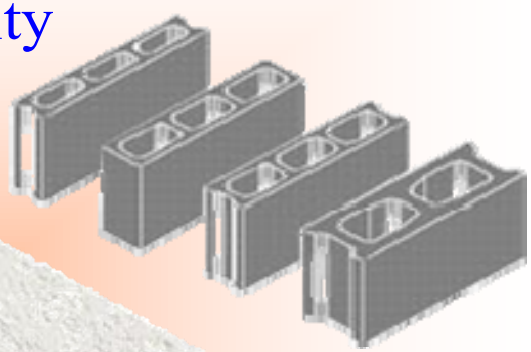
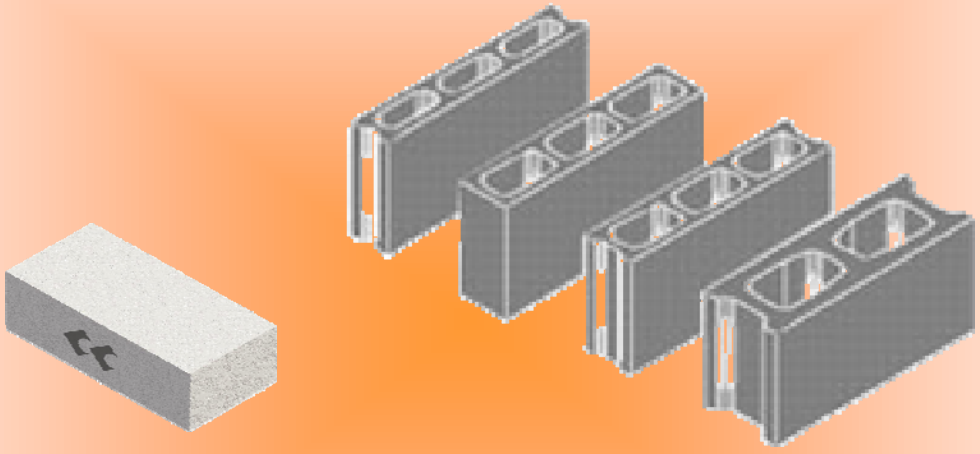
The Relentless Pursuit of Quality



CONCORD PRESENTS

AN INTRODUCTION INTO BLOCK MASONRY CONSTRUCTION & OTHER BUILDING PRODUCTS

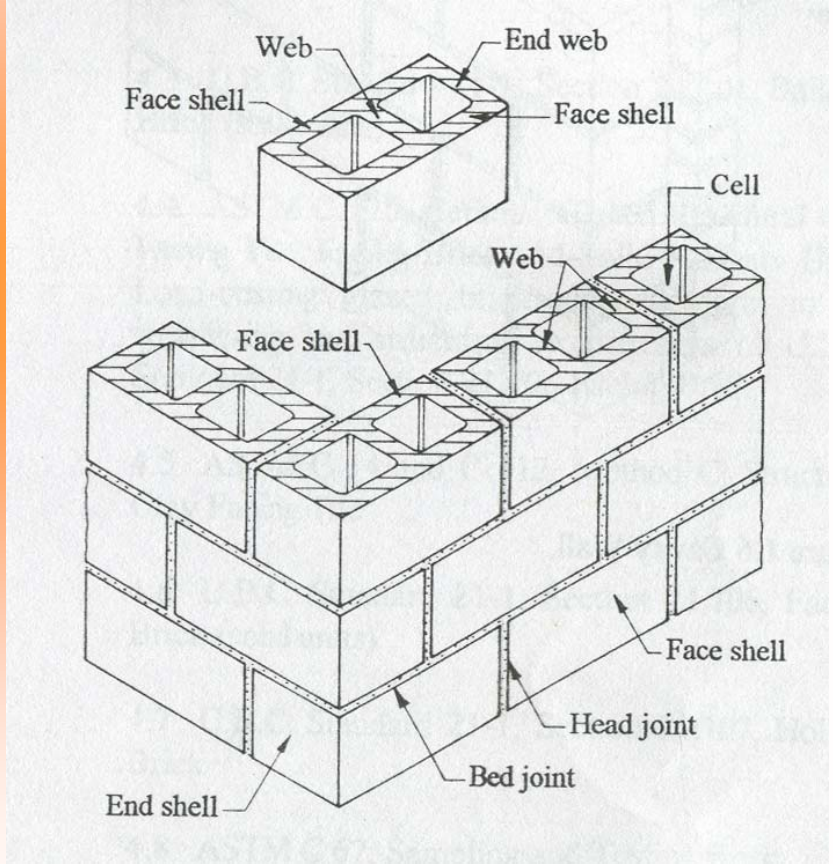


CONCRETE BLOCKS

WHAT IS BLOCK?

- **CONCRETE BLOCK IS AN UNIT MADE WITH CEMENT AND AGGREGATE WHICH IS USED IN MASONRY WORK.**

- **CONCRETE BLOCKS HAVE BEEN A BASIC BUILDING MATERIAL FOR OVER HALF A CENTURY IN MOST TECHNOLOGICALLY DEVEOPED COUNTRIES BECAUSE OF THEIR INUMERABLE ADVANTAGES OVER TRADITIONAL BUILDING MTERIALS**



TYPES OF CONCRETE BLOCK

SOLID CONCRETE BLOCK is a masonry unit whose net x-sectional area in the plane parallel to the bearing surface is 75% or more of the gross x sectional area in the same plane.

HOLLOW CONCRTE BLOCK is a masonry unit whose net x-sectional area in the plane parallel to the bearing surface is less than 75% of the gross x-sectional area in the same plane.Two types of hollow block:

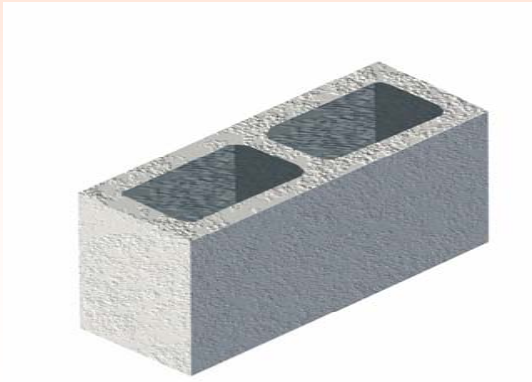
a. Wall block

b. Ceiling block

WALL BLOCK

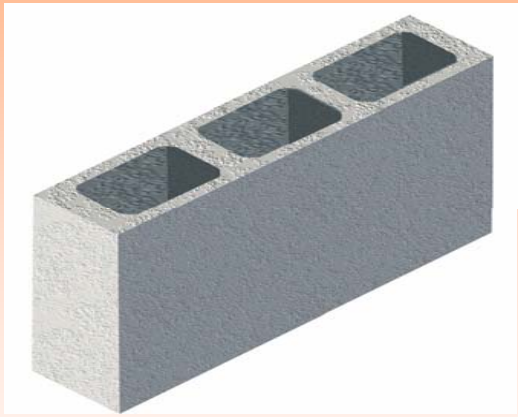
LOAD BEARING:

Used as load bearing unit in high rise as well as low rise building and as per design requirement blocks of different strength are available.



NON-LOAD BEARING:

Used as external and internal wall in frame structure.

