

ARCHITECTURE

FOUNDATIONS
Deep Foundations

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TYPES OF FOUNDATION

Types of foundation

Shallow foundations

- Not more than 5 m deep

- Not special equipment for earthworks

Deep foundations

- More than 5 m deep

- Special equipment required



DEEP FOUNDATIONS

Types of deep foundations

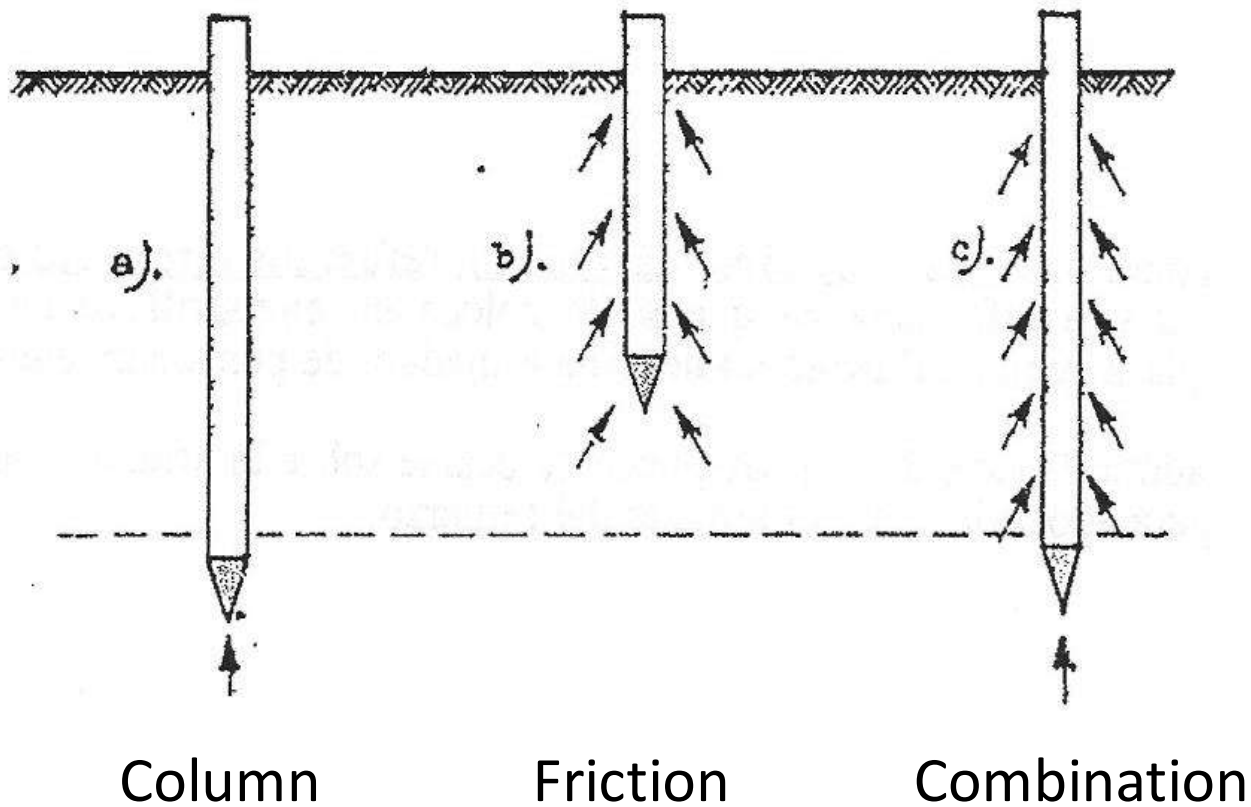
Piles

Diaphragm walls



DEEP FOUNDATIONS

PILES LOAD TRANSMISSION





DEEP FOUNDATIONS

CLASSIFICATION OF PILES

Displacement piles

- Driven cast in situ

Permanent casing

Temporary casing

- Preformed

Concrete

Steel

Timber

Replacement piles

- Supported

Permanent casing

Temporary casing

Casing

Drilling mud

- Unsupported



DEEP FOUNDATIONS

Construction of diaphragm walls

<https://www.youtube.com/watch?v=pgMZGGShvF4>

Construction of bored piles

<https://www.youtube.com/watch?v=KwqF075AzaE>

Driving piles

<https://www.youtube.com/watch?v=VkXTLaxGKxA>



PILE CAPS

The most important points

1. to know the loads to transfer the ground
2. How many piles are needed per load (per column or support)
3. How to join these piles to support this load

Pile caps join different piles to work together



