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NATIONAL INDUSTRIES COMPANY K.S.C.
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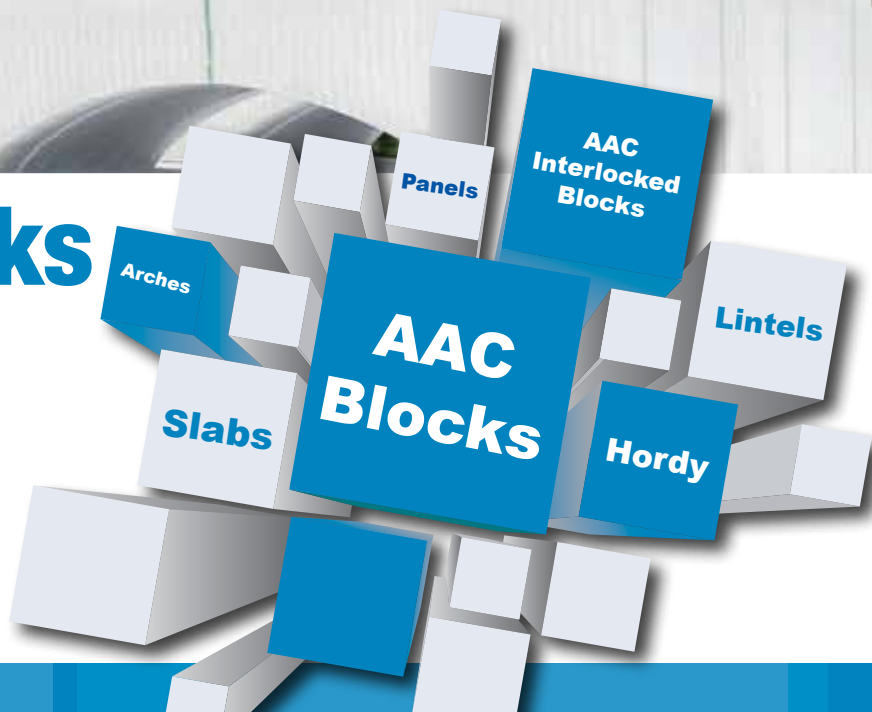
AAC White Blocks