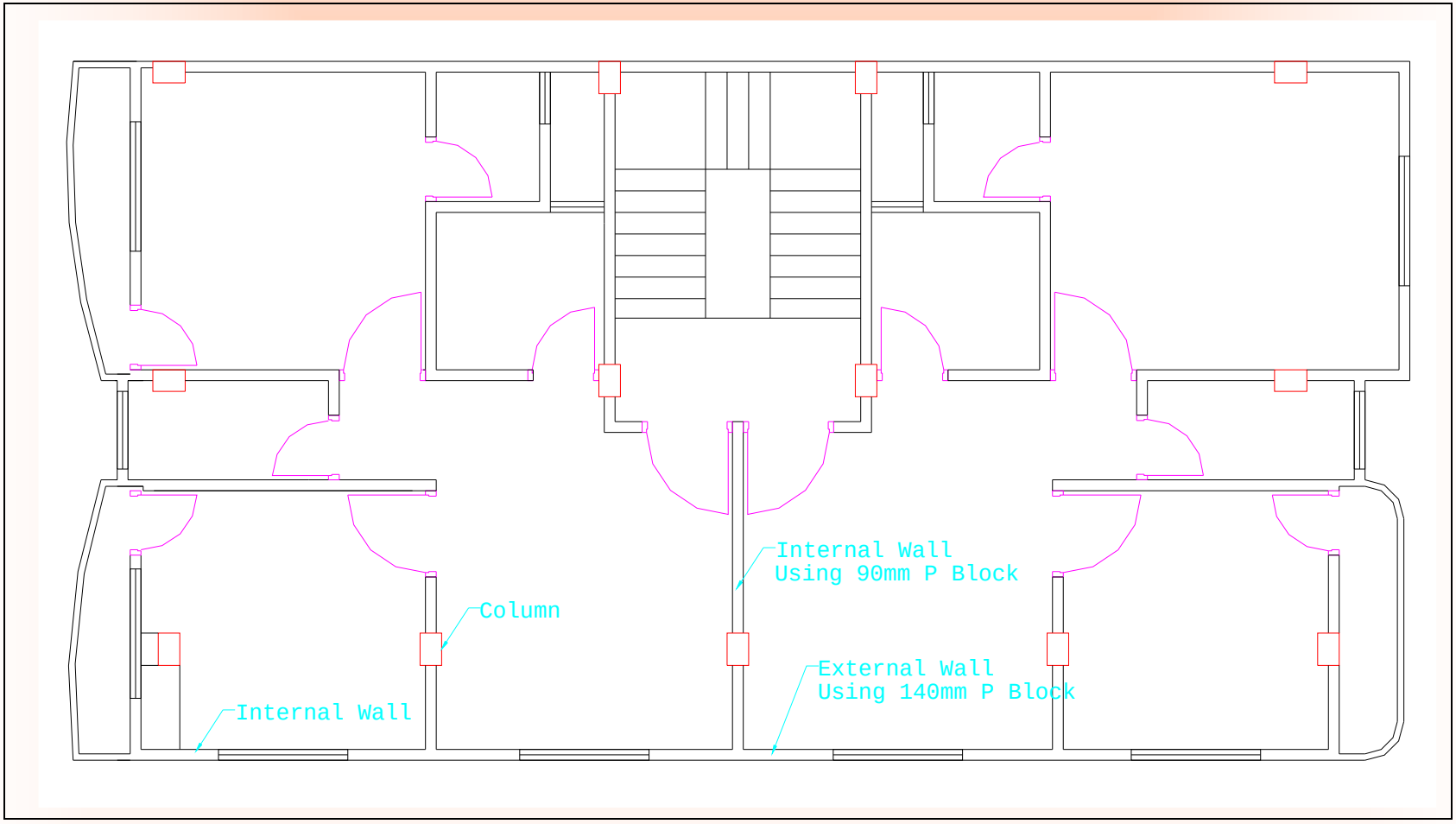


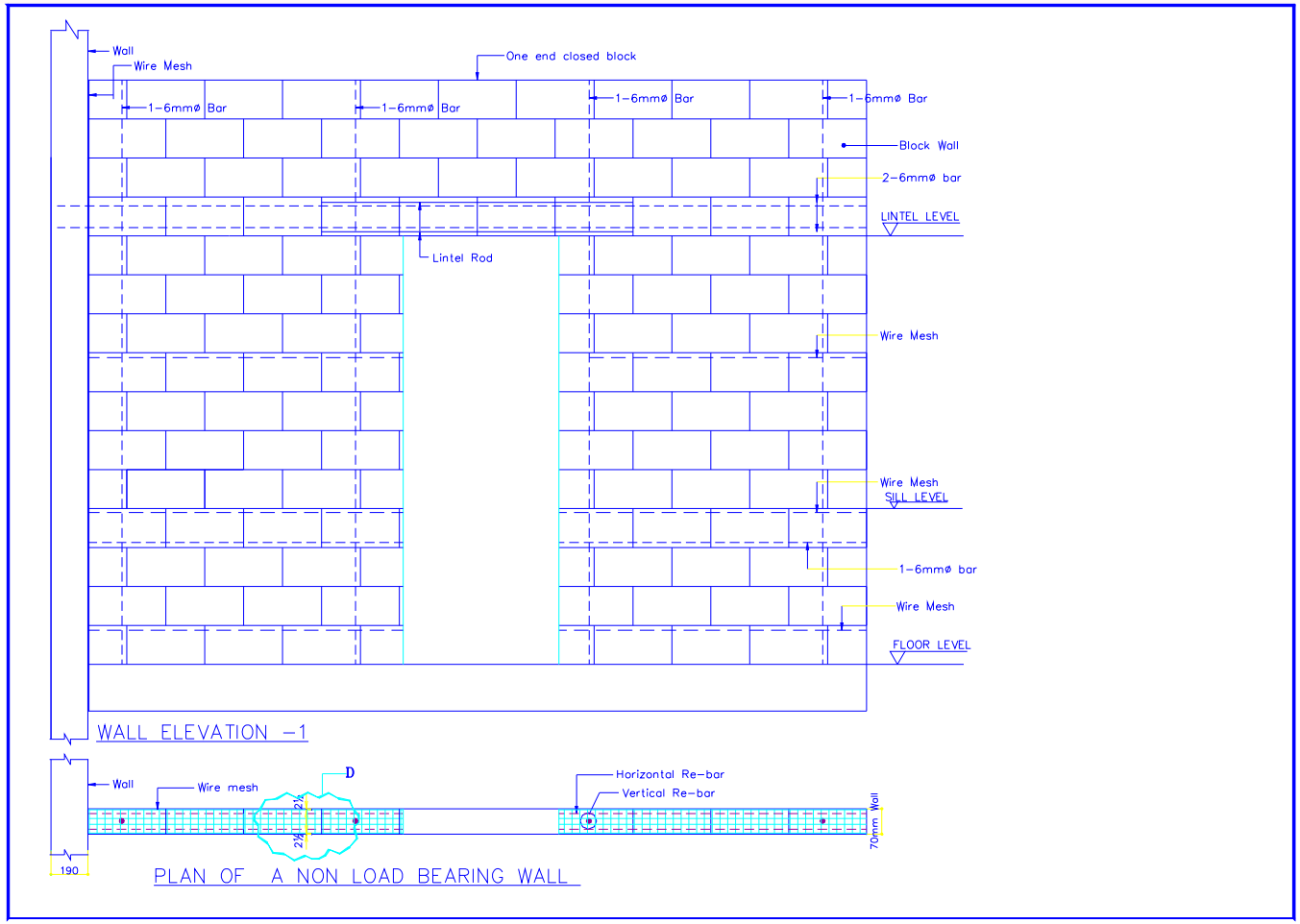
CONSTRUCTION METHODOLOGY

NON LOAD BEARING BLOCK WORKS

Non load bearing blocks can be used external and internal wall construction of frame structure building.

FOLLOWING IS THE TYPICAL FLOOR PLAN OF A FRAME STRUCTURE BUILDING WITH INTERNAL & EXTERNAL NON LOAD BEARING WALL

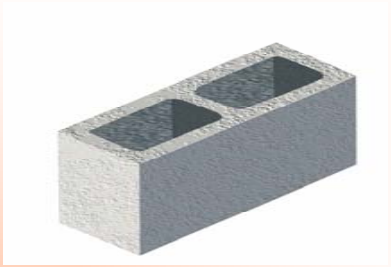




Typical plan and elevation of a non-load bearing wall.

6 storied apartment building with non-load bearing blocks.

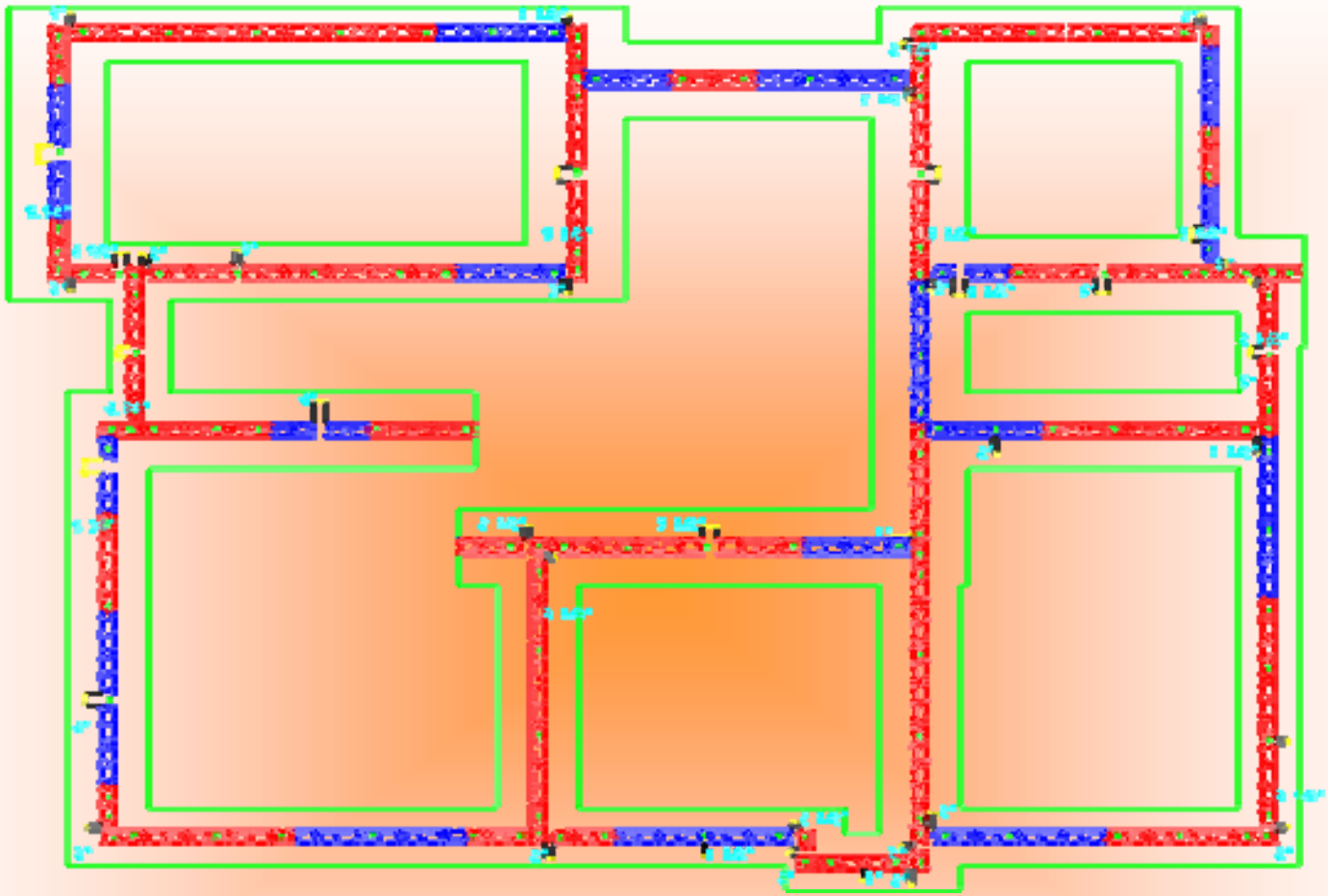
Load Bearing Block Works



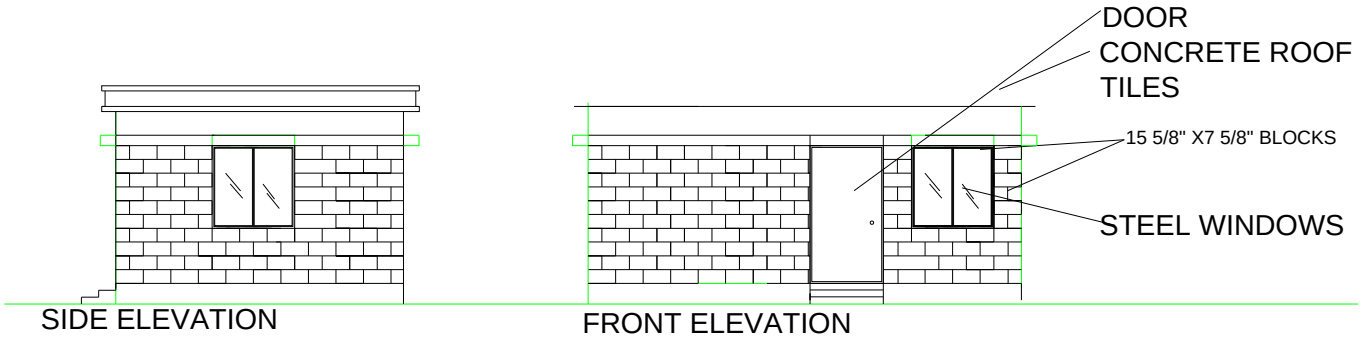
Load bearing blocks can be used to construct high rise as well as low rise building.

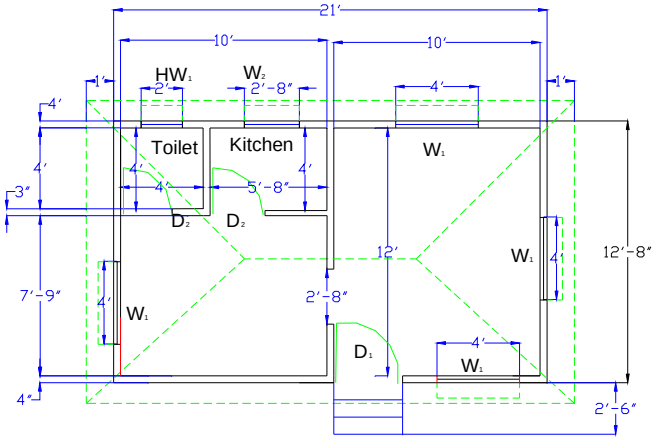
In this construction technology the load bearing wall carry the total load of the structure.

