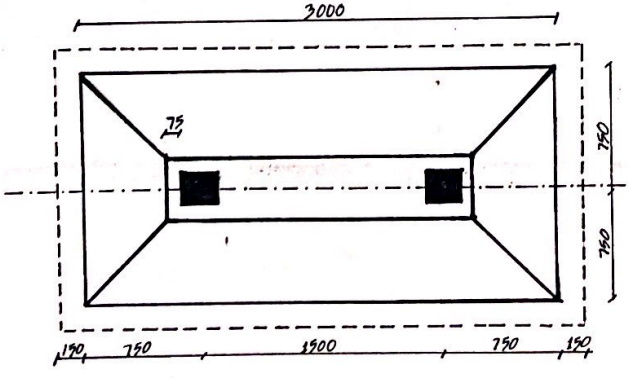


PLAN OF RECTANGULAR COMBINED FOOTING

SCALE :- 1:25

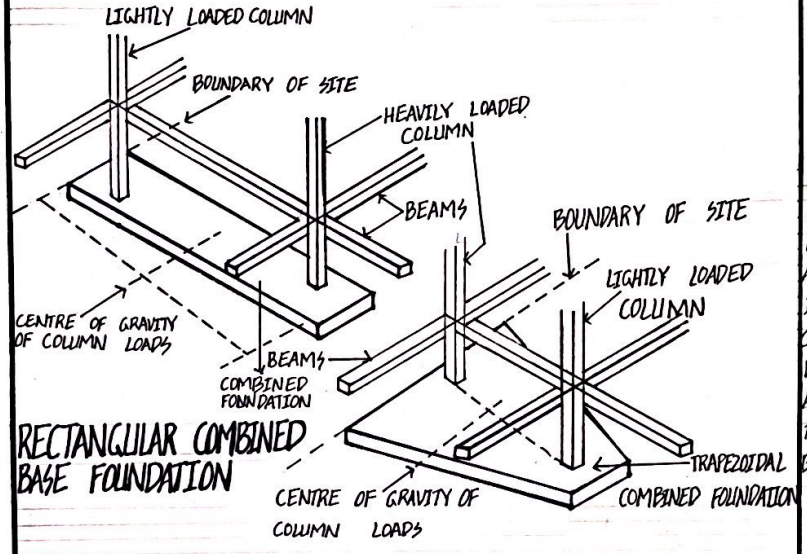
RECTANGULAR OR TRAPEZOIDAL IN PLAN.

COMBINED FOOTING IS PROVIDED UNDER FOLLOWING SITUATIONS:-

A. WHEN COLUMNS ARE CLOSE TO EACH OTHER AND THEIR INDIVIDUAL FOOTINGS OVERLAP.

B. SOIL HAVING LOW BEARING CAPACITY AND REQUIRES MORE AREA UNDER INDIVIDUAL FOOTING

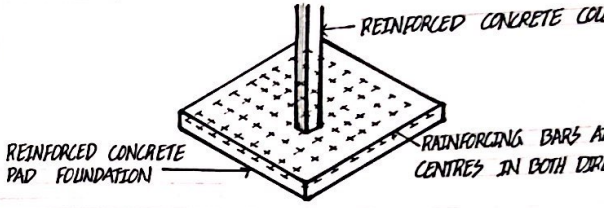
C. THE COLUMN END IS SITUATED NEAR THE PROPERTY LINE AND THE FOOTING CAN NOT BE EXTENDED.



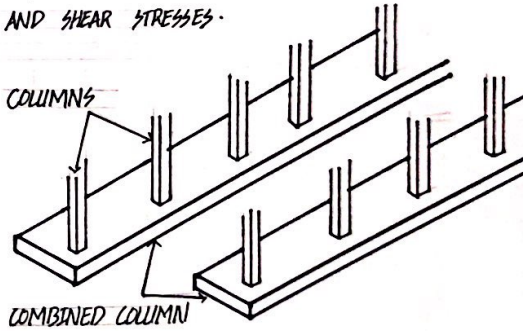
RECTANGULAR COMBINED BASE FOUNDATION

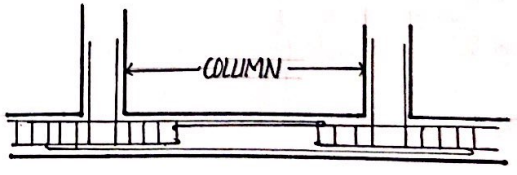
THE COMBINED FOOTING MAY BE RECTANGULAR, TRAPEZOIDAL AND TEE-SHAPED IN PLAN. THE GEOMETRIC PROPORTIONS AND SHAPE ARE SO FIXED THAT THE CENTEROID OF THE FOOTING AREA COINCIDES WITH THE RESULTANT OF THE COLUMN LOADS. THIS RESULTS IN UNIFORM PRESSURE BELOW THE ENTIRE AREA OF FOOTING. TRAPEZOIDAL FOOTING IS PROVIDED WHEN ONE COLUMN LOAD IS MUCH MORE THAN THE OTHER. AS A RESULT, THE BOTH PROJECTIONS OF FOOTING BEYOND THE FACES OF THE COLUMNS WILL BE RESTRICTED. RECTANGULAR FOOTING IS PROVIDED WHEN ONE OF THE PROJECTIONS OF THE FOOTING IS RESTRICTED OR THE WIDTH OF THE FOOTING IS RESTRICTED.

THE FORM OF A SQUARE OR RECTANGULAR ISOLATED PAD
CONCRETE TO SPREAD A CONCENTRATED LOAD. THE AREA
THIS TYPE OF FOUNDATION DEPENDS ON THE LOAD ON
FOUNDATION AND THE BEARING AND SHEAR STRENGTH O
THE SUBSOIL AND ITS THICKNESS ON THE STRENGTH OF
FOUNDATION MATERIAL. THE SIMPLEST FORM OF PAD
FOUNDATION CONSISTS OF A PAD OF MASS CONCRETE
ILLUSTRATED IN VOLUME 1, ILLUSTRATING A PIER AND FOUND



BEAM BASE FOR A SMALL BUILDING. HEAVILY LOADED PAD FOUNDATIONS SUPPORTING COLUMNS OF FRAMED BUILDIN ARE GENERALLY OF REINFORCED CONCRETE AS ILLUSTRATE IN FIGURE SHOWING THE BASE OF A REINFORCED CONCRETE COLUMN. THE AREA OF THE PAD FOUNDATION IS DETERMINED BY THE LOAD OF THE FOUNDATION AND THE ALLOWABLE BEARING PRESSURE ON THE SUBSOIL AND T THICKNESS AND REINFORCEMENT FROM A CALCULATION OF BENDING AND SHEAR STRESSES.





LONGITUDIAL SECTION OF FOUNDATION
COMBINED COLUMN FOUNDATION

(NOT TO SCALE)