Catalogues

NIC Products


LED Lights


Limestone


Interlock & Yard Tiles


Plastics


Cement Cladding Bricks


White Blocks


Ready Mix


Dry Mortar

Cladding Materials


Benches & Flower Pots


Ceramics

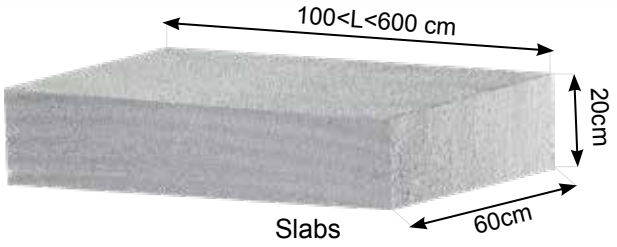
Paints

HDPE

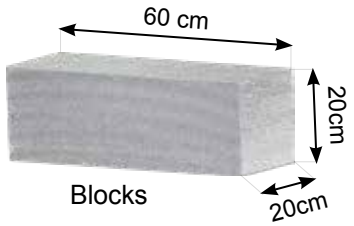

NI Panels


Concrete Pipes

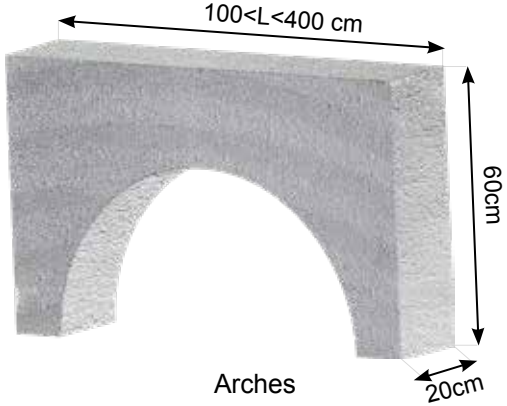
AAC PRODUCTS



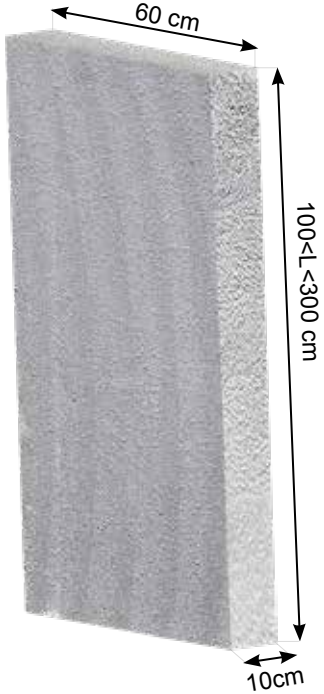
Slabs

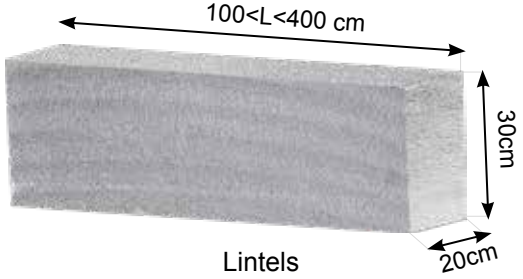


Blocks

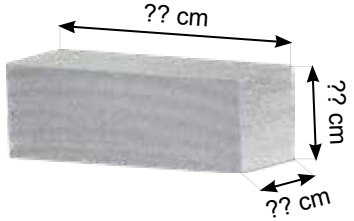


Arches

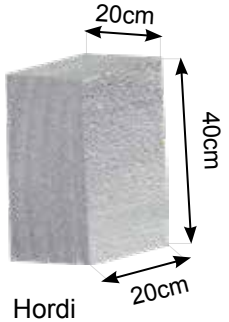




Lintels



Custom Dimensions

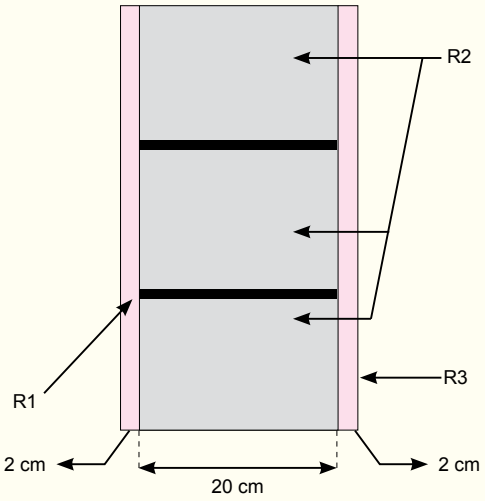


Hordi

Products of White Blocks have become the ideal choice for construction in Kuwait and the neighboring countries since it has started production in 1983. This product has got the approval of all the official bodies in Kuwait like Ministry of Energy, the General Establishment of Housing Care and many other official bodies in the Gulf region.

The scientific research has proved in Europe, Kuwait and the GCC countries for many years that the white blocks have maintained its high quality and its distinctive level among other alternative construction materials.

The properties of this product may be characterized in its high insulation quality, easiness and speed in the construction works and cost effectiveness.