Blocks of different strength are used as per design requirement of the structure.



Load bearing block layout showing steel position and grouting

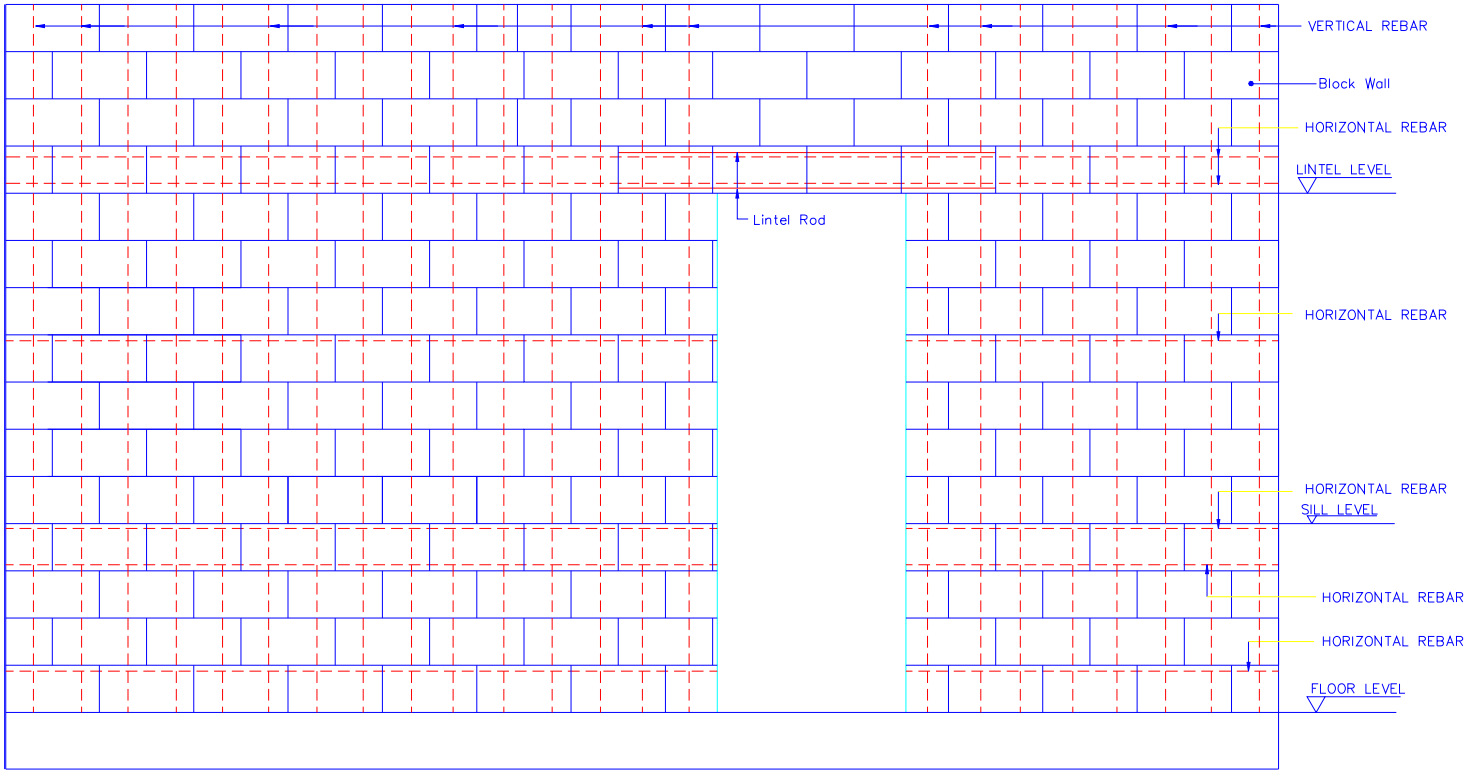




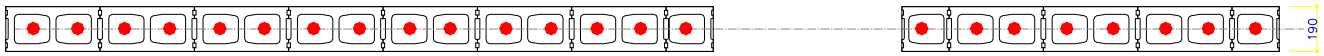
PLAN

Plan and elevation of low rise building with load bearing blocks.

Picture of a low rise building constructed with load bearing blocks.



WALL OF ELEVATION



PLAN OF A LOAD BEARING WALL

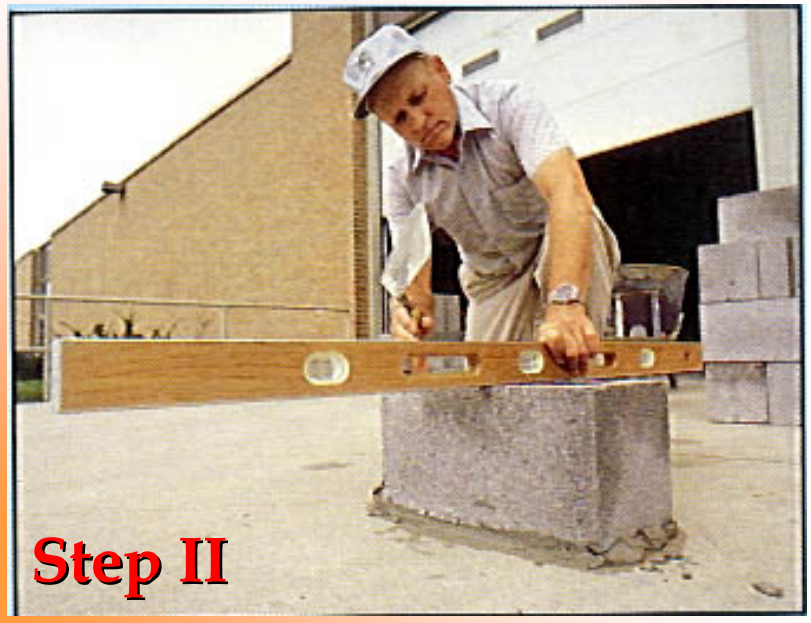
Plan and elevation of a load bearing block of a high rise building

High rise building construction is going on with load bearing block.

High rise building constructed with load bearing blocks.