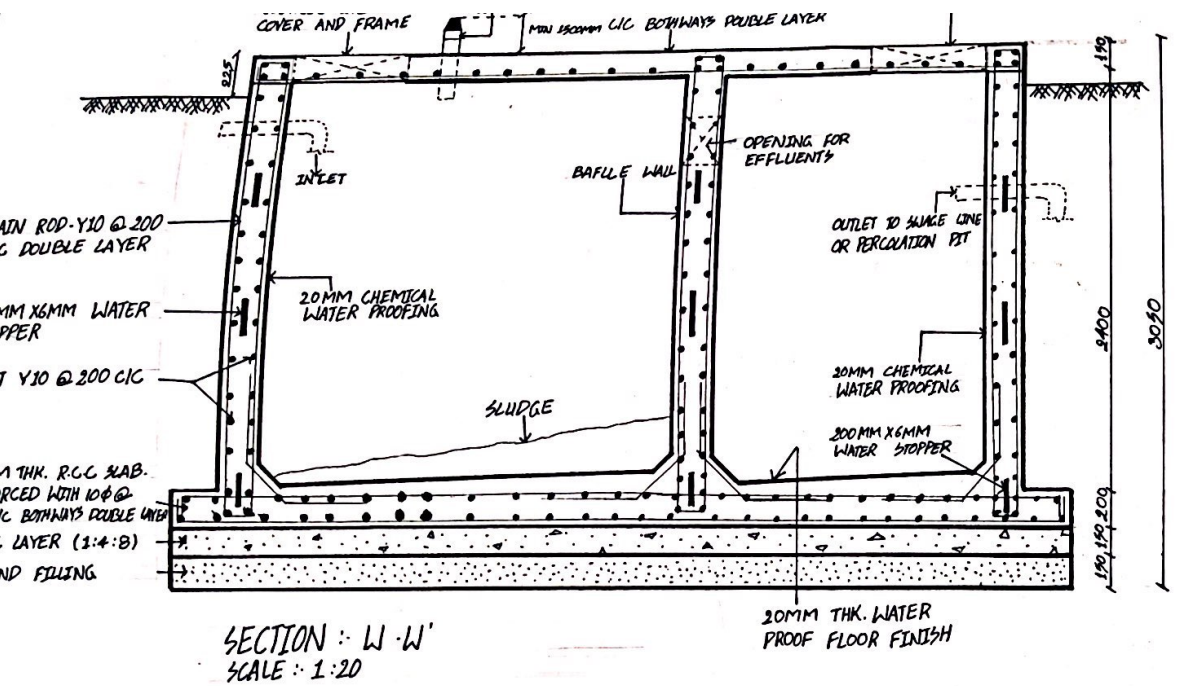
COMBINED FOOTING

02

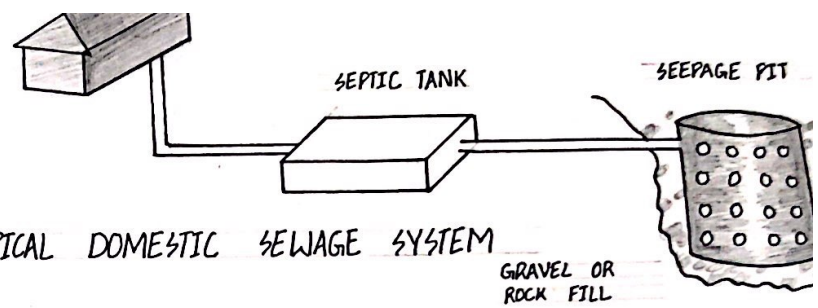
FACULTY OF ARCHITECTURE

NAME :- V. SRI DIVYA

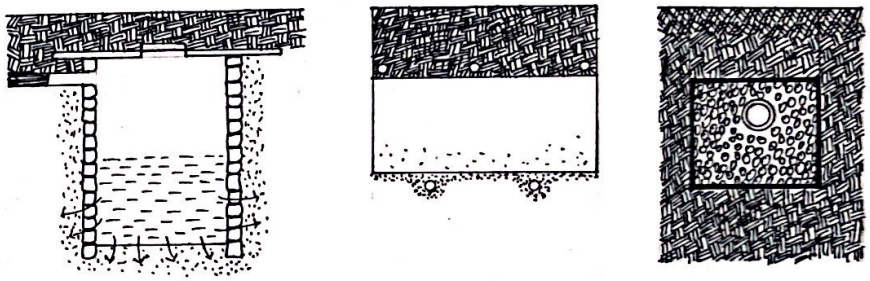
REG NO :- 1010111010

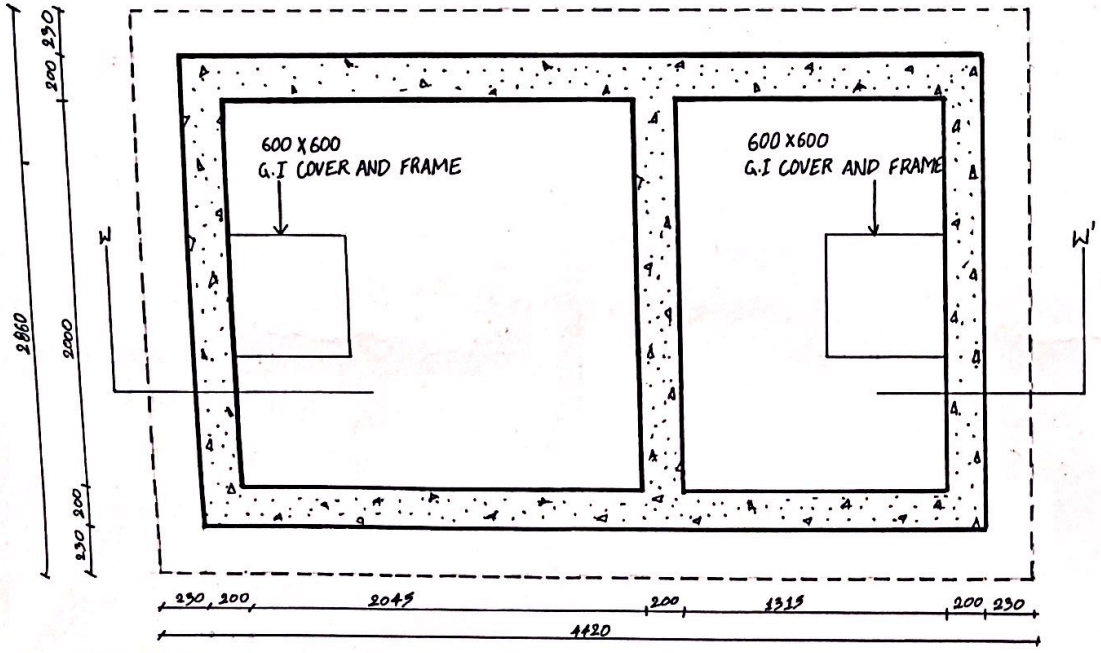


SECTION :- W-W'
SCALE :- 1:20



TYPICAL DOMESTIC SEWAGE SYSTEM





PLAN
SCALE :- 1:20

THE LIQUID EFFLUENT, WHICH IS ABOUT 70% PURIFIED, MAY FLOW INTO ON
THE FOLLOWING SYSTEMS :-

- A DRAINFIELD IS AN OPEN AREA CONTAINING AN ARRANGEMENT OF
TRENCHES THROUGH WHICH EFFLUENT FROM A SEPTIC TANK MAY SE
LEACH INTO THE SURROUNDING SOIL.
- A SEEPAGE PIT LINED WITH A PERFORATED MASONRY OR CONCRETE
SOMETIMES USED AS A SUBSTITUTE FOR A DRAINFIELD WHEN THE
ABSORBENT AND THE HIGHEST LEVEL OF WATER TABLE IS AT LEAST
BELOW THE BOTTOM OF THE PIT.
- A SUBSURFACE SAND FILTER CONSISTS OF DISTRIBUTION PIPES SUR
BY GRADED GRAVD, AN INTERMEDIATE LAYER OF CLEAN, COARSE SAND, AND A
OF UNDERDRAINS TO CARRY OFF THE FILTERED EFFLUENT. SAND FILTERS ARE
WHERE OTHER SYSTEM ARE NOT FEASIBLE.
- GRAYWATER REFERS TO THE WASTEWATER FROM SINKS, BATHS SHOWERS, AND
WHICH CAN BE TREATER OR RECYCLED FOR SUCH USES AS TOILET FLUSHING
IRRIGATION. TO DATE, FEW COMMUNITIES HAVE ADOPTED CODE PROVISIONS A
THE REUSE OF GRAY WATER. GRAY WATER SYSTEMS SHOULD BE USED IN CONJUNC
OTHER WATER-CONSERVATION STRATEGIES, SUCH AS SPECIFYING WATER EFFICIENT
AND CAPTURING RAINWATER AND SURFACE RUNOFF IN CISTENTS AND RESERVOIRS FOR
LANDSCAPING.

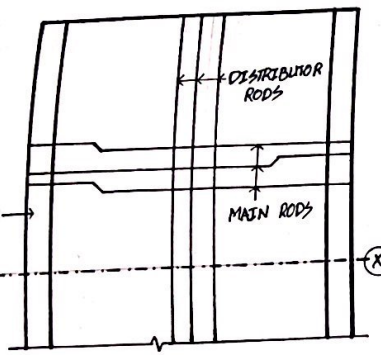
SEPTIC TANK

BUILDING CONSTRUCTION - II

05

FACULTY OF ARCHITECTURE
DR.M.G.R EDUCATIONAL AND

NAME :- V. SRI DIVYA



PLAN - ONE WAY SLAB

SCALE :- 1:50

THE MAIN REINFORCEMENT BAR WILL BE PROVIDED IN THE SHORTER SPAN WHERE THE BENDING MOMENT WILL BE HIGH AS SHOWN IN THE DRAWING.

ONE WAY SLAB IS SUPPORTED ON TWO OPPOSITE SIDE ONLY THUS STRUCTURAL ACTION IS ONLY AT ONE DIRECTION. TOTAL LOAD IS CARRIED IN THE DIRECTION PERPENDICULAR TO THE SUPPORTING BEAM.

DUE TO THE HUGE DIFFERENCE IN LENGTHS, LOAD IS NOT TRANSFERRED TO THE SHORTER BEAMS. MAIN REINFORCEMENT IS PROVIDED IN ONLY ONE DIRECTION FOR ONE WAY SLABS.

WHAT IS A TWO WAY SLAB?

- THE RATIO (L/B) WHICH IS LESS THEN 2 IS KNOWN AS TWO WAY SLAB.
- TWO WAY SLABS ARE THE SLABS THAT ARE SUPPORTED ON FOUR SIDES.
- IN TWO WAY SLABS, LOAD WILL BE CAMED IN BOTH THE DIRECTIONS. SO, MAIN REINFORCEMENT IS PROVIDED IN BOTH DIRECTION FOR TWO WAY SLABS.

WHAT IS A ONE WAY SLAB?

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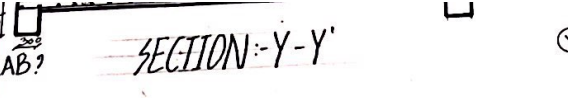
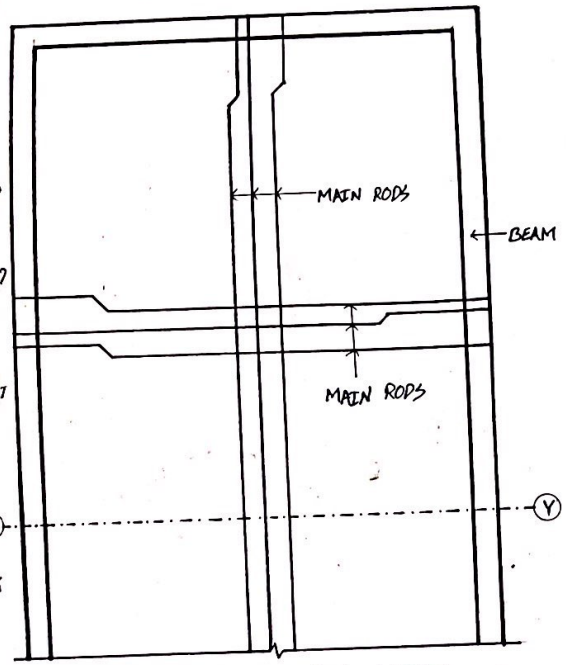
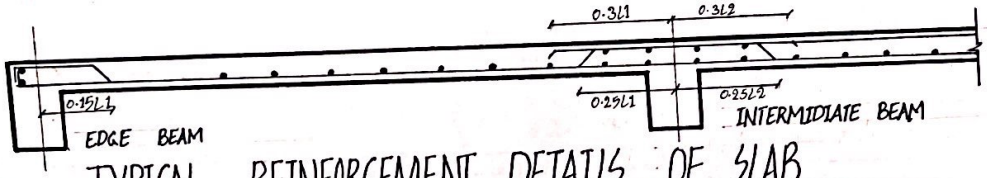