Light Insulation Blocks

Light Insulation Blocks features makes it the most suitable choice for construction. Which are as follows:

1. Thermal Insulation

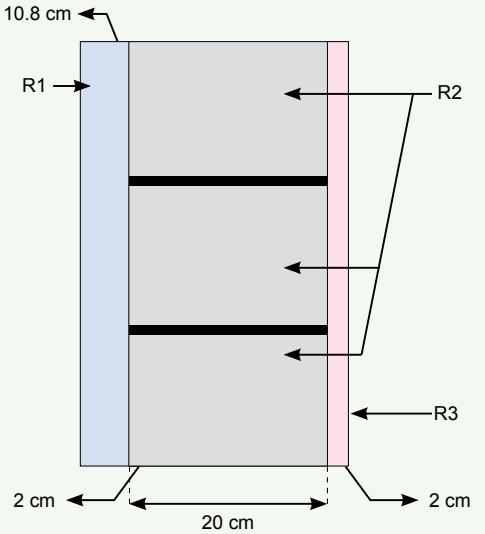
Insulation plays an important role in minimizing the costs of heating or air conditioning and it can help in extending the life span of the air conditioning system without the need for other insulation materials, knowing that the thermal insulation is inversely proportional to the density; i.e., whenever the density decreases, the thermal insulation increases. However, if the density becomes more than 500 kg/ m3, the effective thermal insulation does not happen as per the standards of the Ministry of Electricity and Water.

Density: 480 kg/m^3 Thermal Insulation: 0.91 Btu/ft^2.hr.f^o

2. High Endurance

Undoubtedly, light insulation block is considered to be a very strong material which matches most of the required engineering specifications. It undergoes many continuous control tests to ensure it can withstand the utmost pressure forces so that it can be used with both load bearing walls and non-load bearing walls.

Load Bearing: 30-40 kg/cm^2



U VALUE Heat Transfer Coefficient For NIC (AAC Elements)

Single wall of AAC blocks with internal and external plastering

Density			Thermal Conductivity			Thickness			Thermal Resistance			TOTAL	
External plastering	AAC blocks wall	Internal plastering	External plastering	AAC blocks wall	Internal plastering	External plastering	AAC blocks wall	Internal plastering	External plastering	AAC blocks wall	Internal plastering	Thermal resistance	Thermal transmittance
Y1	Y2	Y3	K1	K2	K3	t1	t2	t3	R1	R2	R3	R	U
kg/m³			Btu·in/(ft²·h·°F)			m			ft²·h·°F/Btu			ft²·h·°F/Btu	Btu/(ft²·h·°F)
1650	450	1650	3.93	0.88	3.93	0.02	0.20	0.02	0.20	8.99	0.20	10.36	0.096
	480			**0.91**			**0.20**			**8.66**		**10.03**	**0.100**
							0.25			**11.42**		**12.82**	**0.078**
	550			0.99			0.22			8.72		10.10	0.099
	600			1.06			0.24			8.94		10.32	0.097

Wall of sand lime bricks and AAC blocks with internal plastering

Density			Thermal Conductivity			Thickness			Thermal Resistance			TOTAL			
Sandlime brick wall	AAC blocks wall	Internal plastering	Sandlime brick wall	AAC blocks wall	Internal plastering	Sandlime brick wall	AAC blocks wall	Internal plastering	Sandlime brick wall	AAC blocks wall	Internal plastering	Weight	Thermal resistance	Thermal transmittance	Thickness of wall
Y1	Y2	Y3	K1	K2	K3	t1	t2	t3	R1	R2	R3	W	R	U	t
kg/m³			Btu·in/(ft²·h·°F)			m			ft²·h·°F/Btu			kg/m²	ft²·h·°F/Btu	Btu/(ft²·h·°F)	m
1793	450	1650	4.69	0.88	3.93	0.108	0.20	0.02	0.906	8.99	0.20	317	11.07	0.090	0.328
	480			**0.91**			**0.20**			**9.13**		**323**	**11.24**	**0.088**	**0.328**
							0.25			**11.42**		**347**	**13.53**	**0.074**	**0.378**
	500			0.93			0.20			8.44		327	10.52	0.095	0.328
	550			0.99			0.20		0.91	7.93		337	10.01	0.100	
	600			1.06			0.20			7.45		347	9.53	0.105	

3. Reduce Concrete Load

The weight of the light insulation blocks is third the weight of the normal cement blocks. That is why it is considered easier to carry and install in comparison with the installation of the traditional building blocks. Its light weight also helps in reducing the need for using other equipment normally used in construction works, this may decrease the costs, the area, and the required time for finishing the construction works.