Carrying of Block

Block Laying



Block Laying

Step V

Step VI

Step VII

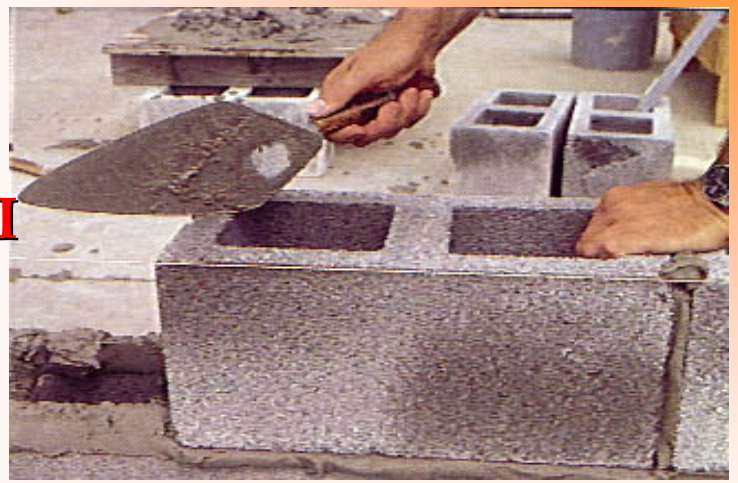
Step VIII

Block Laying

Step IX

Step X

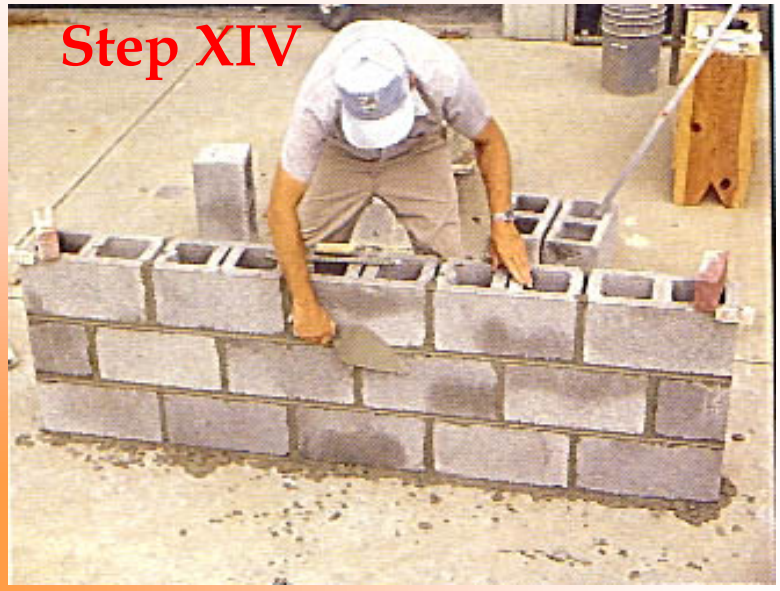
Step XI



Step XII

Block Laying

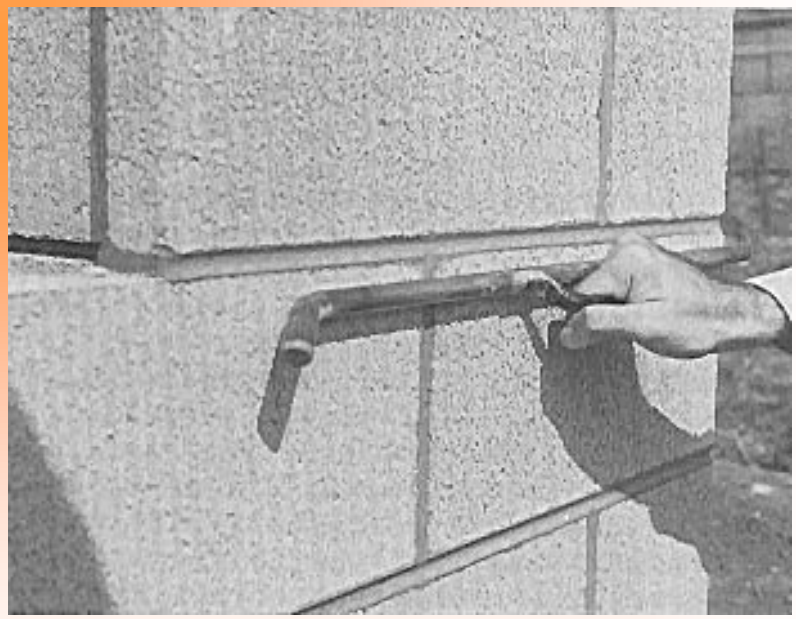
Step XIII



Step XIV

Step XV

Block Cutting



Pointing of Block Wall

Cleaning of Block Wall

Block Lintel

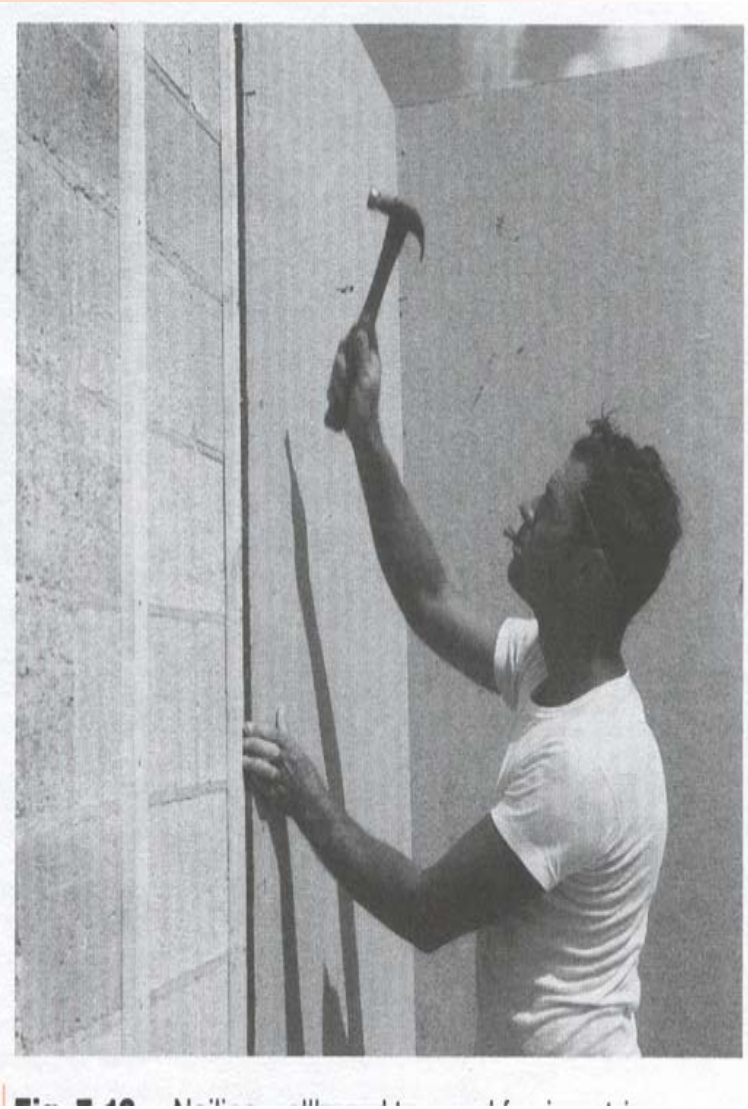
Window Opening & Balcony in Block Wall

DOOR IN BLOCK WALL

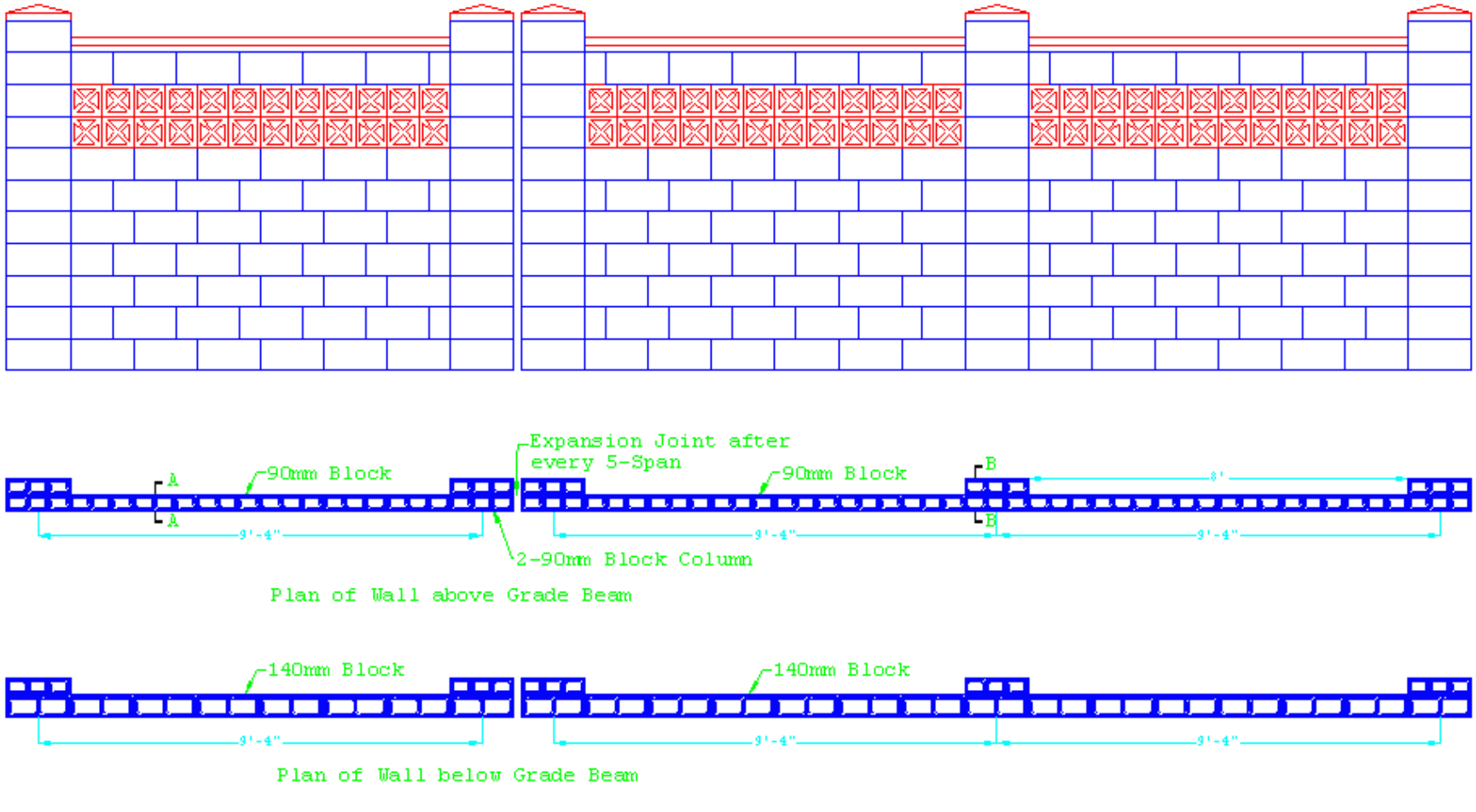
Electric Piping In Block Wall

Plastering

NAILING



Construction of Boundary wall with concrete blocks.



Boundary wall constructed with concrete blocks

CEILING BLOCK

Concrete Ceiling blocks are used in reticulated slabs. Reticulated slabs are concrete slabs that are reinforced in two directions and are much lighter than conventional slabs because they contain ceiling blocks.This leads to massive savings in costs as the structure can be designed for a much lower self weight.

Ceiling blocks provide good sound and insulation properties and are fire resistance.

CONSTRUCTION METHOD

- Prepare and level shutter as per design.
- Layout of block,rib,end beam should be marked as per design & drawing before placing block.
- As per drawing and instruction of engineer place the blocks and level those.
- Reinforcement should be placed after laying the block.
- For placing fan hook, top shell of the respective chamber of the ceiling blocks should be broken. After placing the hook, re-fill the broken area with 1:1.5:3 concrete.
- Horizontal electrical conduit be placed on the top of the ceiling block but under the reinforcement.Floor to floor vertical conduit to be placed through rib/column section.
- Before casting, block should be wetted.
- Casting should be started from corner and rib casting should be completed before top casting.
- The bunch of ceiling blocks may be tied up with C.I wire.

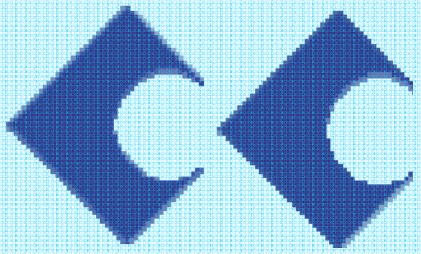
Slab construction with Ceiling Blocks

WHY CONCRETE BLOCK?

- Structure made with load bearing hollow hollow blocks can resist lateral load much better than conventional clay brick structure.
- Structure made with concrete blocks is much lighter than structure made with conventional clay bricks.Hence safe in earthquake.
- Concrete block wall is much stronger than clay brick wall due to monolithic action with bonding materials.
- Concrete blocks are salt free ,hence efflorescence can be avoided by using concrete blocks.
- Concrete blocks are fire resistant.Hollow blocks provide good insulation to heat and sound.
- Paint can be applied directly on block wall without plastering.
- Concrete blocks are environment friendly.
- Floor space can be increased by using concrete blocks.
- Faster construction is possible if one use concrete blocks.
- Concrete blocks are cost effective.

Comparison of properties of concrete block with clay burnt brick

Sl. No.	Properties	Concrete Block	Clay Brick	Comparison
A.	Weight	20 lb/sft-50 lb/sft	40 lb/sft-75 lb/sft	Weight of Clay brick is 35 to 50% greater than concrete block.
B.	Water absorption	6 to 8 %	16 to 20 %	Water absorption capacity of clay brick is 60% more than concrete brick
C.	Compressive Strength	2100 psi for non-load bearing block & 2100 to 5000 psi for load bearing block which is perfectly possible to ensure.	2000 to 3000 psi, which is not possible to ensure.	Concrete blocks of different strength can be produced as per different design requirements, Whereas it's not possible to produce clay bricks of different strength.
D.	Earthquake resistant	Due to ductile property of concrete blocks and due to it's light weight, structure made with concrete blocks is more safe in earthquake than structure made with clay bricks.		
F.	Heat & sound resistance properties	More heat and sound proof than clay brick because of existence of void in the block.		