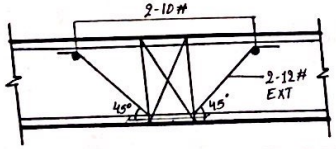
PLAN - TWO WAY SLAB

SCALE :- 1:50



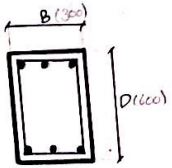
TYPICAL REINFORCEMENT DETAILS OF SLAB

SCALE :- 1:20



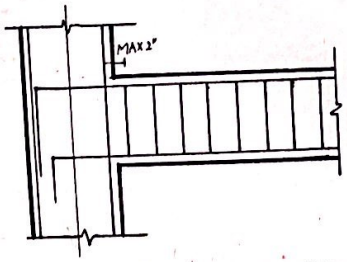
TYP. BEAM JOINT

SCALE :- 1:20



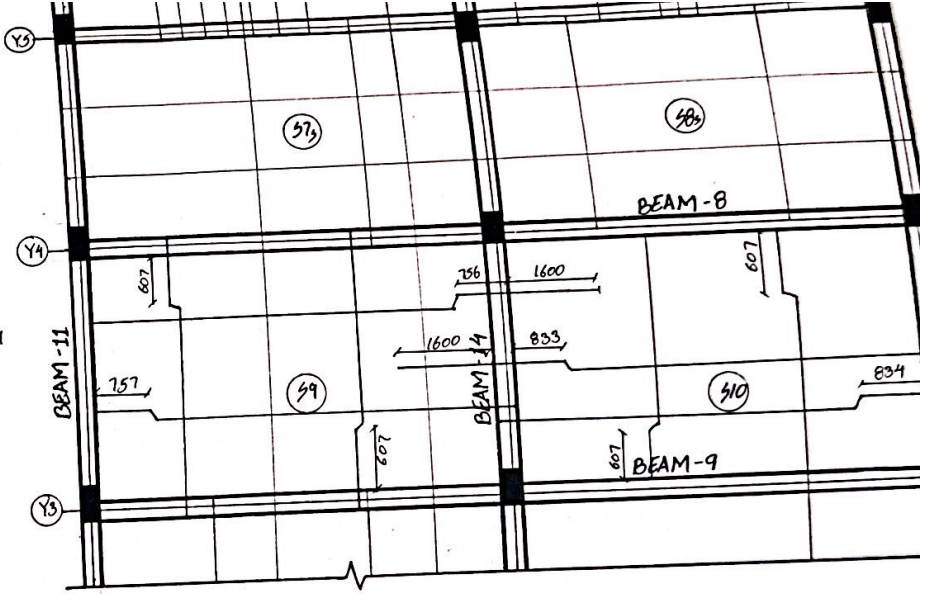
TYPICAL CROSS SECTION OF BEAM

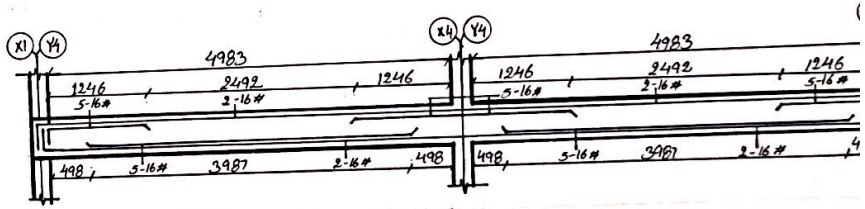
SCALE :- 1:50



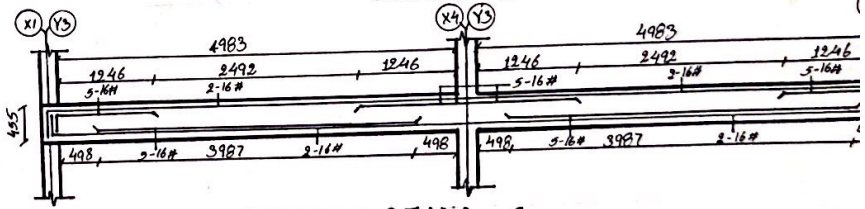
BEAM & COLUMN JUNCTION DETAILS

NOT TO SCALE

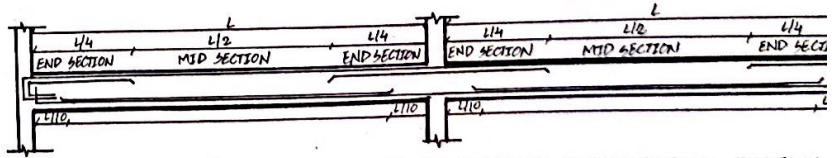




BEAM - 8



BEAM - 9



TYPICAL BEAM END & MID SECTION DETAIL

SCALE :- 1:50

ONE WAY & TWO WAY SLABS & BEAMS & COLUMNS JOINT DETAILS

BUILDING CONSTRUCTION - III

06

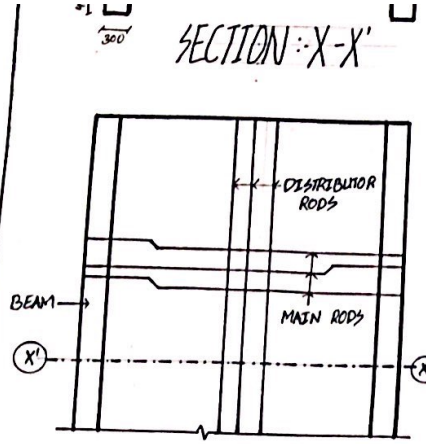
FACULTY OF ARCHITECTURE

DR. M.G.R EDUCATIONAL AND RESEARCH INSTITUTE

Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE (Deemed to be University) Chennai - 600 095 FACULTY OF ARCHITECTURE

NAME :- V. SRI DIVYA

REG. NO :- 181011101045



PLAN - ONE WAY SLAB

SCALE :- 1:50

WHAT IS A TWO WAY SLAB?

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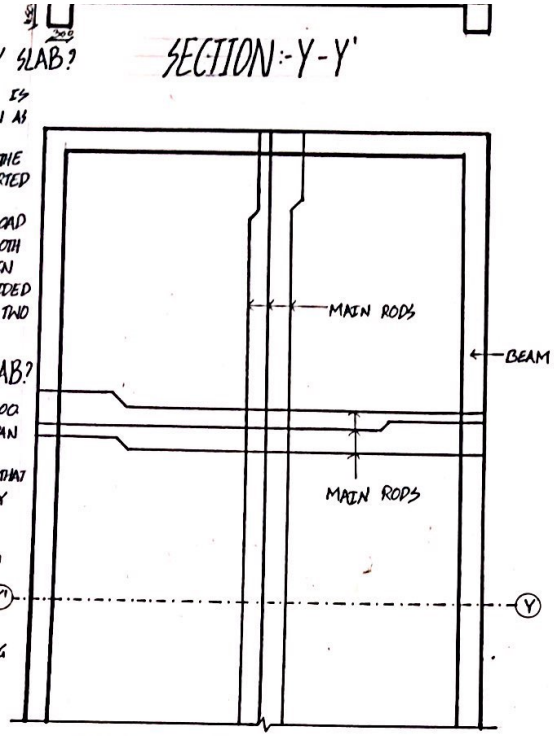
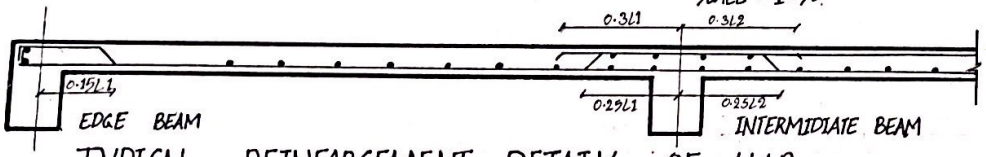


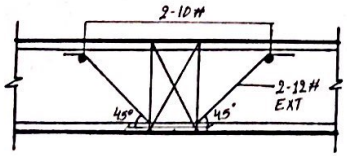
PLAN - TWO WAY SLAB

SCALE :- 1:50



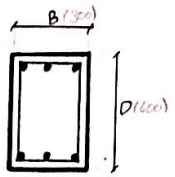
TYPICAL REINFORCEMENT DETAILS OF SLAB

SCALE :- 1:20



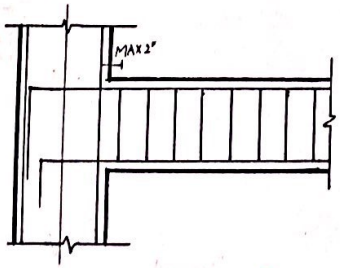
TYP. BEAM JOINT

SCALE :- 1:20



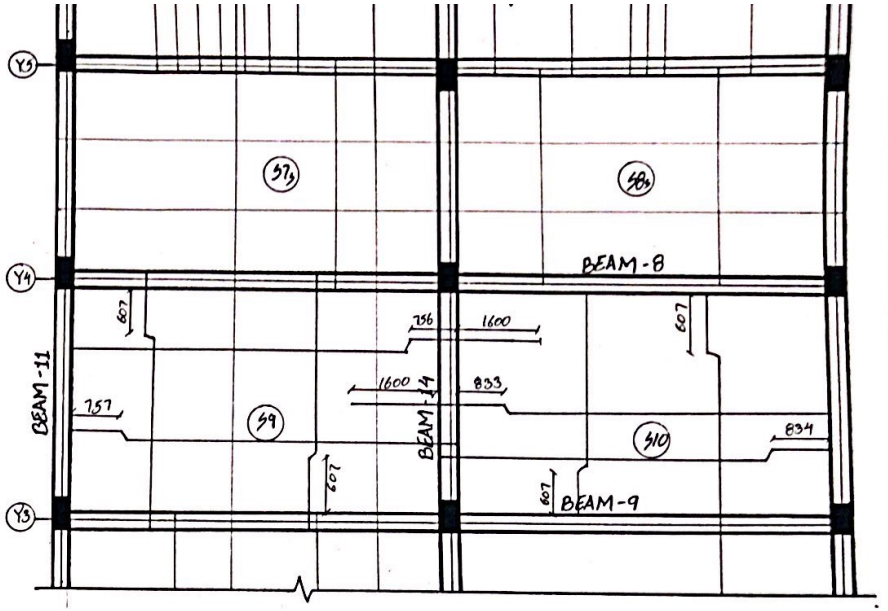
TYPICAL CROSS SECTION OF BEAM

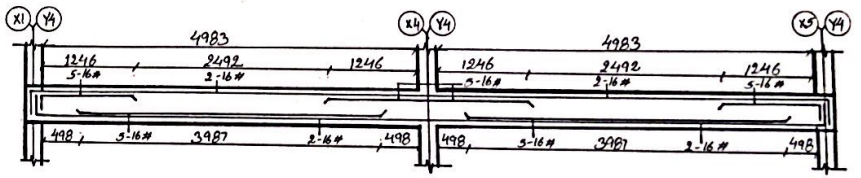
SCALE :- 1:50



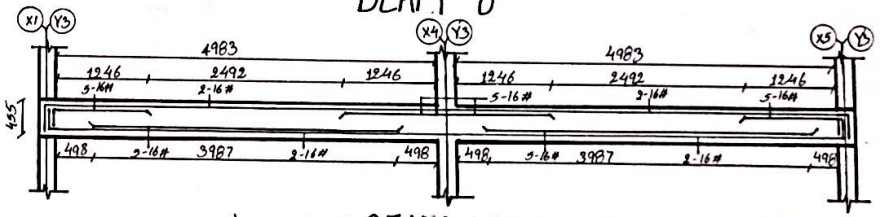
BEAM & COLUMN JUNCTION DETAILS

NOT TO SCALE

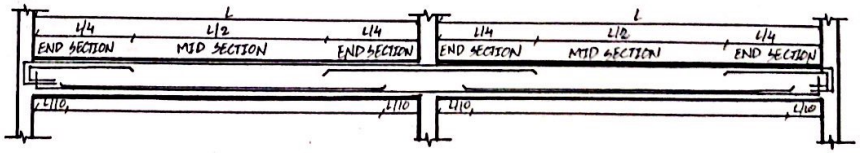




BEAM - 8



BEAM - 9



TYPICAL BEAM END & MID SECTION DETAILS

SCALE :- 1:50

WAY & TWO WAY SLABS & BEAMS & COLUMNS JOINT DETAILS

LDING CONSTRUCTION - III

06

FACULTY OF ARCHITECTURE

DR. M.G.R EDUCATIONAL AND RESEARCH INSTITUTE

NAME :- V. SRI DIVYA

REG. NO :- 18101110145

ONE WAY SLAB

- ACCORDING TO IS456:2000 THE RATIO OF LONGER SPAN TO THE SHORTER SPAN (L) WHICH IS (L/B) GREATER THAN 2 IS KNOWN AS ONE WAY SLAB
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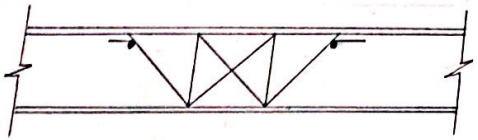
- DUE TO THE HUGE DIFFERENCE IN LENGTH LOAD IS NOT TRANSFERED TO THE SHORTER BEAM. MAIN REINFORCEMENT IS PROVIDED TO ONLY ONE DIRECTION FOR ONE WAY SLAB.

TWO WAY SLAB

THE RATIO WHICH IS LESS THAN 2 IS KNOWN AS 2 WAY SLAB.

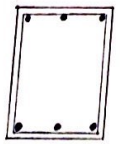
TWO WAY SLAB ARE THE SLAB THAT ARE SUPPORTED ON ALL FOUR SIDES.