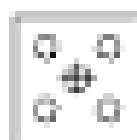
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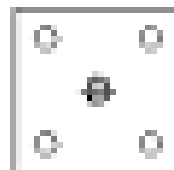
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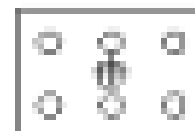
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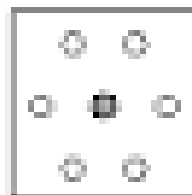
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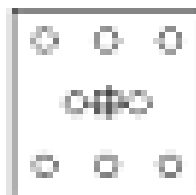
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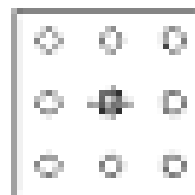
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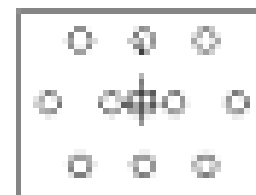
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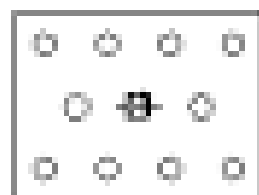
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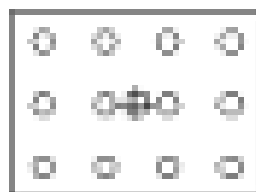
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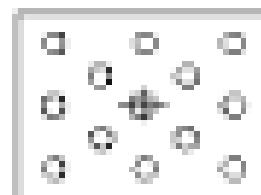
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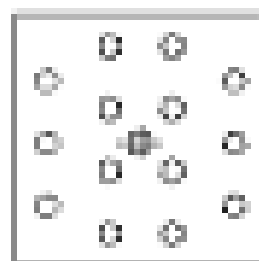
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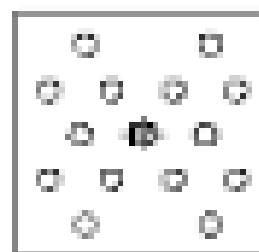
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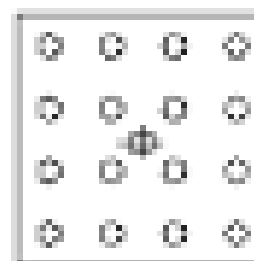
13 FILE