CONPAC PRODUCTS

CONCEPT

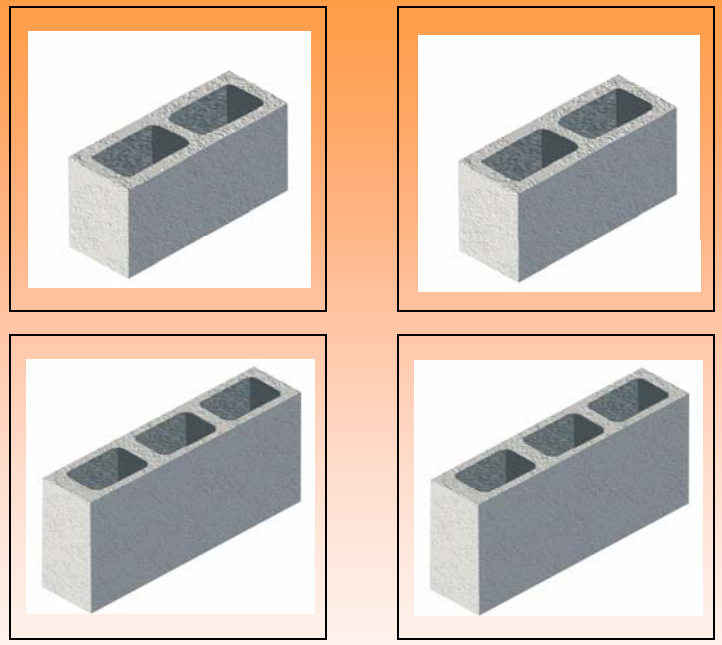
CONCORD GROUP, **A FOUNDER AND CONSISTENT LEADER OF THE COCNCRTE INDUSTRY, HAVE INTRODUCED MODERN CONCRTE BUILDING PRODUCTS HERE IN BANGLADESH TO HELP ARCHITECTS, ENGINEERS AND BUILDERS TO TAKE FULL ADVANTAGE OF THE MANY BENEFITS OF MODERN CONCRETE BUILDING PRODUCTS.**

FOLLOWINGS ARE THE MAJOR CONCRETE PRODUCTS OF **CONCORD GROUP:**

1. CONCRETE HOLLOW BLOCKS
2. CONCRTE SOLID BLOCKS
3. CONCRETE CEILING BLOCKS
4. CONCRTE PAVING BLOCKS & KERB STONE
5. INTERLOCKING CONCRETE ROOF TILES
6. ENGRAVED CONCRETE TILES FOR FLOORS,PAVEMENTS AND SIDEWALKS.
7. FLOOR SYSTEM - TERAZZO TILES.
8. WALL CLADDING AND ORNAMENTAL BLOCKS.

CONPAC PRODUCTS AT A GALANCE

CONPAC
Concrete Hollow Blocks



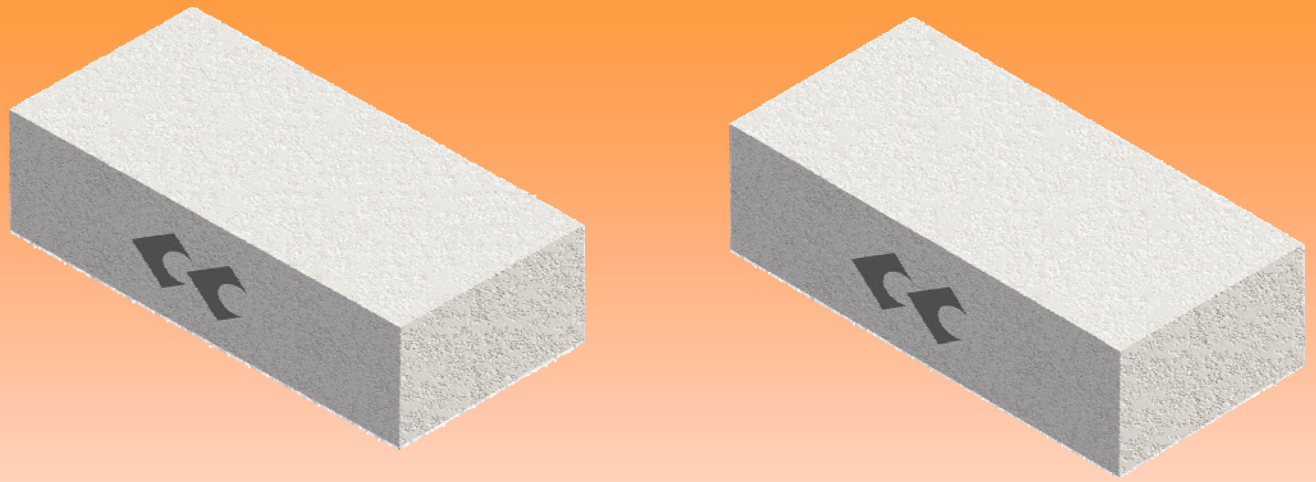
Conpac Wall Blocks Product Range:

Partition Block	Size (mm)	Weight (Kg)	Strength (Comp.) conpac	ACI/ASTM Code
70 mm	390x190x70	7.00	7 MPA	4.14 MPA
90 mm	390x190x90	8.00	7 MPA	4.14 MPA
100 mm	390x190x100	9.00	8 MPA	4.14 MPA
140 mm	390x190x140	12.50	9 MPA	4.14 MPA
190 mm	390x190x190	18.00	10 MPA	4.14 MPA
Load bearing block				
140 mm	390x190x140	14.50	15 MPA	13.1 MPA
190 mm	390x190x190	18.00	15-35 MPA	13.1 MPA

Savings at a Glance

Sl.	Description	Cost Savings	Weight Savings
1	70 mm block wall vs 125 mm conventional brick wall	24.29%	56.25%
2	90 mm block wall vs 125 mm conventional brick wall	17.54%	47%
3	100 mm block wall vs 125 mm conventional brick wall	12.74%	44.40%
4	140 mm block wall vs 250 mm conventional brick wall	32.31%	47.32%
5	190 mm block wall vs 250 mm conventional brick wall	19.77%	60.62%
6	90 mm block wall vs 9.5”x6.5”x4.5” mirpur ceramic block wall	16.55%	27.30%
	100 mm block wall vs 9.5”x6.5”x4.5” mirpur ceramic block wall	11.70%	23.60%

Conpac Concrete Solid Block

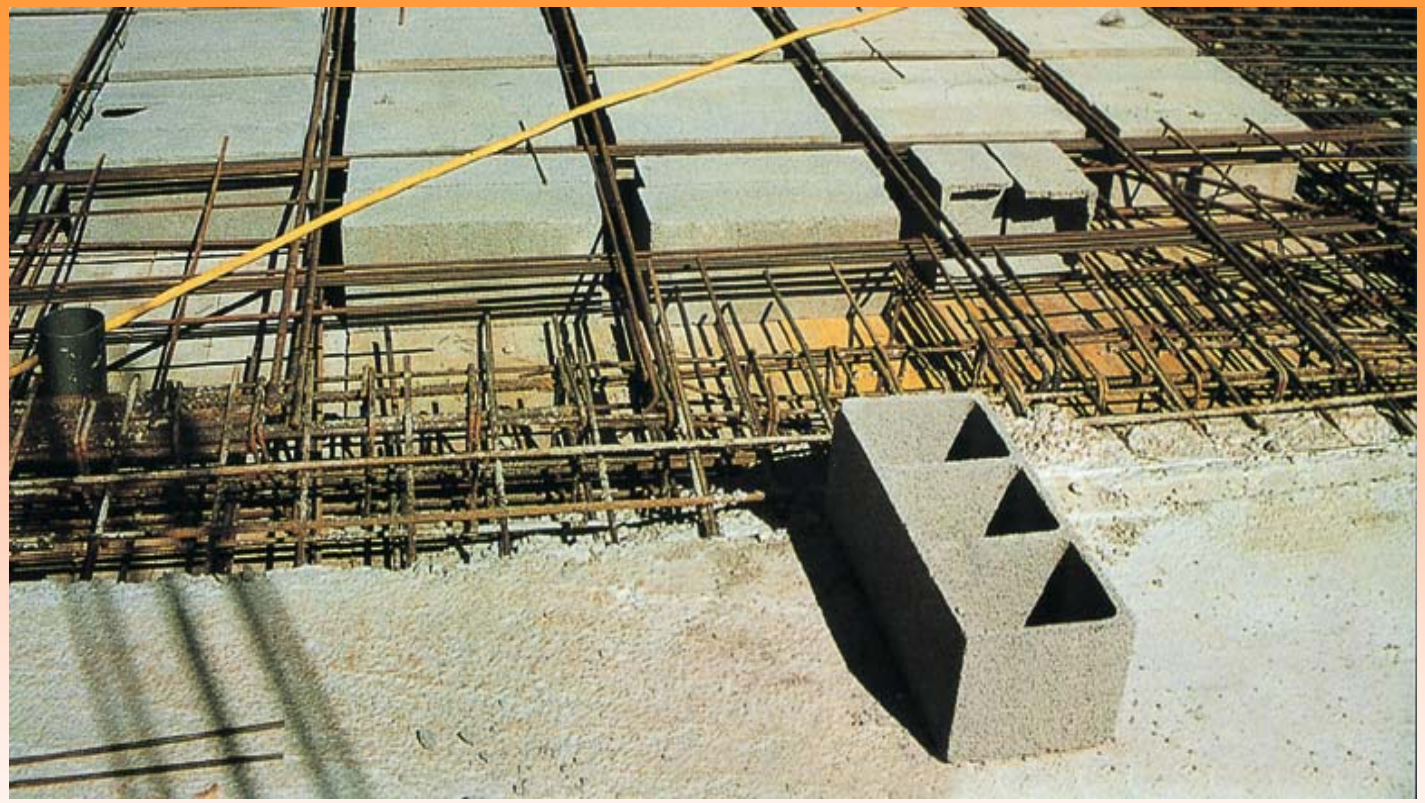


CONPAC - FB-65

Size : **215mmx100mmx65mm**

Weight : **3.2 kg**

Conpac Ceiling Block



Types & Sizes

Ceiling block	Size (mm)	Weight (Kg)	Strength (mpa)	Technical Data		
				Rib width (min^{m}) mm	Rib depth (min^{m}) mm	Slab thickness (min^{m}) mm
Conpac-C-300	600x200x300	31.0	4.0	100	300+50	350
Conpac-C-250	600x200x250	26.00	4.0	100	250+50	300
Conpac-C-200	600x200x200	22	4.0	100	200+50	250
Conpac-C-150	600x200x150	16.0	4.0	100	150+50	200
Conpac-C-140	390x190x140	14.0	4.0	100	140+50	190
Conpac-C-100	390x190x100	10.0	4.0	100	100+50	150

Savings in using conpac ceiling blocks

Concrete saving	**– up to 25%**
Reinforcement saving	**– up to 47%**
Cost saving	**– 15% to 22%**
Time saving	**– up to 15%**