IN TWO WAY SLAB, LOADS WILL BE CARRIED IN BOTH THE DIRECTION, SO MAIN REINFORCEMENT IS PROVIDED IN BOTH DIRECTION OF THE TWO WAY SLABS.



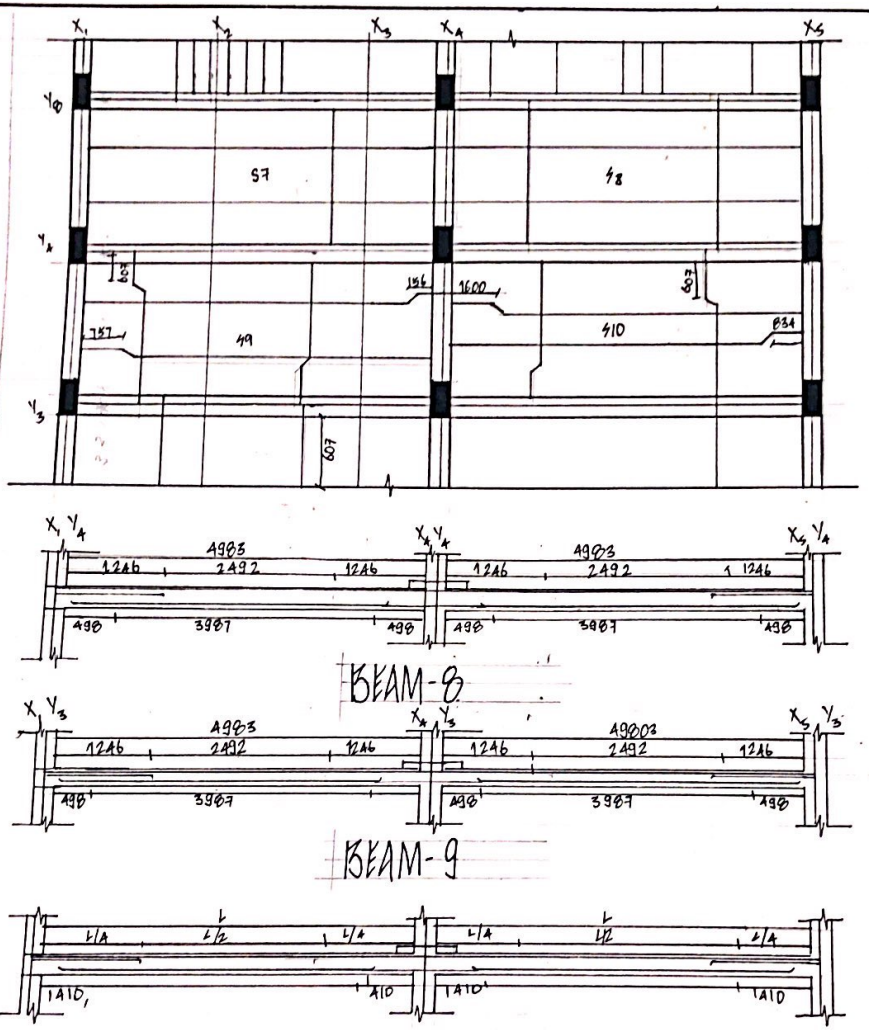
TYPICAL BEAM JOINT

SCALE-1:20



TYPICAL CROSS SECTION OF BEAM

SCALE-1:20

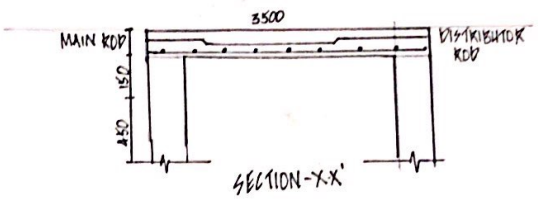


BEAM-8

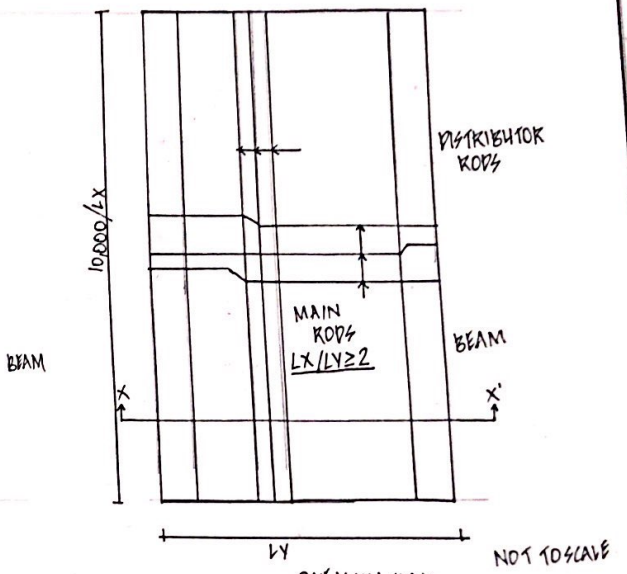
BEAM-9

TYPICAL BEAM END & MID SECTION

NOT TO SCALE

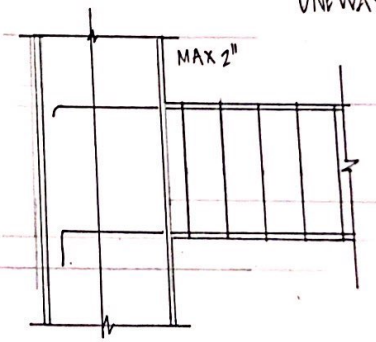


SECTION-X-X'



ONE WAY SLAB

NOT TO SCALE

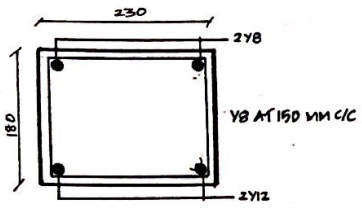


WAY AND TWO WAY SLABS, BEAM & COLUMN DETAILS

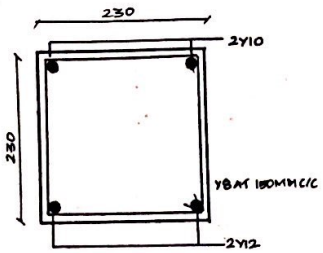
SHEET NO. 06

FACULTY OF ARCHITECTURE
DR MGR EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY

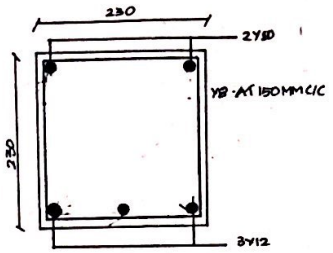
NAME- S AKHILANDESWARI
REG NO-18101101004
II YEAR III SEMESTER
BUILDING CONSTRUCTION-III
BATCH-2018-2023



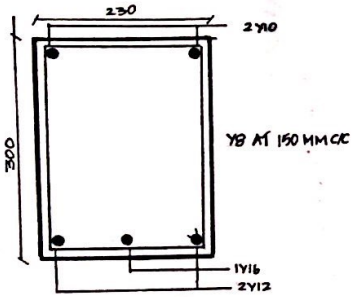
SPAN LESS THAN 6'-0"



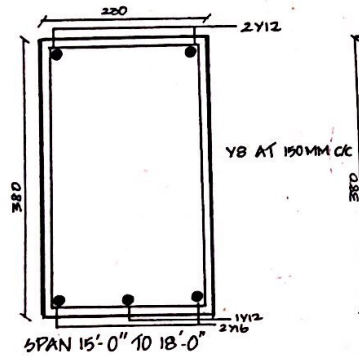
SPAN 6'0" TO 8'0"



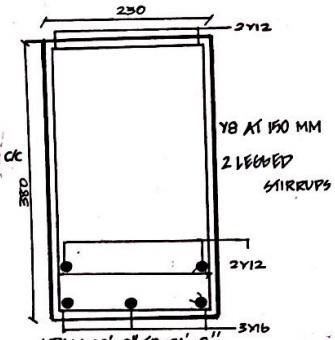
SPAN 8'-0" TO 12'-0"



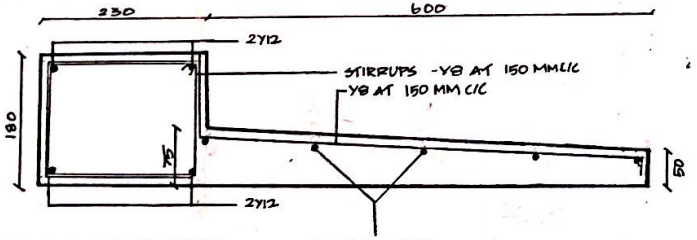
SPAN 12'-0" TO 15'-0"



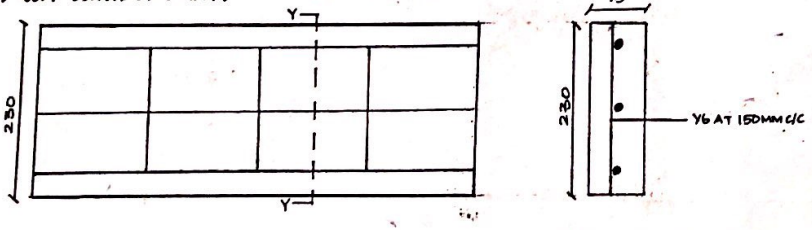
SPAN 15'-0" TO 18'-0"



SPAN 18'-0" TO 21'-0"



LINTEL CUM SUNSHADE DETAILS



SILL LEVEL SLAB DETAILS
SCALE 1:5

SECTION Y-Y'

WHAT IS A LINTEL?

A LINTEL IS A HORIZONTAL MEMBER WHICH IS PLACED ACROSS OPENINGS LIKE DOORS, WINDOWS ETC IN BUILDINGS. LINTELS TAKE THE LOAD FROM THE STRUCTURE ABOVE IT AND PROVIDES SUPPORT LINTEL IS ALSO A TYPE OF BEAM THE WIDTH OF WHICH IS EQUAL TO THE WIDTH OF THE WALL AND THE ENDS OF WHICH ARE BUILT INTO THE WALL. THESE ARE VERY EASY TO CONSTRUCT AS TO COMPARED TO ARCHES.

LINTELS ARE CLASSIFIED INTO THE FOLLOWING TYPES ACCORDING TO THE MATERIALS OF THEIR CONSTRUCTION

1. TIMBER LINTEL
2. STONE LINTEL
3. REINFORCED CONCRETE LINTEL
4. BRICK LINTEL
5. REINFORCED BRICK LINTEL
6. STEEL LINTEL

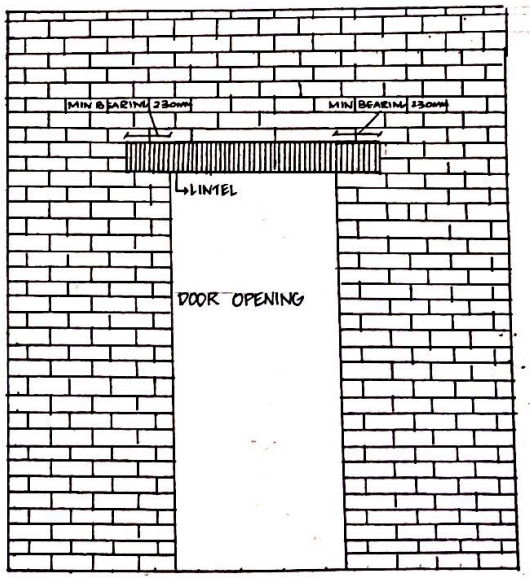
THE SIZE AND SPAN OF THE OPENING DETERMINES THE LENGTH, DEPTH, HEIGHT AND THE MATERIAL TO BE USED FOR THE LINTEL. AS THE SPAN INCREASES, THE BEARING TO BE PROVIDED IN THE WALLS ALSO INCREASE.