The company manufactures the light insulation blocks in different densities, weights, sizes and models as per the client's needs.

In order to get the best of this product, the density should be checked before the purchase order is made.

4. Fire Resistance

The light Insulation blocks are made of anti-inflammable materials so that no poisonous fumes shall be released even if they were immediately exposed to fire.

100mm-thickness light insulation wall may prevent flames from spreading to other parts of the building for a period of four (4) hours. The high thermal insulation coefficient limits high temperature within the fire area and prevents it from damaging other areas of the building.

	Fire Rating: Load bearing walls					Fire Rating: Non-Load bearing walls				
Mins	30	60	90	120	180	30	120	240	>240	>240
MM	150	175	200	240	300	50	100	150	200	250

According to (DIN 4102)

5. Economic, easy and quick to install

Building with light insulation blocks is considered faster than using other alternatives. One 60x20x20 cm piece of this kind of block gives the same area which needs 1.5 of the normal cement block of size 40x20x20 cm.

When using the light insulation blocks, we can reduce the need for any additional materials which were usually used with the ordinary blocks. In comparing the time and the materials required for building with the white blocks and not with cement blocks, we find out that the white block represents a revolution in construction because of the time and cost it saves, the high quality it provides and the accuracy of dimensions.

6. Easy To Cut and Form

The light white blocks are easy to cut with accurate dimensions by using the simple saw without damaging the block itself. (You can buy the saw from the company.) You can easily and accurately make the required electrical connections and sewage by using simple tools.

7. Slight Absorption of Moisture

The light insulation blocks contain small air gaps which lessens the absorption of moisture until it becomes very low in comparison with the any other building materials.

It is also made of bio-insoluble materials that do not rot or attract moisture which allows for its inside to remain clean.

Moisture Absorption % By Volume			Moisture Diffusion % By Volume		
Exposure Time Hrs.	Sand Cement	Light Weight	Exposure Time Hrs.	Sand Cement	Light Weight
1	15.9	3.7	2	6.1	2.3
4	19.8	4.8	12	13.4	10.4
48	22.3	11.1	48	17.8	20.9
120	23.4	17.0	96	19.12	26.2

The following table shows the declared value of water absorption rate CWs of AAC produced by the National Industries Company, according to the standard (GSO EN 771-4 2011):

CWs (After 10 min)	CWs (After 30 min)	CWs (After 90 min)
280 $g/m^2.s^{0.5}$	240 $g/m^2.s^{0.5}$	220 $g/m^2.s^{0.5}$

8. Accurate Dimensions

White blocks are manufactured in accurate correct measures which facilitates the leveling from the very beginning.

No.	Product	Width (cm)	Height (cm)	Length (cm)
1.	Block	20 (5-10-15-25-30)	20 (25-30-40-50-60)	60 (20-30-60)
2.	Hordy	24 (20-30)	40 (20-60)	60 (50-60)
3.	Lintel	20 (10-15-25-30)	30 (20-25-30)	L 100 < L < 400
4.	Arch	20 (15)	60	L 100 < L < 400
5.	Slab	60	20 (10-15-25-30)	L 100 < L < 600
6.	Panel	60	20 (10-15-25-30)	L 100 < L < 300

* The white blocks may be manufactured in other measures.