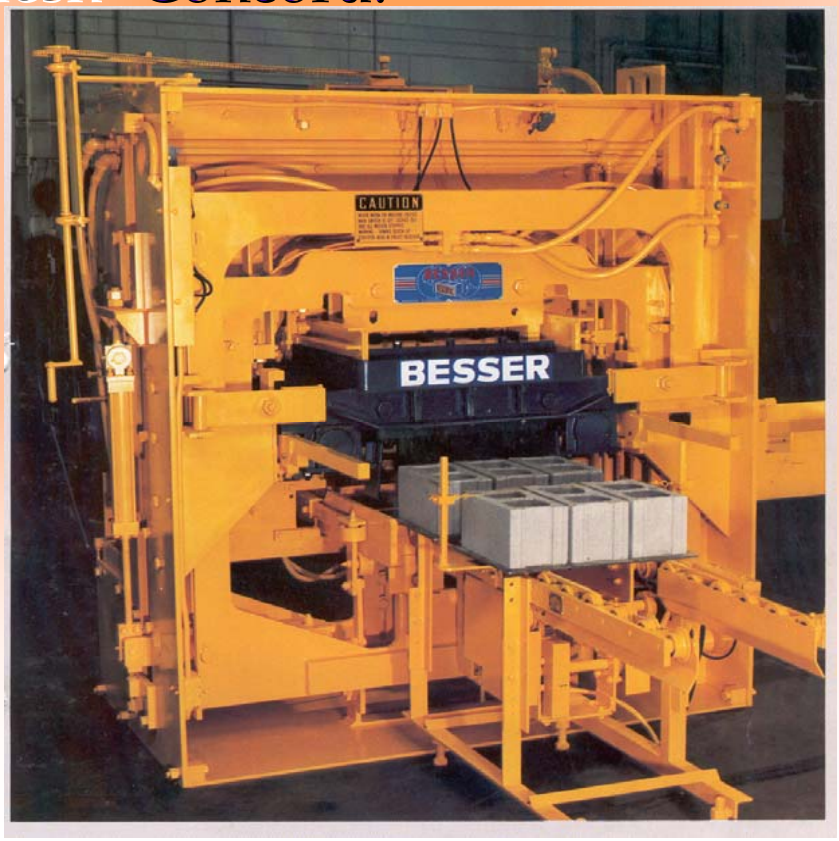
Concord's Concrete Blocks are Unique in Bangladesh

- **Concord is the company who introduced the Concrete Block technology Here in Bangladesh with 25 years expertise in concrete technology.**

- **Concord is the only Company in Bangladesh who is the member of National Concrete Masonry Association of U.S.A.**

- ☆ Concord is the only company in South-East Asia who has the capability to produce blocks of strength up to 35 MPA by using Besser Machine of U.S.A.

- ☆ Only 10 companies are using this expensive machine around the world. 9 of which are located in North America and the rest one is in Bangladesh- Concord.



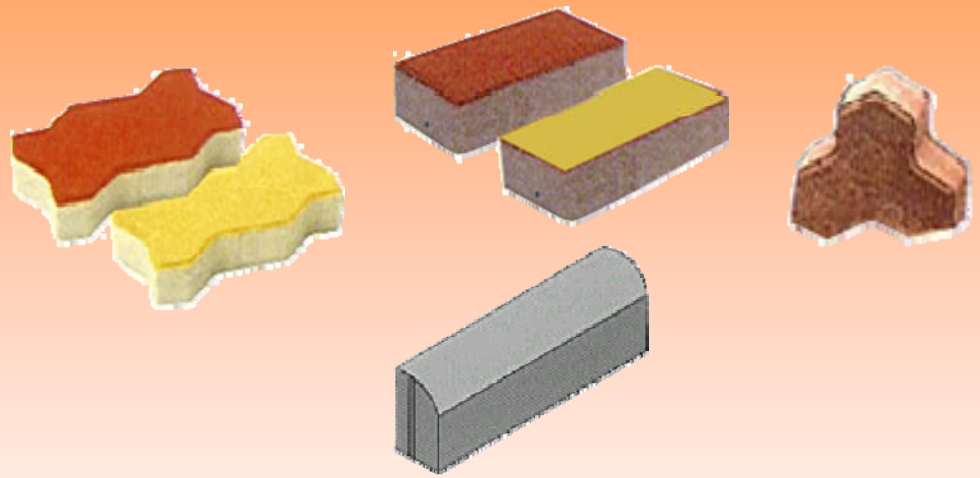
Concord's load bearing blocks of strength up to 30 MPA has been used in this Construction Project "Lake City Concord"

- **Concord strictly follows and ensures ASTM standard.**
- **Concord ensures replacement of broken blocks if it is more than 2 %.**
- **Concord can assure smooth supply because of its massive production capacity which is 1 lac pcs /day for non load bearing block and 14 thousand pcs/day for load bearing block.**

OTHER CONCRETE

PRODUCTS

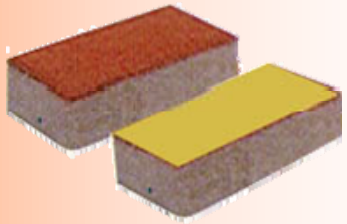
Conpac Paving Block
&
Kerb Stone



Concrete paving blocks consist of small individual high strength concrete units manufactured to accurate dimensional standards. The blocks are one hand sized and are laid without mortar on sand laying course. The blocks are formed from a "no slump" concrete mix comprised of Portland cement, sand and coarse aggregate which is compressed under extremely high pressure by high frequency vibration.

Concrete paving blocks are widely used ideal materials for footpath,car park,side walk,drive-way,parking lot, drive way,container yard,industrial yard and even for airports.

Uni Paving



Rectangular Paving

Curb stone

Trihux Paving

Conpac - Product range

Product model	Size (mm)	Weight (Kg)	Strength (Comp.) Conpac
Conpac-UP-6-15-G	222x110x60	3.22	15 MPA
Conpac-UP-6-15-C	222x110x60	3.22	15 MPA
Conpac-UP-6-49-G	222x110x60	3.22	49 MPA
Conpac-UP-6-49-C	222x110x60	3.22	49 MPA
Conpac-UP-8-49-G	222x110x80	4.30	49 MPA
Conpac-UP-8-49-C	222x110x80	4.30	49 MPA
Conpac-TP-6-15-G	196x196x60	3.43	15 MPA

Product Range

Product model	Size (mm)	Weight (Kg)	Strength (Comp.) conpac
Conpac-TP-6-15-C	196x196x60	3.43	15 MPA
Conpac-TP-6-49-G	196x196x60	3.43	49 MPA
Conpac-TP-6-49-C	196x196x60	3.43	49 MPA
Conpac-RP-6-15-G	200x100x60	2.50	15 MPA
Conpac-RP-6-15-C	200x100x60	2.50	15 MPA

Pavers of different size and shapes are also possible as per special requirement.

Advantage of Concrete Pavers Over Other Forms of Pavement

Concrete block paving shows advantages in terms of either cost or performance in the following circumstances:

1) **Where heavy or concentrated wheel loads are to be carried and especially where large numbers of turning or slewing movements are expected.**
2) **Where traffic intensities are high**
3) **Where sub-grade conditions are poor**
4) **Where the pavement must withstand severe operational conditions such as widely varying temperatures, frequently fuel, oil or lubricant spillages or large ongoing deep settlements**
5) **Where ready access to underground services are needed.**
6) **Where the appearance and aesthetic qualities of the pavement are major design considerations.**
7) **Where planning exigencies may require changes in the pavement layout within the effective service life of the blocks, base or sub-base.**

Details of Concrete Pavers Work

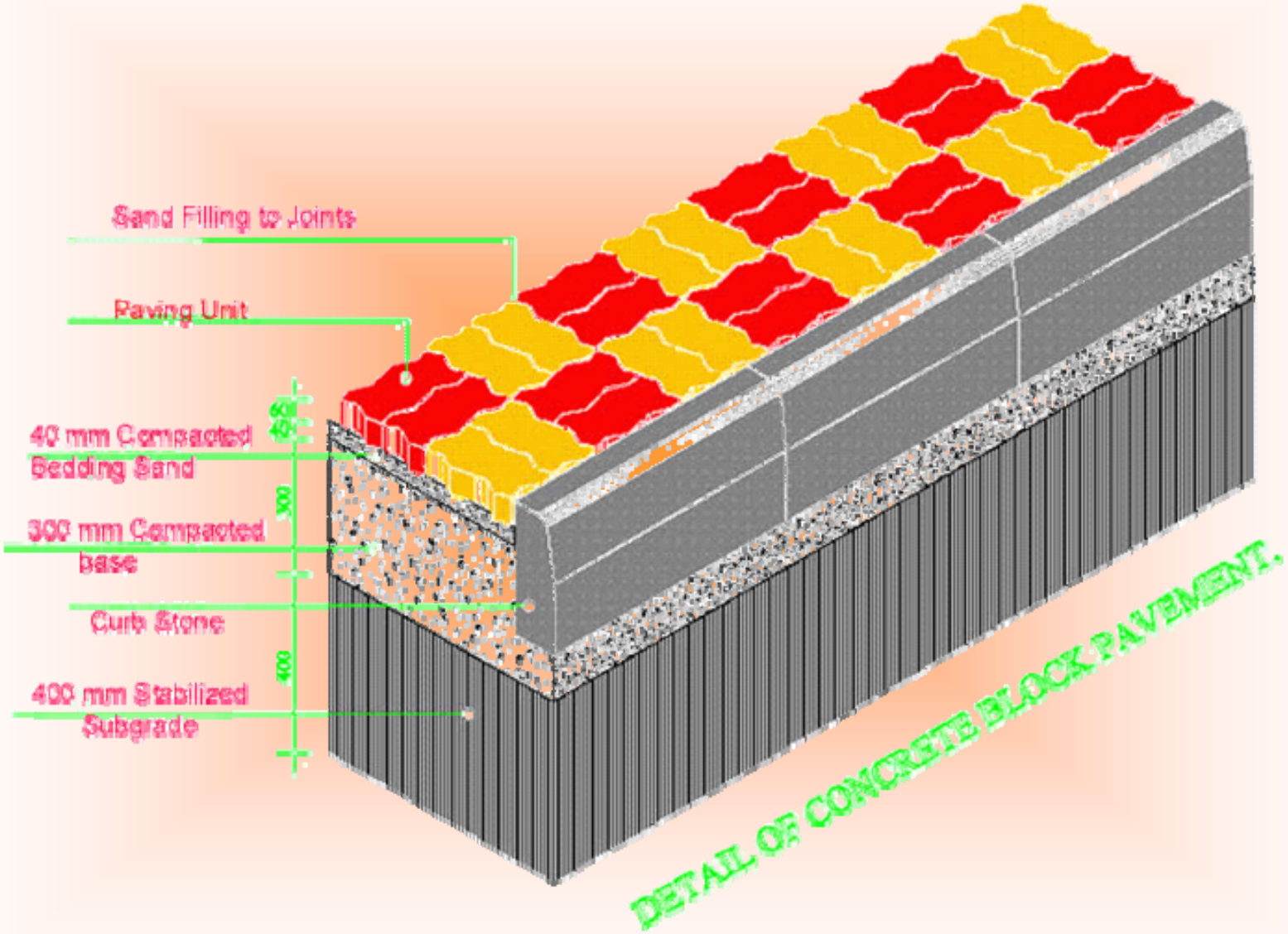
1) Sub-grade preparation
2) Sub-base and base preparation
3) Installation of the Bedding Sand
4) Compaction and Joint Filling

Beneath the sand bed, pavement normally comprises a compacted base laid over a compacted or stabilized sub-grade.

Where the pavement is to withstand heavy wheel loads or where soil conditions are poor, a sub-base may sometimes be interposed between the base and sub-grade.