WHAT ARE SUNSHADES

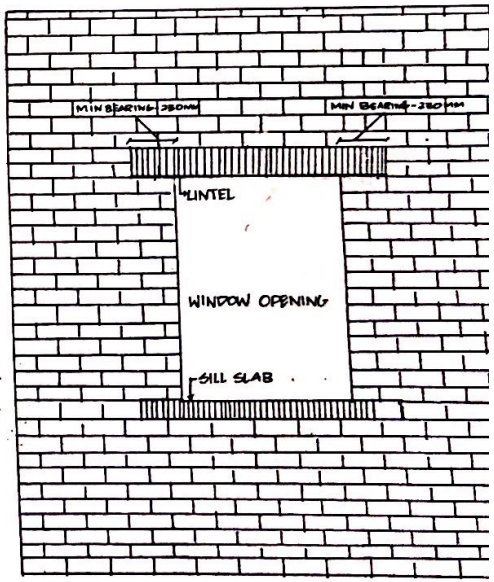
SUNSHADES ARE THE MEMBERS THAT PROVIDE PROTECTION TO OPENINGS FROM THE ELEMENTS SUN, RAIN, SNOW ETC DEPENDING UPON THE GEOGRAPHICAL LOCATION THE DESIGN OF THE SUNSHADES WILL CHANGE. IN THE INDIAN CONTEXT, SUNSHADES ARE DESIGNED TO KEEP OUT THE SUN, THUS PREVENTING HEAT GAIN INTO THE INTERIOR OF THE BUILDINGS THROUGH THE WINDOWS OR DOORS.

WHAT IS A SILL PLATE?

A SILL PLATE OR SILL SLAB IN CONSTRUCTURE AND ARCHITECTURE IS THE BOTTOM HORIZONTAL MEMBER OF AN OPENING IN A WALL ON WHICH THE WINDOW IS PLACED. THE SILL PLATE PROVIDES A STRONG AND LEVEL SURFACE FOR FIXING OF WINDOWS



LINTEL IN A DOOR OPENING
SCALE 1:20



LINTEL & SILL SLAB IN A WINDOW OPENING
SCALE 1:20

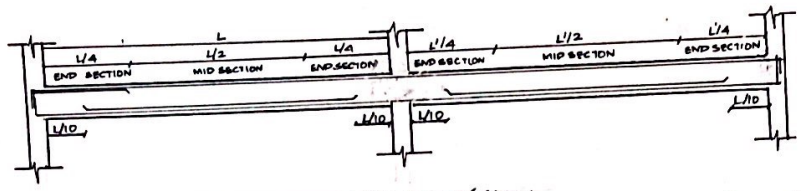
LINTELS AND SUNSHADE

SCALE 1:5
BUILDING CONSTRUCTION - III

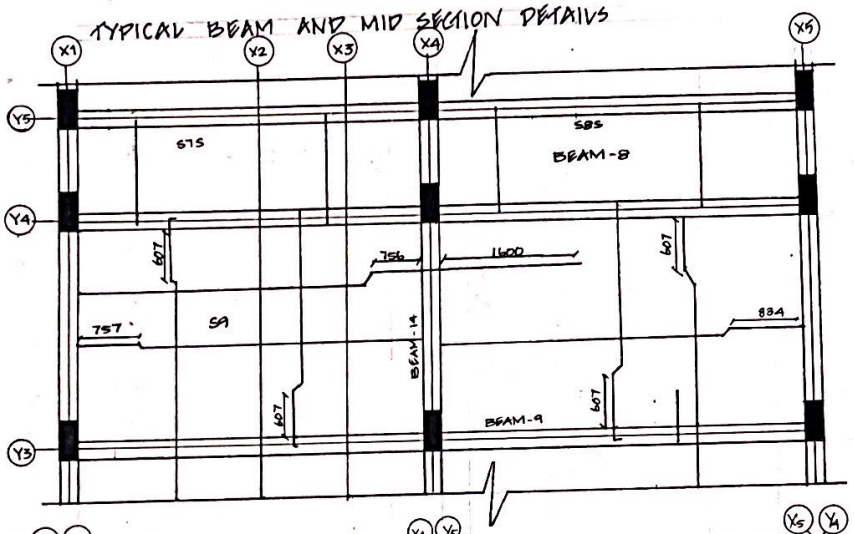
3

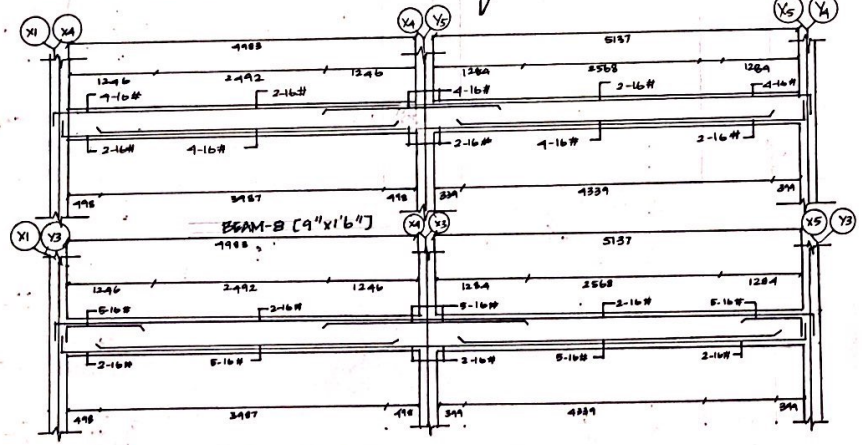
FACULTY OF ARCHITECTURE

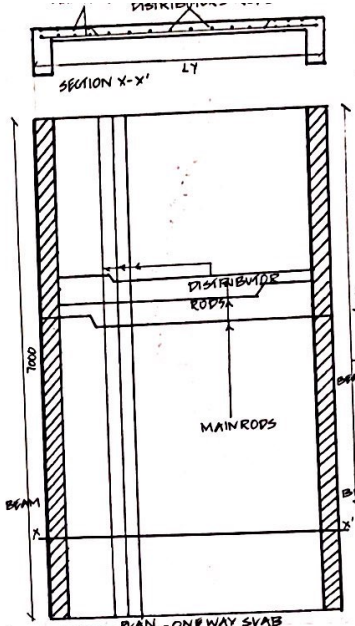
NAME - RITHI.K
II YEAR III SEMESTER
DR MGR EDUCATIONAL AND RESEARCH INSTITUTE



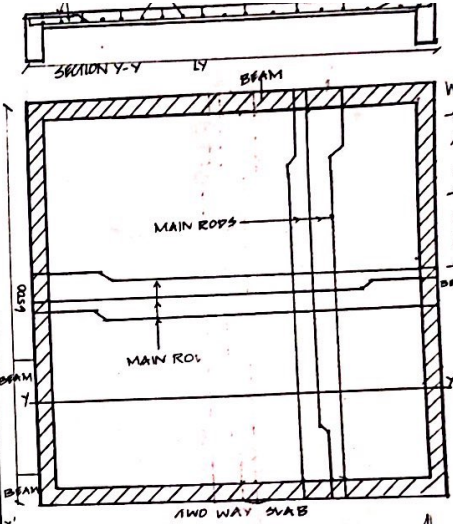
TYPICAL BEAM AND MID SECTION DETAILS







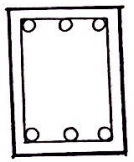
PLAN - ONE WAY SLAB



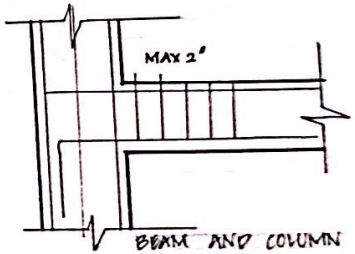
TWO WAY SLAB

WHAT IS A TWO WAY SLAB?
- → THE RATIO (L/B) WHICH IS LESS THAN 2 IS KNOWN AS TWO WAY SLAB.
- → TWO WAY SLABS ARE THE SLABS THAT ARE SUPPORTED ON FOUR SIDES.
- → IN TWO WAY SLABS, LOAD WILL BE CARRIED IN BOTH THE DIRECTIONS. SO, MAIN REINFORCEMENT IS PROVIDED IN BOTH DIRECTION FOR TWO WAY SLABS.

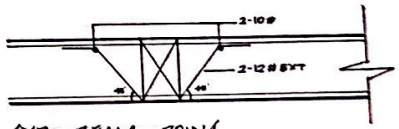
WHAT IS A ONE WAY SLAB?
- → ACCORDING TO IS 456:2000. THE RATIO OF LONGER SPAN(l) TO SHORTER SPAN(l) WHICH IS (l/B) GREATER THAN 2 IS KNOWN AS ONE WAY SLAB
- → THE MAIN REINFORCEMENT BAR WILL BE PROVIDED IN THE SHORTER SPAN WHERE THE BENDING MOMENT WILL BE HIGH AS SHOWN IN THE DRAWING
- → ONE WAY SLAB IS SUPPORTED ON TWO OPPOSITE SIDE ONLY THUS STRUCTURAL ACTION IS IN THE DIRECTION PERPENDICULAR TO THE SUPPORTING BEAM.
- → DUE TO HUGE DIFFERENCE IN LENGTHS, LOAD IS NOT SUPPORTED TO SHORTER BEAMS. MAIN FORCEMENT IS PROVIDED IN ONLY ONE DIRECTION FOR ONE WAY SLABS
- → EVEN WHEN A RECTANGULAR SLAB IS SUPPORTED ON ALL THE FOUR EDGES, THE SLAB MAY BE CONSIDERED AS A ONE-WAY SLAB IF THE LENGTH TO BREADTH (L/B) RATIO OF SLAB IS EQUAL TO OR GREATER THAN TWO.