14 FILE



15 FILE



16 FILE



ORDER OF WORKS FOR PILE CAPS

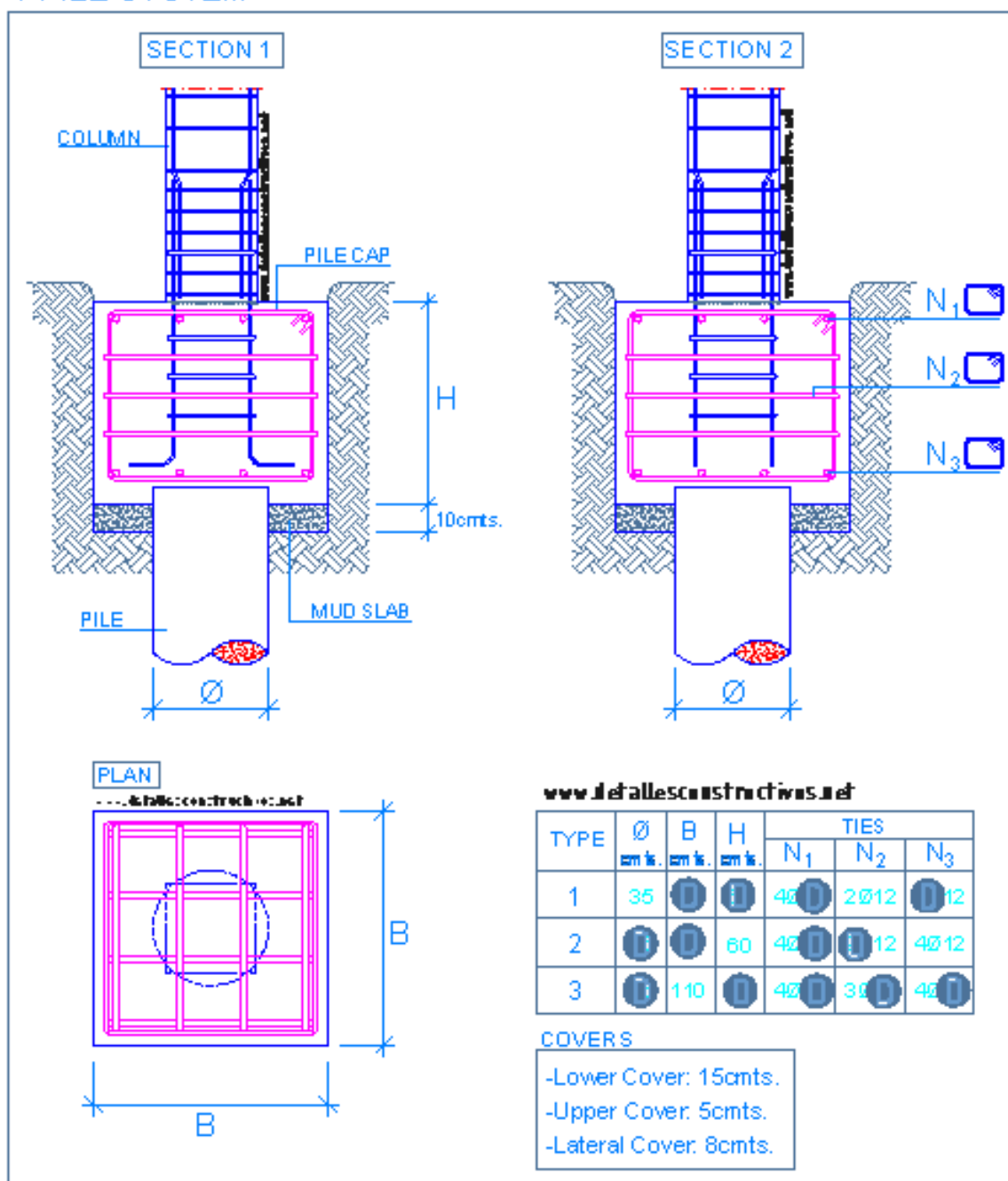
1. Break down the head of the pile (when reinforced concrete) for reinforcement
2. Clean it and prepare the place (also blind concrete)
3. Layout of columns and pile caps
4. Build the steel jail for reinforcement
5. Build the formwork and put spacers
6. Pour concrete