For base, sub-base and sub-grade type and quality of the materials, the construction methods and the construction standards are similar to those needed in any good-quality flexible pavement.

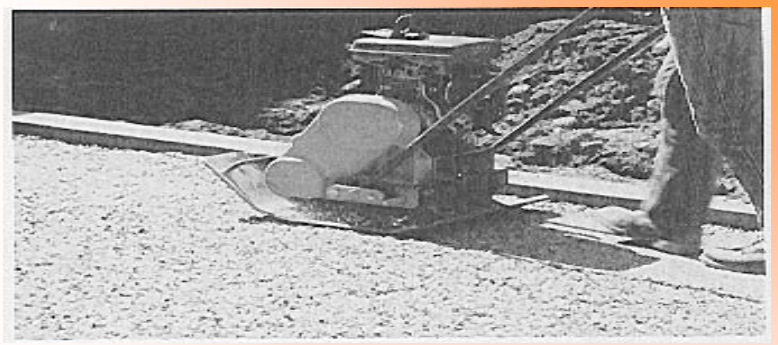
Details of Concrete Pavement Works



Details of Pavement Construction Works

After the sub grade is excavated, leveled and free of organic matter, soft spots and foreign materials, the edge restraint (Kerb Stone) will be installed

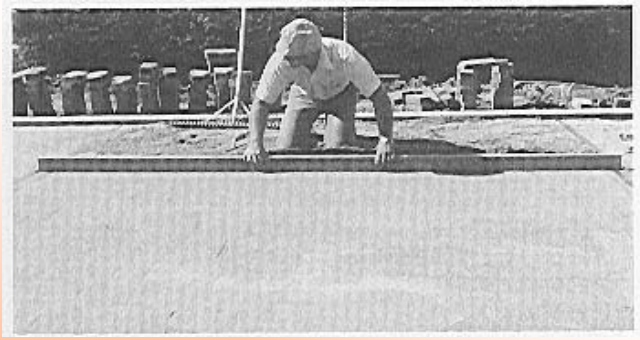
Crushed stone (3/4" maximum size) is provided to a 8"~12" thick in layered (one layer not more than 6") granular base over sub-grade.



The crushed aggregate base is compacted to 95% density with a vibratory plate compactor.

The base should be compacted by hand tampers in locations, such as corners, that are not accessible to mechanized vibrator.

A fine aggregate course is placed over the coarse aggregate base



The sand is leveled to a thickness of 1½ ~2″. A trowel is helpful for screeding procedure .

Paving units are placed hand tight directly on the leveled sand. A rubber mallet or wooden hammer is used to help set the pavers and keep the rows of pavers aligned.

A sting line controls the paver elevation and was set ½″ above the elevation of the edge restrains to allow for minor future settlement. The pavement should be slopped for drainage.

After the pavers are in place, dry sand is broomed onto the surface. A fine masonry sand is usually used.

The pavers are compacted into the bedding sand below with a vibratory compactor. The sand at the surface fills the joints and locks the units into place.

After compaction, the excess sand is broomed off.

The surface rinsed clean.

Important Note On Pavement Construction:

Sub-grade Preparation:

- Ensuring >90% Compaction

Construction of the Base and Sub-base:

The sub-base and base course should be constructed in a series of layers. Each layer should have a compacted thickness not less than 100 mm nor greater than 150 mm and compaction must be to 95% of maximum dry density.

Installation of Bedding Sand:

Proper care must be taken in both spreading the sand and in controlling the moisture content. To facilitate compaction, the sand should have a moisture content within the range from 6% to 8% i.e. it should be neither dry nor saturated. To maintain desired moisture content often requires the sand to be stored on site under cover.

Example: Finished work with Concrete paving blocks.

Footpath

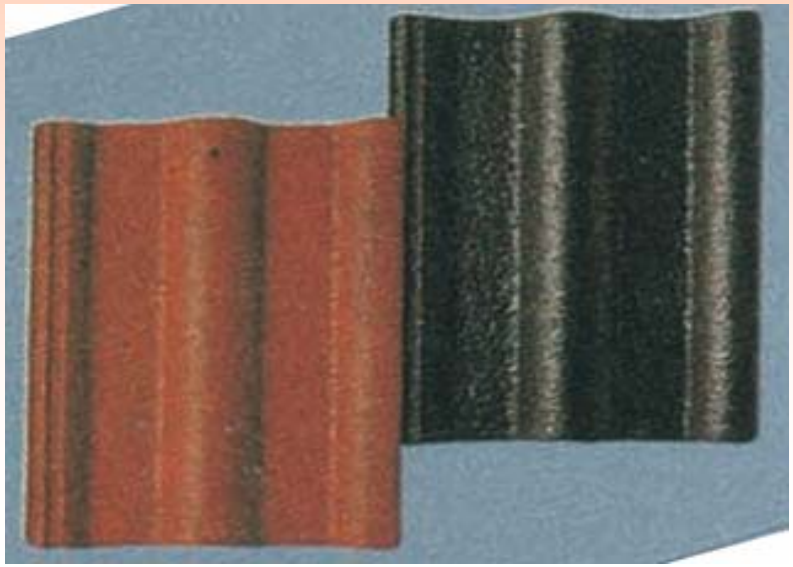
Parking Lot

High Way

Run Way

CONCRETE ROOF TILES

Interlocking Concrete roof tiles are an elegant alternative to more traditional Roofing materials. Available in a variety of color,roof tiles are durable, easy to Install, light weight and very good heat insulators. These unique roof tiles will Enhance the beauty of any home for years to come.



Product Range:

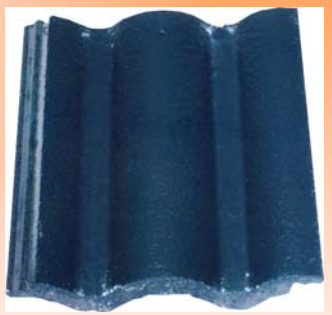
Conpac-RT-17-MG

Conpac-RT-17-OR

Conpac-RT-17-GR

Conpac-RT-17G

Conpac-RT-17 AR



Conpac-RT-17-NB

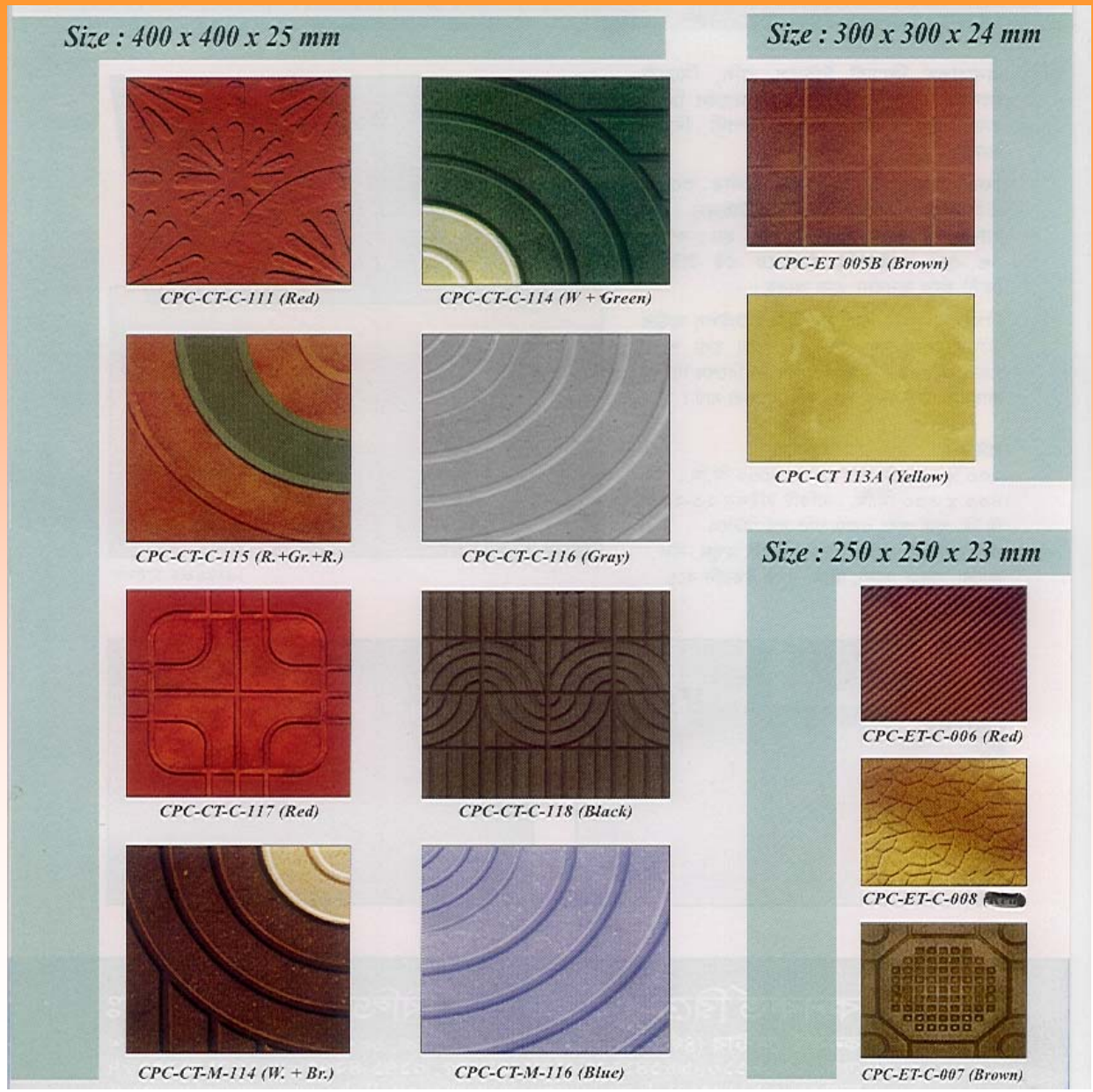
Ridge

Engrave Cement Concrete Tiles

Engraved cement tiles are a classic product made from a mixture of sand cement & pigments and sometimes marble chips.

The manufacturing technique is such that the tiles have the same ornamental effect as those typical of the last century.Various colors and patterns can be freely combined to get wonderful results.

Engraved Tiles-Product Range

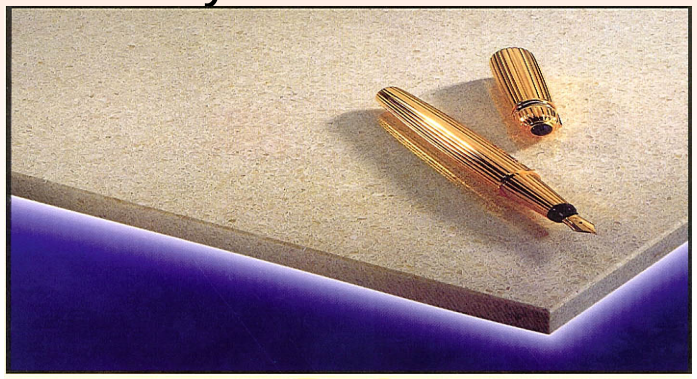


Engraved Tiles-Finished work.