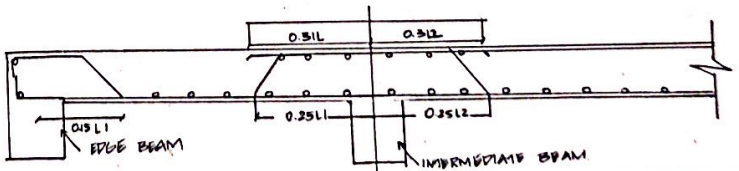
TYPICAL CROSS SECTION OF BEAM



BEAM AND COLUMN JUCTION DETAILS

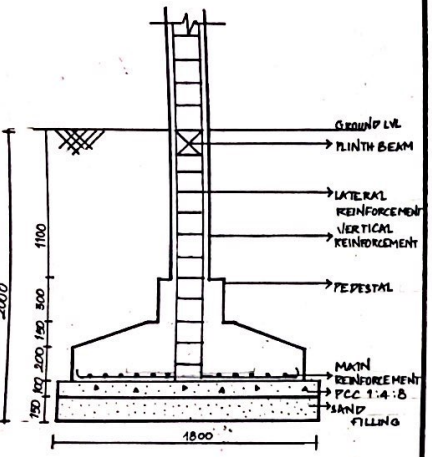


TYP. BEAM POINT

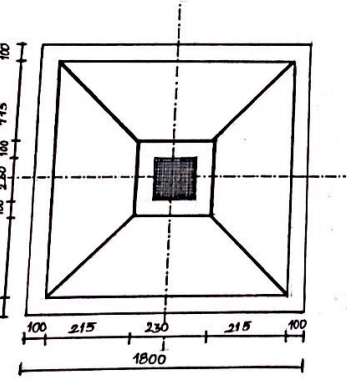


TYPICAL REINFORCEMENT DETAILS OF A SLABS

ONE WAY, TWO WAY SLABS, BEAM AND COLUMN JOINT DETAILS 6	FACULTY OF ARCHITECTURE	DR M.G.R EDUCATIONAL AND RESEARCH INSTITUTE
		NAME - RITHI.K
		REG NO - 180101110103



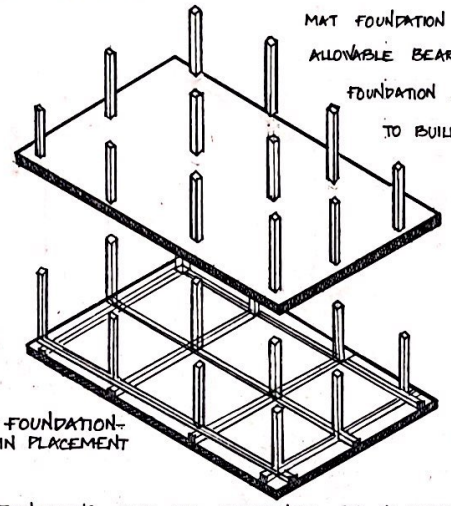
SECTION



PLAN

L OF A TYPICAL ISOLATED FOOTING
SCALE 1:20

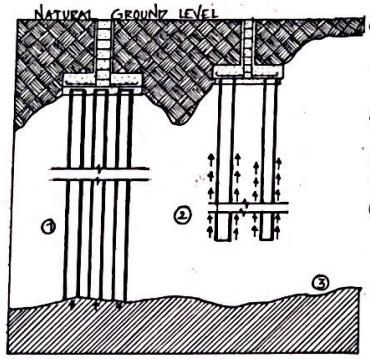
A MAT OR RAFT FOUNDATION IS A THICK, HEAVILY REINFORCED CONCRETE SLAB THAT SERVES AS A SINGLE MONOLITHIC FOOTING FOR A NUMBER OF COLUMNS OR AND ENTIRE BUILDING



RAFT FOUNDATION-
COLUMN PLACEMENT

MAT FOUNDATION ARE USED WHEN THE ALLOWABLE BEARING CAPACITY OF A FOUNDATION SOIL IS LOW RELATIVE TO BUILDING LOADS AND INTERIOR COLUMN FOOTING BECOME SO LARGE THAT IT BECOMES MORE ECONOMICAL TO MERGE THEM INTO A SINGLE SLAB

MAT FOUNDATIONS MAY BE STIFFENED BY A GRID OF RIBS, BEAMS OR WALLS



① END BEARING PILE
- DEPEND PRINCIPALLY ON THE BEARING RESISTANCE OF SOIL OR ROCK BENEATH THEIR FEET FOR SUPPORT

② FRICTION PILE
- DEPEND PRINCIPALLY ON THE FRICTIONAL RESISTANCE OF SUPPORTING EARTH MASS FOR SUPPORT

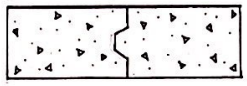
③ BEARING STRATUM OF SOIL OR ROCK

PILE FOUNDATION

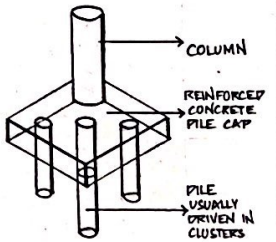
PILES ARE DRIVEN INTO THE EARTH BY A PILE DRIVER, COMPOSED OF A TALL FRAME WORK SUPPORTING MACHINERY FOR LIFTING THE PILE IN POSITION. BEFORE DRIVING, A DRIVING HAMMER AND VERTICAL RAILS OR LEADS FOR GUILDING THE HAMMER

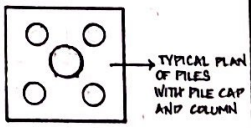
SAWN JOINT 1/8" (3mm) WIDE AND 1/4 OF SLAB DEPTH, FILL WITH JOINT FILLER

1/8"(3mm) PREMOLDED OR METAL STRIP INSERTED WHEN CONCRETE IS PLACED; FINISH FLUSH WITH SURFACE

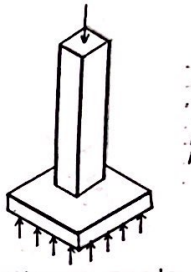


KEYED JOINT PREVENT BOND BY USING A PREFORMED METAL OR PLASTIC JOINT MATERIAL OR BY APPLYING CURING COMPOUND TO ONE SIDE BEFORE OTHER SIDE PLACED



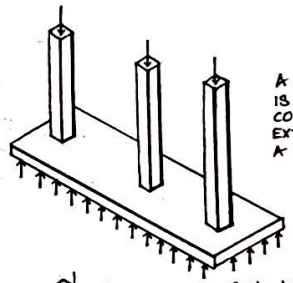


PILE CAP DETAILING



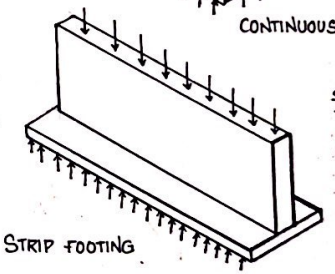
ISOLATED FOOTINGS ARE THE INDIVIDUAL SPREAD FOOTINGS SUPPORTING FREE STANDING COLUMNS AND PIERS

ISOLATED FOOTING



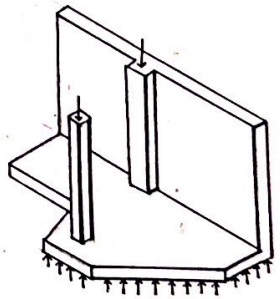
A CONTINUOUS FOOTING IS A REINFORCED CONCRETE FOOTING EXTENDED TO SUPPORT A ROW OF COLUMNS

CONTINUOUS FOOTING



STRIP FOOTINGS AR THE CONTINOUS SPREAD FOOTING OF FOUNDATION WAL

STRIP FOOTING



A COMBINED FOOTING IS A REINFORCED CONCRETE FOOTING FOR A PERIMETRE FOUNDAT WALL OR COLUMN EXTENDED TO SUPPORT AN INTERIOR COLUMN LOAD

COMBINED FOOTING

TYPES OF FOOTING

TYPES OF FOUNDATION

ALL DIMENSIONS ARE IN MM

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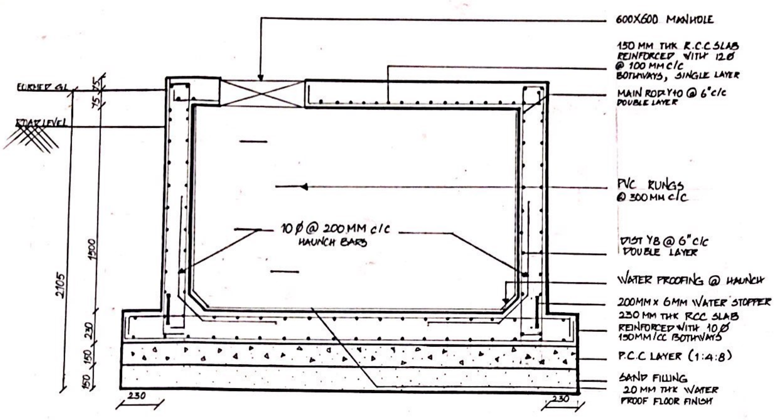
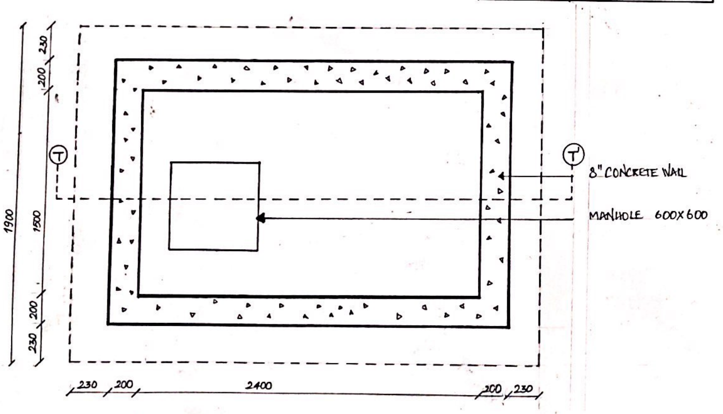
B.ARCH II YEAR III SEM
DR.M.G.R. EDUCATIONAL & RESEARCH INSTITUTE

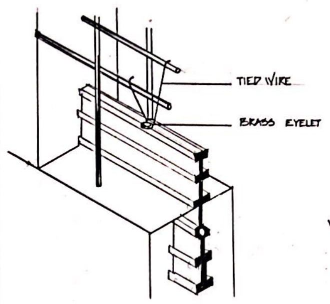


SECTION T-T'
SCALE 1:20

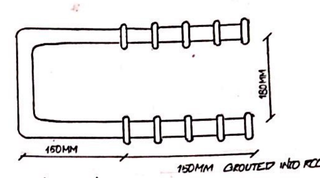
CAPACITY CALCULATION
1. VOLUME OF TANK (ONLY CLEAR DIMENSIONS) = 1.5M (W) x 2.4M(L) x 1.5M(D) = $5.4M^3$
2. $1M^3$ = 1000 LITRES
3. $5.4M^3$ = 5400 LITRES



PLAN
SCALE 1:20

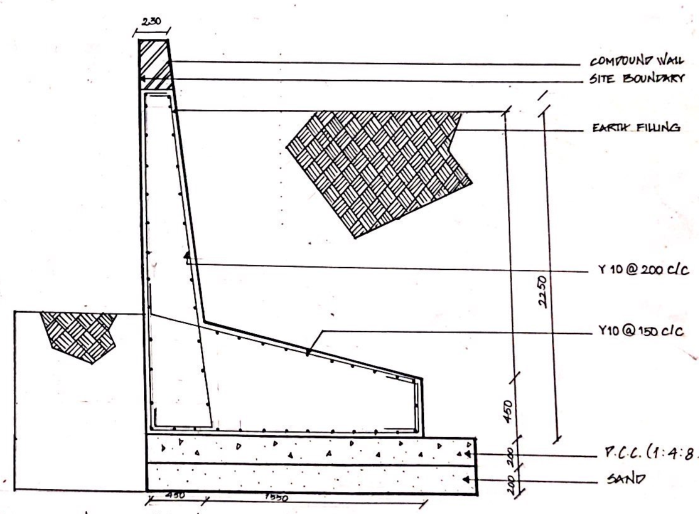


DETAIL A
WATER STOP



PVC RUNGS / STEPS

WHAT IS A WATERSTOP?
PVC WATERSTOP IS A CONVENTIONAL WATERSTOP THAT CAN BE USED IN VARIETY OF APPLICATIONS. THE MAIN USAGE IS TO PREVENT THE PASSAGE OF LIQUIDS IN CONCRETE JOINTS IN MANY DIFFERENT PROJECTS SUCH AS DAMS, TUNNELS, WATER AND WASTEWATER TREATMENT PLANTS, AND OTHER LIQUID RETAINING STRUCTURES.