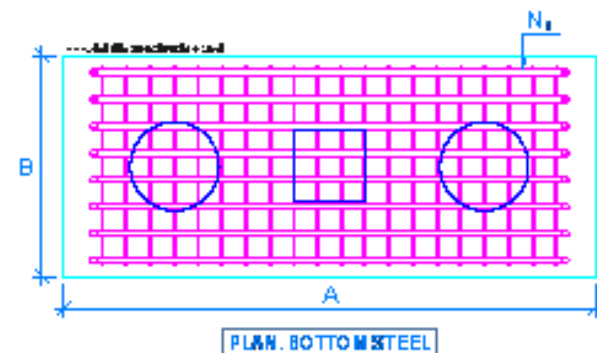
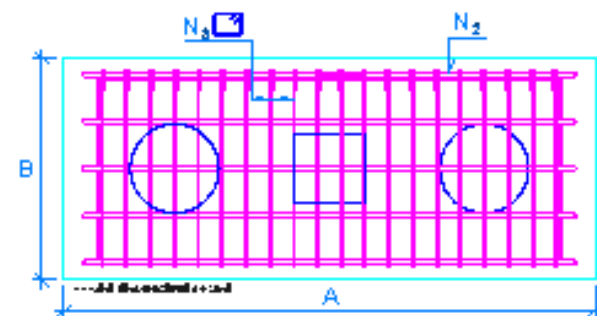
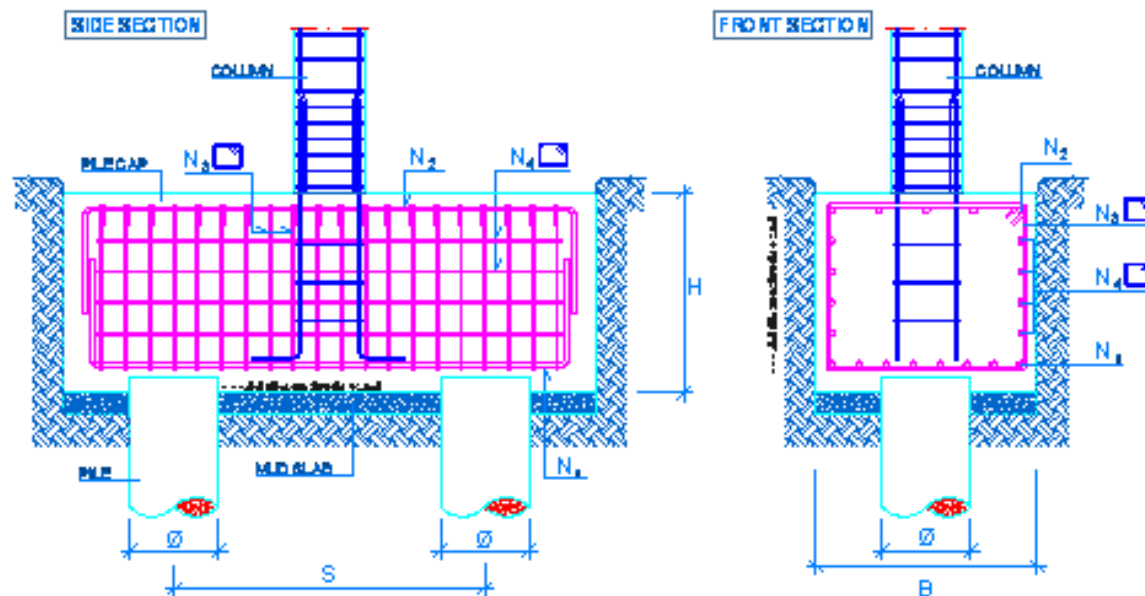


04/10/2013

1-PILE SYSTEM



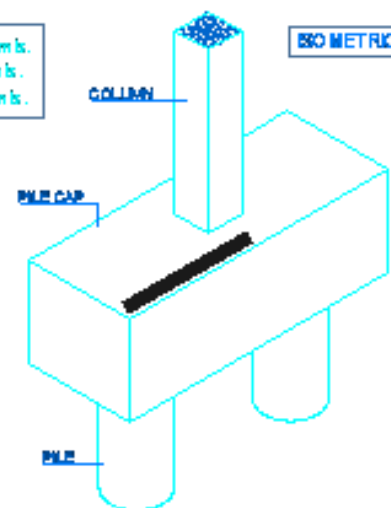
2-PILE SYSTEM



TYPE	$\varnothing$ cm.	A cm.	B cm.	H cm.	S cm.	N_1	N_2	TOP	
								N_3	N_4
1	220	220	100	100	125	50	40	100	40
2	220	100	100	100	125	50	40	100	50