Conpac Floor System

Terrazzo Mono-layer Pressed Tiles
Innovative breakthrough in the field of Cement – Bound Marble Tiles.

The technology of mono-layer tiles was invented as recently as in 1996. The process uses the same raw materials as used in the top layer of traditional terrazzo tiles, without any additives and without any backing. Mono-layer Tiles are made of marble and cement or granite and cement. They are made through automatic press machines, which allow the removal of water, without having a back layer, through gradual increase of pressure. Their quality and beauty exceeds that of traditional marble chips – cement pressed or cast in situ tiles. Mono-layer Tiles are available in many exciting colours and patterns.

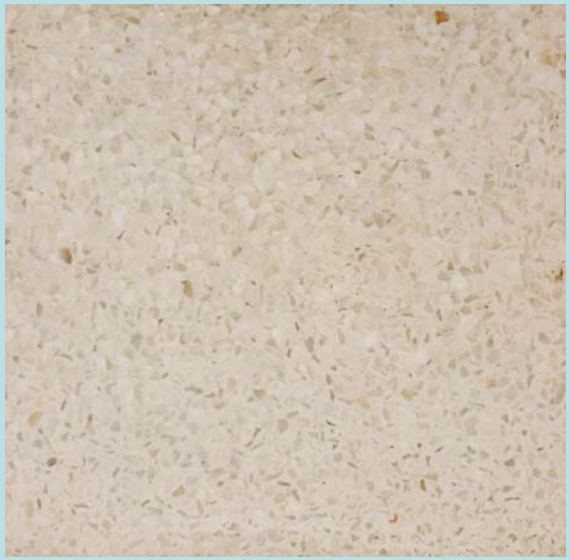


Product Range :

SLPW-400-1S

SLPW-333-1S

SLPW-2540



SLIT-400-1S

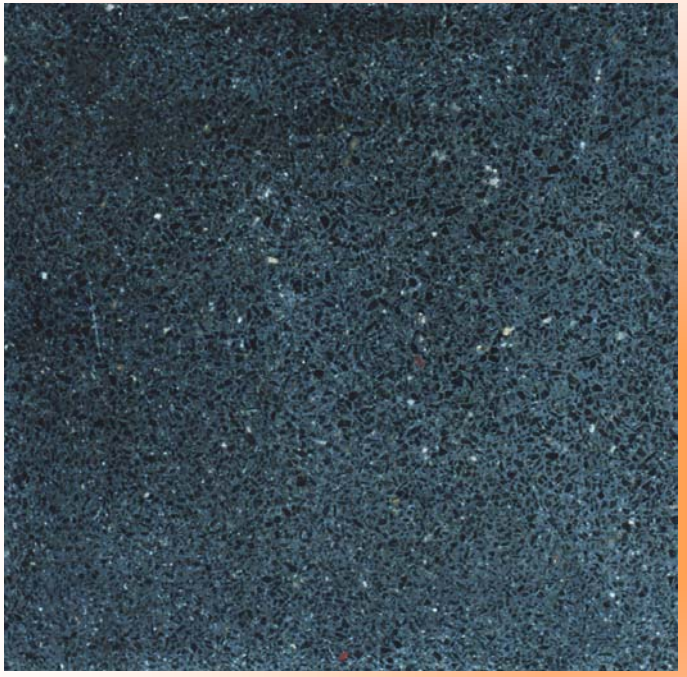
SLIT-333-1S

SLIT-250-1S

SLIT-400-0S

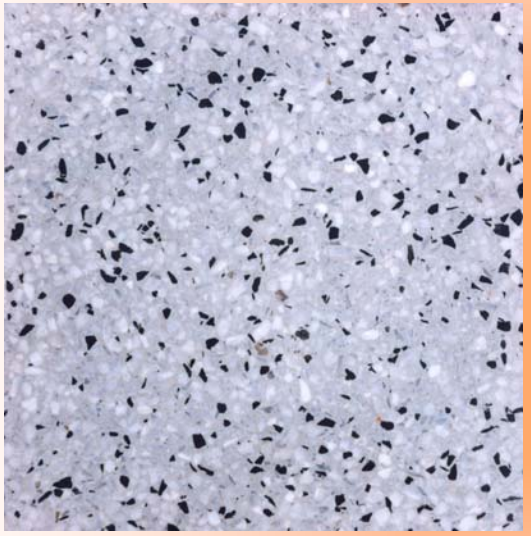
SLIT-333-0S

SLIT-250-0S



SLB-3314

SLB-2514



DLSG-2513

DLW-250-1S
(White Special)

Advantages of Terrazzo Tiles over Ceramic Tiles

★ Total thickness of **Mono-Layer Tiles** are 14 – 18 mm and **Double – Layer Tiles** are 20 – 25 mm including back-up layer

- where as **Ceramic Tiles** are of 8 mm in thickness and top layer is only a fraction of a mm

★ Life of **Single–Layer Tile** is – life long. **Double-Layer Tile's** is more than 30 years. Single – Layer Terrazzo Tiles can be re polished more than **10– 12 times** at an intervals of 7 years or more , if required. Double – Layer Terrazzo Tiles can be re-polished more than **3 times** at an interval of 7 years or more, if and when required

- where as Re-polishing is impossible with **Ceramic Tiles**.

★ Abrasive effect in **Terrazzo Tiles** by pinpointed load or sharp edge can easily be re-constructed and polished.

- where as, **Ceramic Tiles** can not resist sharp and pinpointed load. It will crush

★ Crushing Strength of **Single – Layer Terrazzo Tiles** is 11 N/Sq.

- where as, Crushing strength of Ceramic Tiles is much lower and insignificant

WHY CONCORD'S TILES ARE BETTER?

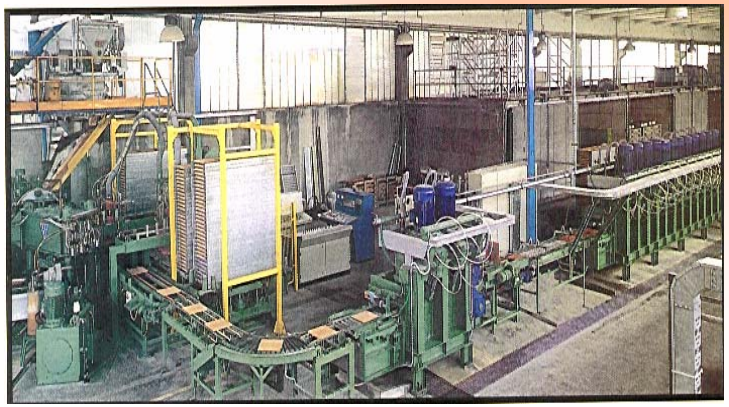
CONCORD – is the only company so far in Asia and the 3rd company in the world producing Mono layer Terrazzo Tiles.

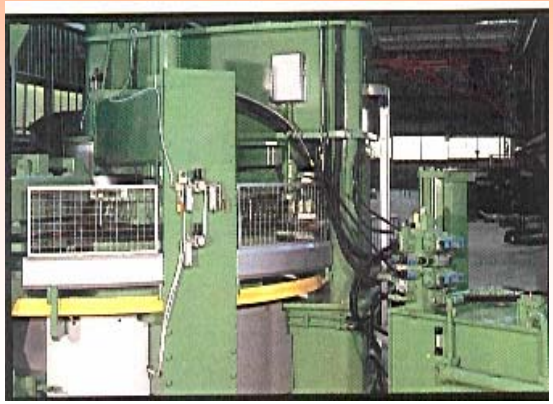
CONCORD'S – Mono – Layer Terrazzo Tiles are manufactured by fully automatic, computer controlled hydrolic machine "NK – 670 S, Longinotti" of Italy with a load of 600 tons.

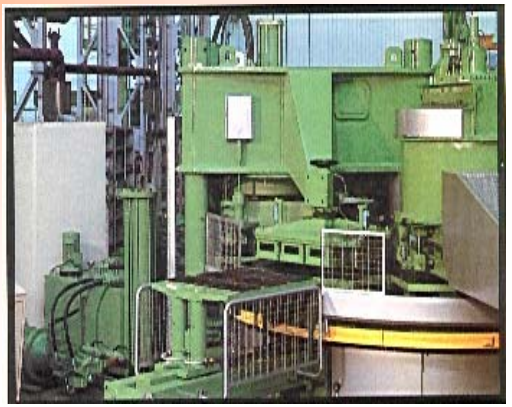
CONCORD'S – Pre polished terrazzo tiles are being polished by ten hed linier grinding machine of Italy.

CONCORD'S – Double Layer Terrazzo Tiles are manufactured by "RIGAM – 250" press machines of Italy

CONCORD'S – Engraved Tiles are also manufactured by the same Italian machines as mentioned above.







☆ Save Money

☆ Save Time

☆ Add Beauty
to your construction

☆ Use Conpac

SOME REFERNCES WHERE

CONPAC HAS BEEN USED

FANTASY KINGDOM

Concrete Block
Makes
Construction Easy

Area	:	30 Acres
Construction Cost	:	1000.00 Million Taka
Construction Started	:	July,2001
Construction Completed	:	February, 2002
Construction Duration	:	8 Months Only

Materials Used For Construction

1.	Ready-Mix Concrete	(2000 Psi to 4500 Psi)	115,000Cft
2.	Hollow Block	(90, 100, 140 and 190mm)	.35 Million Sft
3.	Ceiling Block		15,000Sft
4.	Paving Block, Hexagonal paving & Kerb stone	(Uni paving, Rect. Paving)	3 Million Sft
5.	Terrazzo & Engraved tiles		50,000Sft

Blocks used in Fantasy Kingdom

Blocks used in Fantasy Kingdom

AND

At last

this massive construction was completed Without the quality assurance of products and huge volume of production from our factory product lines it would not have been possible to build such a giant project within such a short span of time.

Lake City, Concord

Twin Tower, Concord

Grand Palace Concord

Concord Regency

Sheikh Hasina Academy, Madaripur

Living Stone

May Gold Factory Building

Lalmonirhat Pourashova

Civil Engineering Association

Navana Garden City, Mirpur



Joha Property

Prashad Nirman, Gulshan

Building for future, Lalmatia

Westin Hotel,Gulshan-2

Northern Foundation, DOHS Baridhara

Housing Concept, Dhanmondi

IEB, Ramna , Dhaka

Dhanmondi Lake, Dhaka

Karnafully Shisu Park, Chittagong

Dewan Filling Station, Savar

Footpath, Chittagong

DC Hill, Chittagong

USTC, Chittagong

Footpath at Hare road, World Bank Project

পরিবেশ বান্ধব নির্মান সামগ্রী তথা দুষণমুক্ত পরিবেশ কনকর্ডের সামাজিক অঙ্গিকার।

Thank You for attending the Show

Team - Concord Group