9. Easy for electrical and sanitary installations

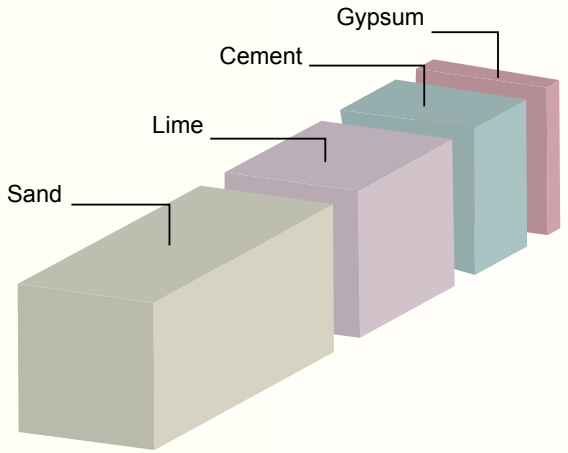
It is easy to make grooves in the insulation blocks to make the electrical and sewage links, knowing that the digging equipment is available at the company.

10. For Hollow Ceilings

The light insulation blocks are used easily in the hollow ceilings because of its light weight and insulation feature.

11. Low Coefficient of Contraction and Expansion

The light insulation blocks are characterized by the least difference between the contraction and expansion which is 0.3mm for each meter length under the natural conditions.



The Production Process

The production process of the light insulation blocks is controlled automatically by computer. The resulting product would be of a high quality. All the steps of production are considered environment friendly because the used materials are natural. The remaining materials before or after cooking (the final product) are recycled later in other stages of production.

Blocks with special specifications

AAC Light Block - normal and interlock forms - can also be produced with special specifications, with a density of 600 kg/m^3, easy to cut and reshape, lighter weight than ordinary concrete bricks, and has high durability with Compressive Strength up to 5.0 N/mm^2

The following table shows a comparison of AAC Light Block with a density of 480 kg/m^3 and 600 kg/m^3 according to the German standard DIN 4165 and American ASTM C-518

Specification	480 kg/m^3	600 kg/m^3
Strength Class (DIN 4165)	2	4
Compressive Strength (DIN 4165) Min. Value	2.5 N/mm^2	5.0 N/mm^2
Density Class (DIN 4165)	450-500 kg/m^3	550-600 kg/m^3
Thermal Conductivity (ASTM C-518) Max. Value	0.91 btu.in/ft^2 h.f°.	0.98 btu.in/ft^2 h.f°.

Comparison between the White Insulation Blocks and the Normal Cement Blocks

no.	Specification	White Insulation Blocks	Regular Cement Block
1	Main Components	Portland Cement, Dehydrated Lime, Fine Sand, Gypsum, Aluminum Powder, Water	Portland Cement, Sand, Aggregate, Water
2	Mixing Stages	Mixing is made by using automatic mixers working according to the German Standards, inside 5.4 m^3 iron molds, lubricated with special oils to prevent the elements to stick together. On interaction between the components, Hydrogen gas comes out leaving air gaps inside, which grants AAC Light Blocks their insulation and light weight properties.	Mixing is made manually or by using ordinary mixers. It does not lead to any reactions similar to what happens to the components of the light blocks. That is why its weight remains heavy.
3	Cutting Stage	Cutting is performed by using the hydraulic system and metal sharp wires of special kind. After 4 to 5 hours of starting the mixing. They are designed as per the required dimensions.	There is no cutting process because the mixture is poured inside moulds according to the standard size of blocks or by using the pressure system immediately after mixing.
4	Leveling or Treatment Stage	Treatment is done by vapor inside caldron under 16 bar pressure for a period of about 8-12 hours where Calcium Acid, Aluminum powder and Silica react together with the presence of water vapor. Calcium Aluminum Silica is composed which gives the blocks its white color and the strength so that it may be immediately used in building after the cooking process.	Treatment is done by heating under temperature of 40 degree centigrade or with water for three days. The product becomes solid after 28 days of the mixing stage. It is not used in building unless after it becomes solid.
5	The Use as Masonary Blocks	It is used and insulation at the same time.	It is used only as Masonary Block
6	The Size of White Blocks	One piece of white block equals the size of three pieces of Cement block.	Three pieces of cement block equal one piece of white block.