TYPICAL SECTION OF RETAINING WALL
SCALE 1:20

UNDERGROUND SUMP & RETAINING WALL DETAILS

BUILDING CONSTRUCTION III

FACULTY OF ARCHITECTURE

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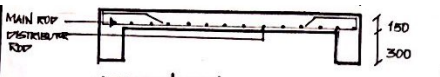
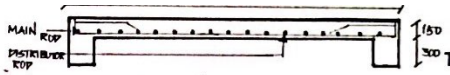
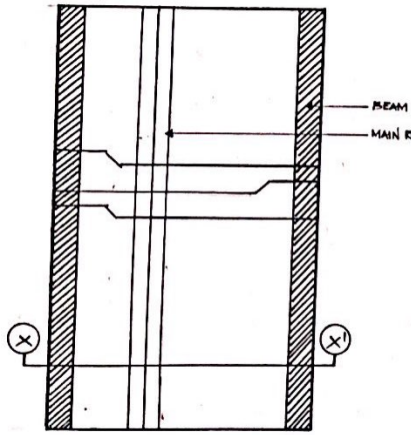
24.09.



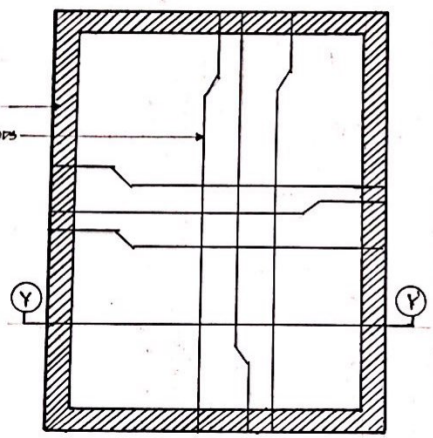
SECTION X-X'



SECTION Y-Y'



ONE WAY SLAB
PLAN



TWO WAY SLAB
PLAN

TWO WAY SLAB

- THE RATIO (L/B), WHICH IS LESS THAN 2 IS KNOWN AS TWO WAY SLAB.
- TWO WAY SLABS ARE THE SLABS THAT ARE SUPPORTED ON FOUR SIDES
- IN TWO WAY SLABS, LOAD WILL BE CARRIED IN BOTH THE DIRECTIONS. SO, MAIN REINFORCEMENT IS PROVIDED IN BOTH DIRECTION FOR TWO WAY SLABS. THEY ARE PERPENDICULAR TO EACH OTHER
- USUAL THICKNESS OF SLAB IS 100MM TO 200MM DEPENDING UPON THE SPAN. IT IS SUITABLE AND ECONOMICAL FOR PANEL SIZES UPTO 6M X 6M, GOVERNED BY DEFLECTION CRITERIA.

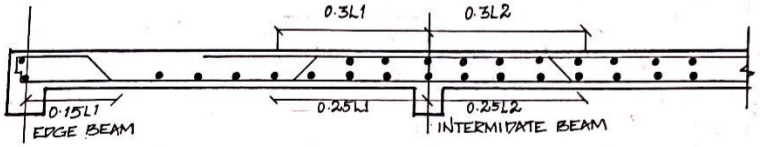
ONE WAY SLAB:

ACCORDING TO IS 456: 2000. THE RATIO OF LONGER (l) TO SHOTER SPAN (b) WHICH IS (L/B) GREATER THAN 2 IS KNOWN AS ONE WAY SLAB.

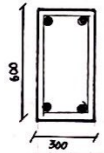
THE MAIN REINFORCEMENT BAR WILL BE PROVIDED IN THE SHORTER SPAN WHERE THE BENDING MOMENT WILL BE HIGH AS SHOWN IN THE DRAWING

ONE WAY SLAB IS SUPPORTED ON TWO OPPOSITE SIDE ONLY THUS STRUCTURAL ACTION IS ONLY AT ONE DIRECTION PERPENDICULAR TO THE SUPPORTING BEAM

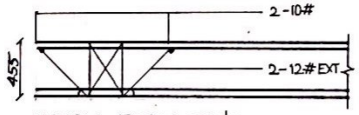
- DUE TO THE HUGE DIFFERENCE IN LENGTHS, LOAD IS NOT TRANSFERRED TO THE SHORTED BEAMS. MAIN REINFORCEMENT IS PROVIDED IN ONLY ONE DIRECTION FOR ONE SLABS
- EVEN WHEN A RECTANGULAR SLAB IS SUPPORTED ON ALL THE FOUR EDGES, THE SLAB MAY BE CONSIDERED AS ONE-WAY SLAB IF THE LENGTH-TO-BREADTH (L/B) RATIO OF THE SLAB IS EQUAL TO OR GREATER THAN TWO



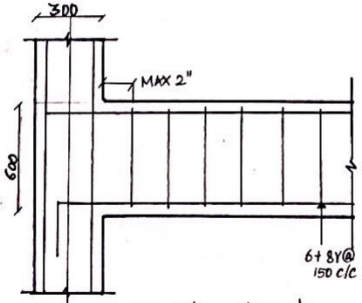
TYPICAL REINFORCEMENT DETAILS OF SLAB



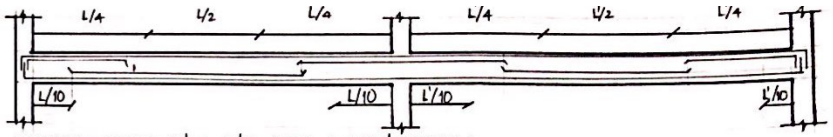
TYPICAL CROSS SECTION OF BEAM



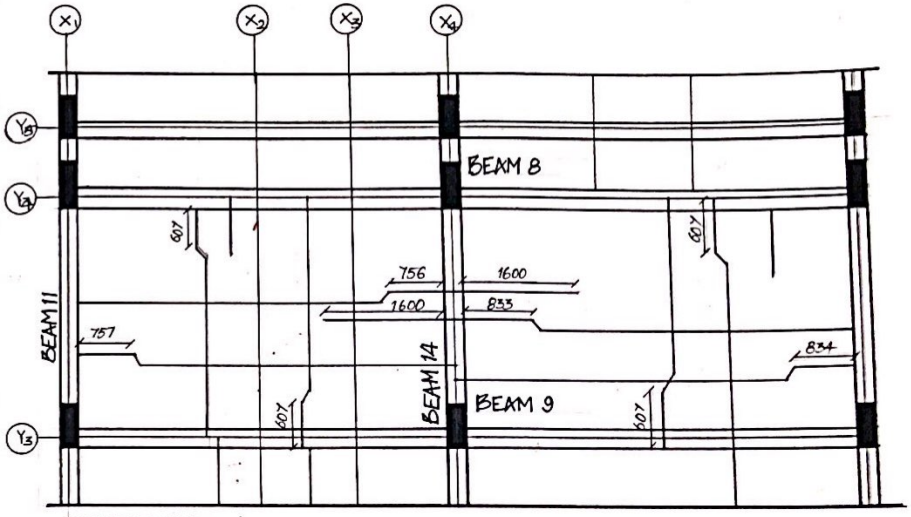
TYPICAL BEAM JOINT



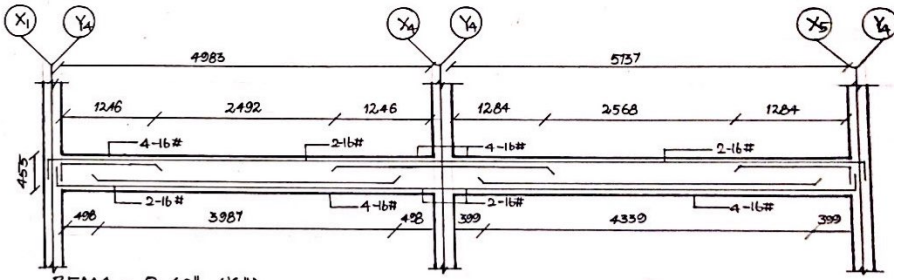
BEAM & COLUMN JUNCTIONS



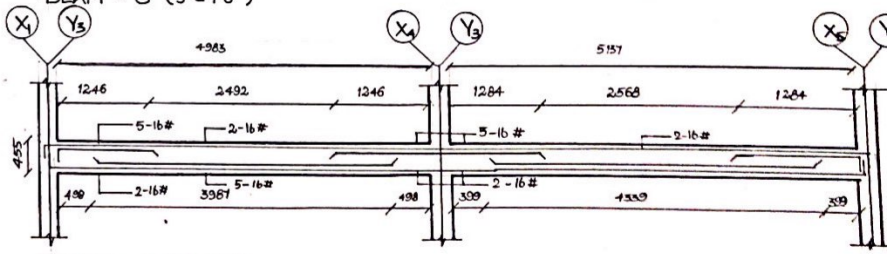
TYPICAL BEAM END AND MID SECTION DETAILS



SLAB DETAILS



BEAM - 8 (9"-1'6")



BEAM - 9 (9"-1'6")

AB, BEAM AND COLUMN JOINT

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DR. M.G.R. EDUCATIONAL & RESEARCH INSTITUTE

SHEET N
29. 10

MIVAN FORMWORK

PURPOSE OF THE SITE VISIT
- INTRODUCTION TO MIVAN TECHNOLOGY

LOCATION : SAFEGAMES VILLAGE KOYAMBEDU
PROJECT : CPWD HOUSING PROJECT BY TAMILNADU, HOUSING BOARD.
CONTRACTOR: BVR CONSTRUCTIONS
ARCHITECT : SHANKAR MAHESH, METAPHOR
NO. OF. FLOORS: 19
NO. OF. UNITS: 119
EACH UNIT IS DESIGNED AS 4BHK OF 1800 SQ FT. EACH.

BAR BENDING

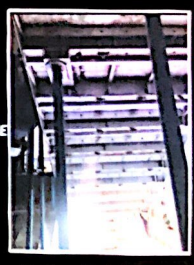
THE PROCESS OF BENDING REINFORCEMENT STEEL INTO SHAPES AS PER REQUIREMENT OF THE PARTICULAR REINFORCED CONCRETE WORK ITEM.
IT PROVIDES REINFORCEMENT CALCULATION FOR REINFORCED CONCRETE BEAM.