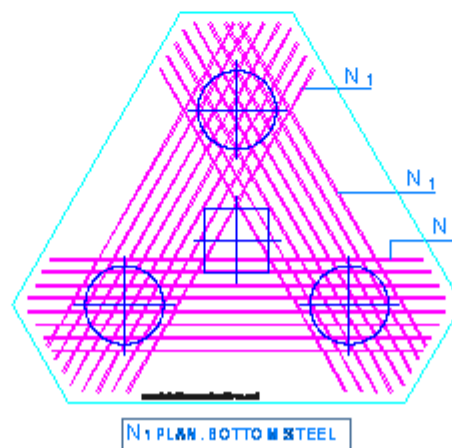
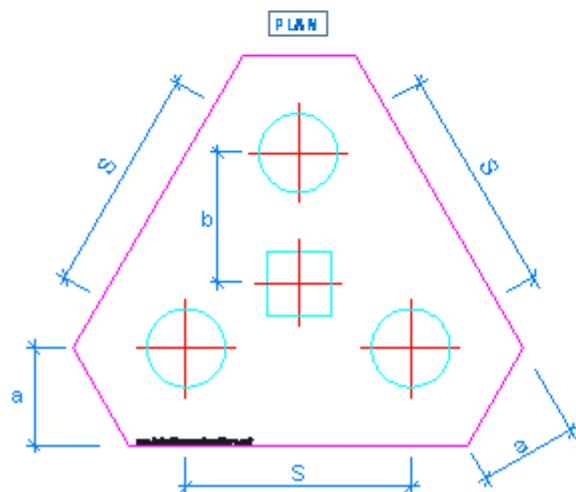
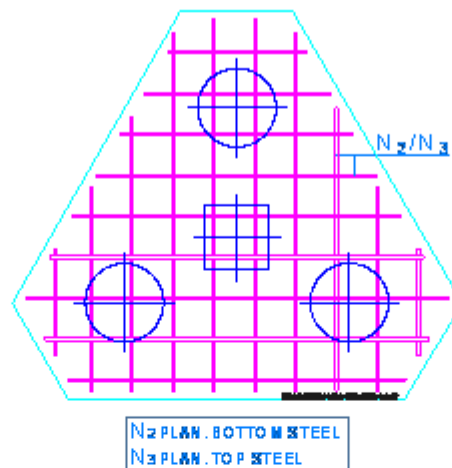
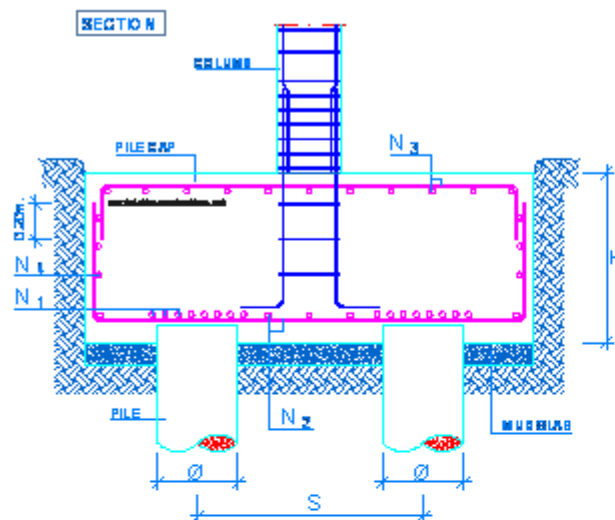
COVERS

- Lower Cover: 15cm ls.
- Upper Cover: 5cm ls.
- Lateral Cover: 5cm ls.





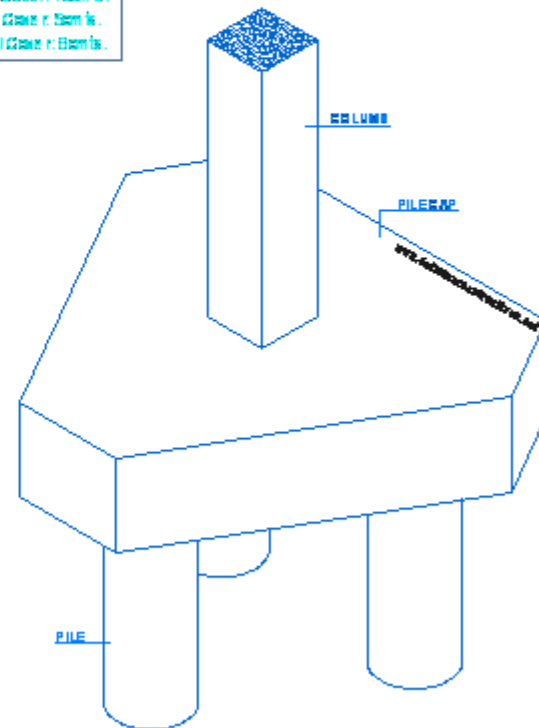
3-PILE SYSTEM



TYPE	Ø cm	a cm	b cm	H cm	S cm	N ₁	N ₂	N ₃	N ₄
1	15	55	7	115	115	5B12	4B12	4B12	5B12
2	17	60	8	125	125	5B12	4B12	4B12	5B12
3	17	65	9	135	135	5B12	4B12	4B12	5B12

COVERS

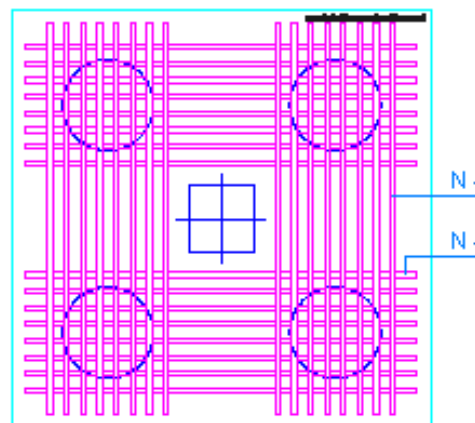
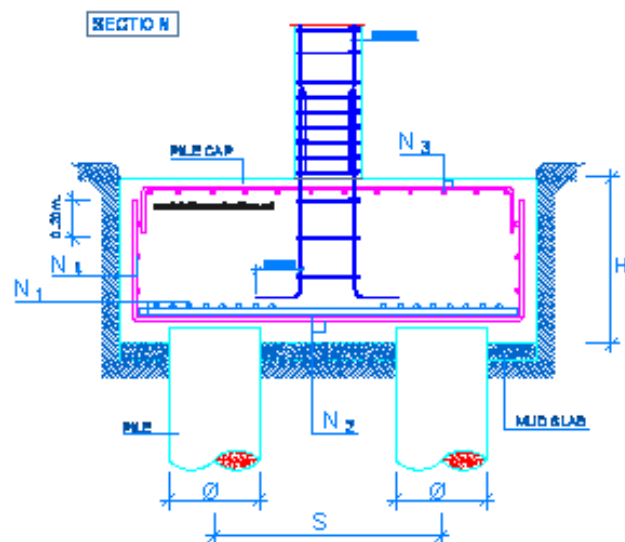
- Lower Cover: 15cm to
- Upper Cover: 15cm to
- Side Cover: 15cm to