MIVAN ALUMINIUM FORMWORK TECHNOLOGY IS A REVOLUTIONARY ALUMINIUM FORMWORK CONSTRUCTION SYSTEM, WHICH HAS BEEN SUCCESSFULLY USED AND DEVELOPED SINCE MANY YEARS, FOR FORMING CAST IN PLACE REINFORCED CONCRETE BUILDING STRUCTURE USING THIS UNIQUE FORMWORK, ALL WORKS, FLOORS, SLABS, COLUMN, BEAMS, STAIRS, BALCONIES, TOGETHER WITH DOORS AND WINDOW.

THE RESULTING BUILDING STRUCTURE IS VERY STRONG, ACCURATE IN DIMENSIONS AND TOLERANCES, WITH A HIGH QUALITY OF FINISHED CONCRETE SURFACE AND YET AT THE SAME TIME THE MIVAN FORMWORK IS FAST

CHARACTERISTICS, OF MIVAN TECHNOLOGY OF ALUMINIUM FORMWORK IS THAT IT MAKES USE OF CONCRETE AS THE PRINCIPAL BUILDING MATERIAL FOR THE PRIME REASONS OF COST AND ACCESSIBILITY CEMENT, SAND AND STONE ARE READILY AVAILABLE IN MOST COUNTRIES CONCRETE ALSO BRINGS ADDITIONAL BENEFITS IN TERMS OF ITS BUILT QUALITY AND STRENGTH, IT'S RESISTANCE TO FIRE, ROT AND VERMIN ATTACK, IT'S LOW NOISE TRANSMIT WITH GOOD THERMAL CAPACITY AND IT'S PROVEN DURABILITY, GIVING LONG LIFE, WITH LITTLE MAINTENANCE.

- → IN MIVAN FORMWORK, NO CONSTRCTION CAN BE DONE AFTER THE FORMWORK. IT IS COST EFFECTIVE ONLY IF IT IS USED IN SYMMENTRICAL TYPE OF STRUCTURE
- → IT'S INITIAL SETUP TAKE TIME
- → SKILLED LABOUR IS REQUIRED FOR ALIGNMENT MAINTENANCE HOLES CAUSED BY WALL TIE SHOULD BE GROUTED PROPERLY, ELSE THAT WILL LEAD TO LEAKAGE IN COLUMN. THOUGH IT HAS IT'S NEGATIVES, IT GIVES SMOOTH FINISHING
- → THE FORMWORK CAN BE REUSED UPTO 250 TIMES AND ALSO CAN BE RECYCLED.



SITE VISIT - REPORT
BUILDING CONSTRUCTION - III

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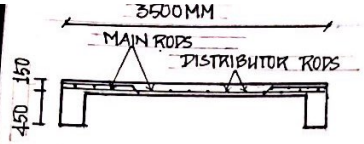
SHEET NO: 8



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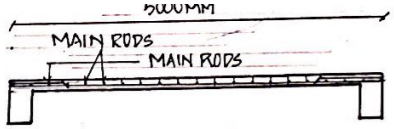

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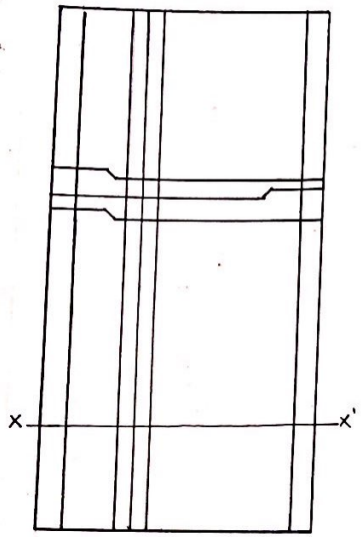
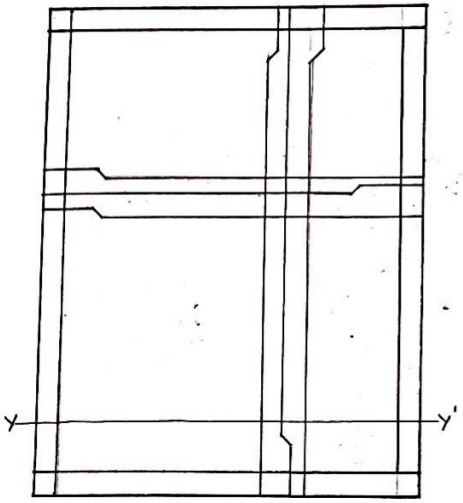


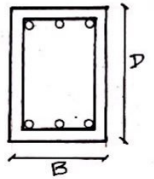


THE RATIO (L/B) WHICH IS LESS THAN 2 IS KNOWN AS TWO WAY SLAB.

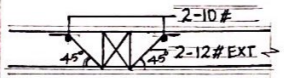
TWO WAY SLABS ARE THE SLABS THAT ARE SUPPORTED ON FOUR SIDES.

IN TWO WAY SLABS, LOAD WILL BE CARRIED IN BOTH THE DIRECTIONS, SO, MAIN REINFORCEMENT IS PROVIDED IN BOTH DIRECTION FOR TWO WAY SLABS.

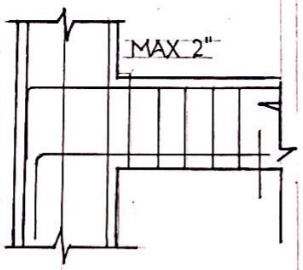
TYPICAL CROSS SECTION OF BEAM

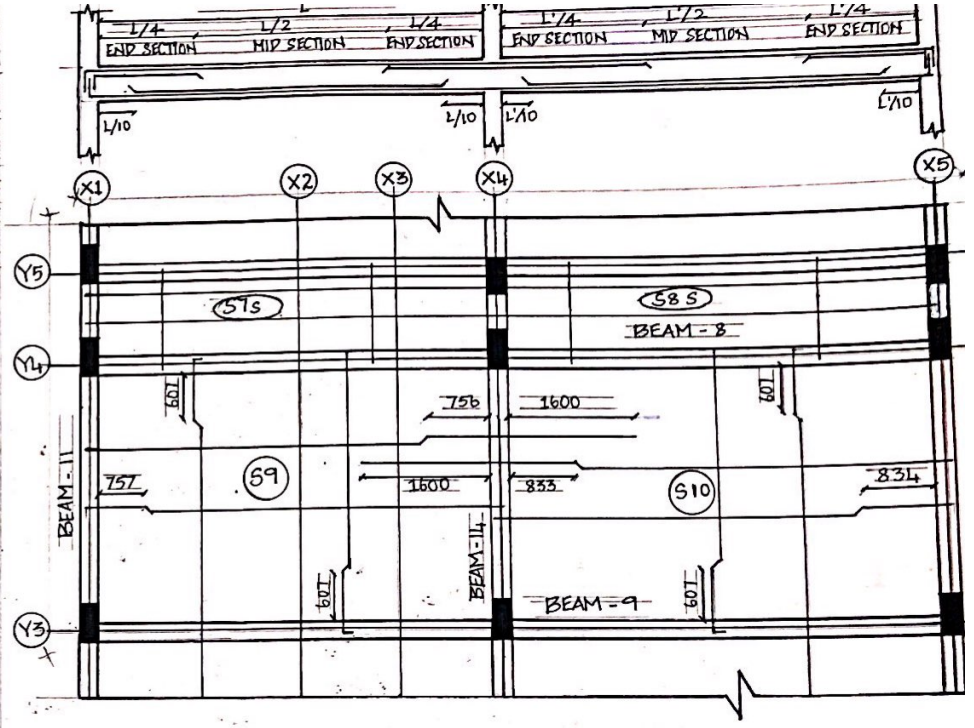


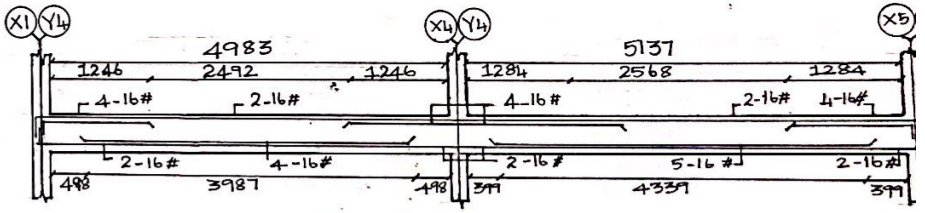
TYP. BEAM JOINT



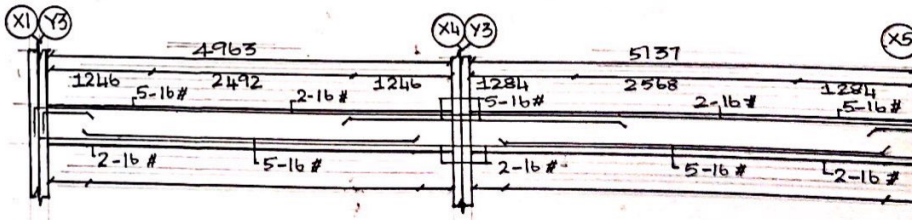
BEAM & COLUMN JUNCTION DETAILS.







BEAM - 8 [9"x16"]



BEAM - 9 [9"x1'6"]

WHAT IS A ONE WAY SLAB ?

ACCORDING TO IS 456:2000, THE RATIO OF LONGER SPAN (l) TO SHORTER SPAN (b) WHICH IS (L/B) GREATER THAN 2 IS KNOWN AS ONE WAY SLAB.

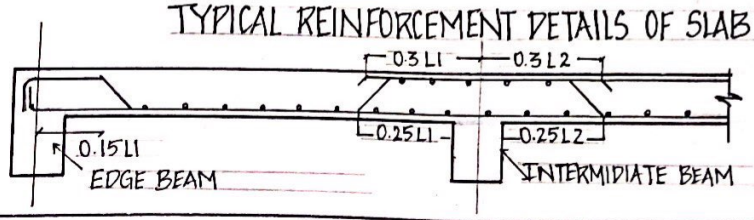
THE MAIN REINFORCEMENT BAR WILL BE PROVIDED IN THE SHORTER SPAN WHERE THE BENDING MOMENT WILL BE HIGH AS SHOWN IN THE DRAWING.

ONE WAY SLAB IS SUPPORTED ON TWO OPPOSITE SIDE ONLY THUS STRUCTURAL ACTION ONLY AT ONE DIRECTION. TOTAL LOAD IS CARRIED IN THE DIRECTION PERPENDICULAR TO THE SUPPORTING BEAM.

DUE TO THE HUGE DIFFERENT IN LENGTHS, LOAD IS NOT TRANSFERRED TO THE SHORTER BEAMS. MAIN REINFORCEMENT IS PROVIDED IN ONLY ONE DIRECTION FOR ONE WAY SLABS.

EVEN WHEN A RECTANGULAR SLAB IS SUPPORTED ON ALL THE FOUR EDGES, THE SLAB MAY BE CONSIDERED AS A ONE-WAY SLAB IF THE LENGTH-TO-BREADTH (L/B) RATIO OF THE SLAB IS EQUAL TO OR GREATER THAN TWO.

TYPICAL REINFORCEMENT DETAILS OF SLAB.



ONE WAY SLAB & TWO WAY SLABS, BEAM & COLUMN JOINT DETAILS

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