ISO METRIC



4-PILE SYSTEM

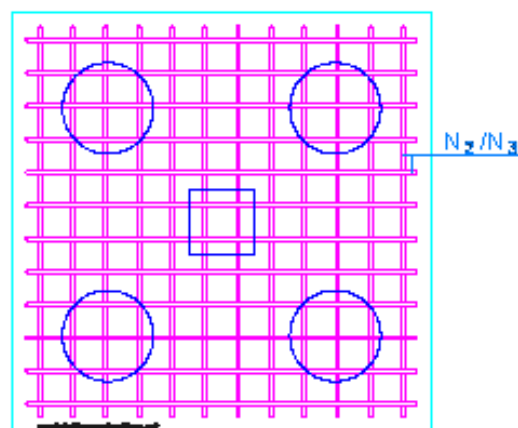
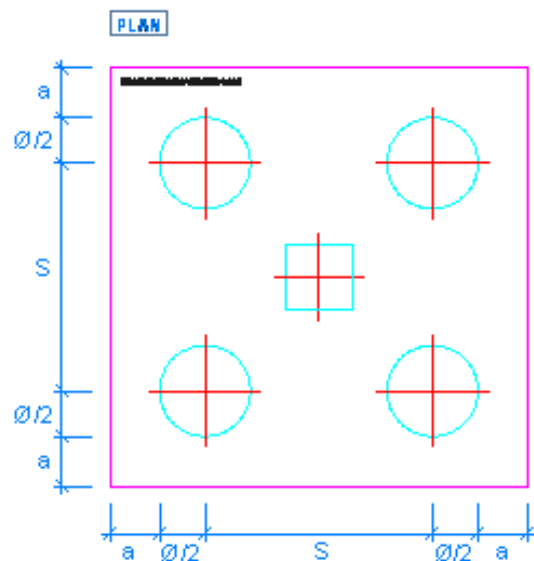


N1 PLAN. BOTTOM STEEL

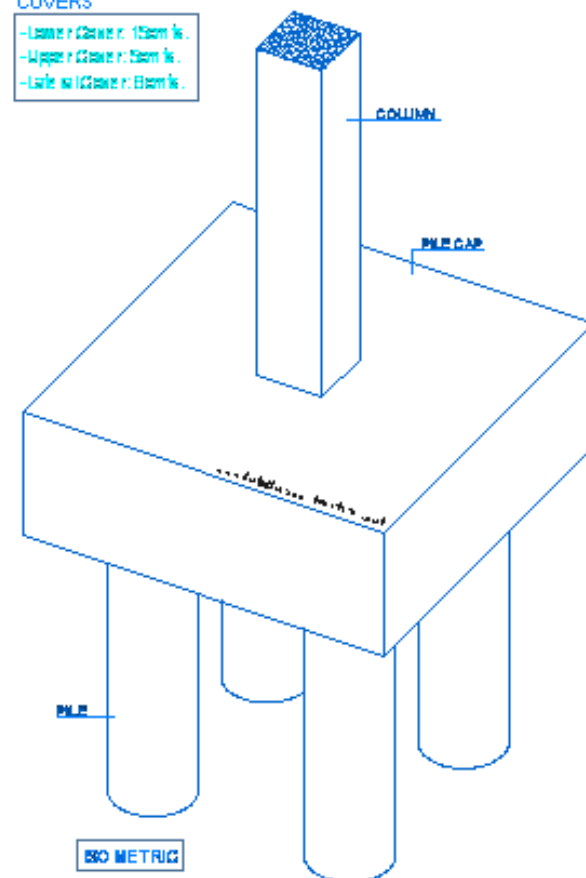
TYPE	Ø cm	a cm	H cm	S cm	N ₁	N ₂	N ₃	N ₄
1	15	30	1	112.5	528	428	428	328
2	15	30	1	112.5	528	428	428	328
3	15	30	1	112.5	528	428	428	328

COVERS

- Lower Cover: 15cm
- Upper Cover: 15cm
- Left and Right Cover: 15cm



**N2 PLAN. BOTTOM STEEL
N3 PLAN. TOP STEEL**



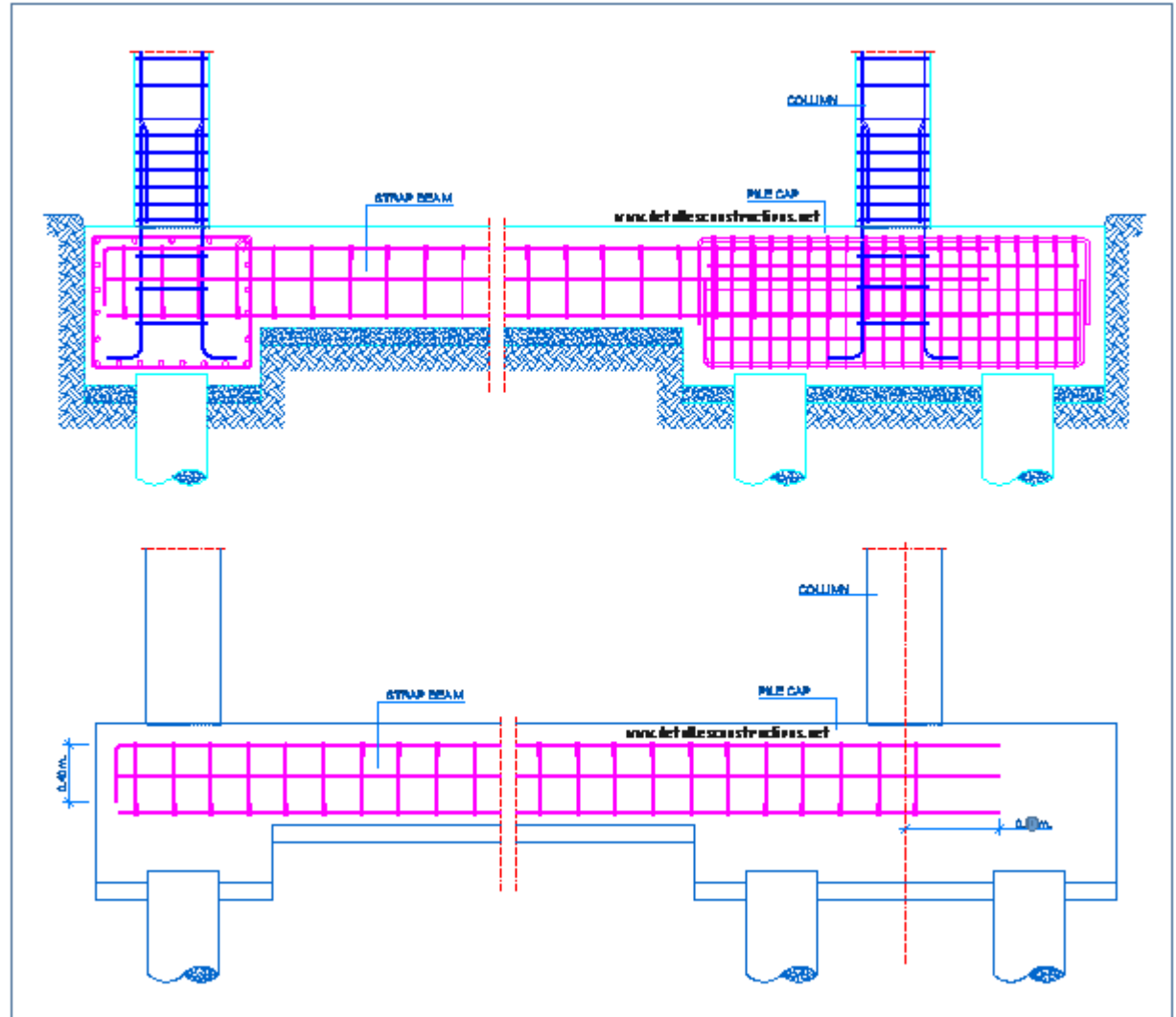
BIO METRIC



We build tie beams whenever it is necessary

Reinforced steel of tie beams must pass through the reinforcement of columns

TIE BEAM TO PILE CAP





6 FOUNDATIONS