no.	Specification	White Insulation Blocks	Regular Cement Block
7	The Construction Material	Special Adhesive material is used for this kind of blocks which contains sand, cement and adhesive elements in addition to other materials which maintain the value of insulation. It is stuffed in maximum 2 mm thickness. This means that one sac shall be enough to build 2.5 m^3.	The usual material of sand and cement is used randomly. It is stuffed with high thickness to be enough for the cement block to stick together. This means it is used and built with huge amounts and needs continuous water spraying for three days.
8	Coating the Lime Blocks, Décor Works and Decorative Stones	The outside coating can be easily done after fixing the metal net whereas the inside coating can be done without the need for this metal net but only with concrete or cement dividers. It is very easy to fix the lime brick the décor brick and stones by special adhesive filler with the least thickness. Sometimes, there is no need for mechanic fixtures.	The metal net should be fixed for the inside and outside coating. In case of the lime blocks or decorative stones, it usually needs a mechanic fixing and the use of ordinary filler with high thickness.
9	Time for Building and Applyingc	Very quick and because of its big sizes and light weight, it needs less workers or lifts and the time needed for finishing the work is faster than any other alternative.	It needs extra workers because of its heavy weight. It also needs lifts to move it, in addition for the need for other workers to prepare the fillers which are used in huge amounts and big thickness. It also needs spraying with water for three days.
10	The Priority of Using in High Buildings	It is preferred for any other alternatives because of its light weight and easiness of handling.	It is difficult to be used in high buildings because of its heavy weight.
11	Using in the Concrete Mix	Because of its light weight, it is best to be used when the distance between the concrete pillars is wide; it is called Hordy Light Block.	It cannot be used in concrete mixes as an alternative to Hordy because of its heavy weight.

no.	Specification	White Insulation Blocks	Regular Cement Block
12	Reinforced Elements	The production of slabs, light tiles which are reinforced and insulated from the same material of blocks is easy to hold and install and does not need a long time for production. Production may be done in 24 hours. The tiles may be considered an alternative to the ready concrete and contains treated steel against corrosion and rust made as per the German Standard Specifications.	Because it is poured on site in the traditional way, it does not have specifications. Sometimes, reinforced untreated steel is used with it which leads to weak slab and its breakage. It needs time for spraying with water daily. It needs a crane to move it to the upper floors. It is difficult to make ready blocks as an alternative to ready concrete.
13	Insulation of Roves against Water	For leveling the roof which is made of light ready blocks, it is easy to use the “NIC” insulation material used for roves with the paste immediately after installation.	Because of the waves of the ready concrete, there may be a need to apply the "Screed" material for leveling the roof and apply the water insulation as per the installation specifications.
14	The total cost of the construction including the bases and the buildings	It does not form a load on the columns and base because of its light weight. Consequently, it is advised to lessen the use of concrete and iron in designing the concrete columns and the foundations. It is also advised to apply the reinforced light blocks as an alternative to the ready concrete.	Because of its heavy weight and it causes a load on the foundations and the columns, there is no way to eliminate the amount of reinforced iron and cement in the concrete pillars and the foundations. It is advised to use the reinforced concrete. That is why it is more expensive than the new system of the light blocks, slabs and tiles.
15	Method of Loading and its Density	Because of its light weight, packing it in piles and fixing it on wooden bases that can be easy to be moved with cranes or lifts to any place without being broken is easy. It is produced in two densities: the lessor is used outside and the more is used internally because of the adverse relationship between the thermal insulation and the density.	It is packed and loaded manually because it is heavy and cannot be easy to tie with ropes. It is also difficult to move from one place to another. It is produced in one density only.

- The density and breaking force of the white block are as per the German standard specification DIN-4165 .
- The thermal conductivity is as per the American Standard Specification ASTMC-518.

The Method of Building Walls Using the White Blocks

1. Clean the area where you want to build the wall. Level the spaces using cement filler of at least 1 cm as per the technical principles. Install the first piece of Block and level it so that it is completely horizontal.

2. The rest of the spaces are leveled with cement filler. Install the other Block and level it so that it is completely horizontal as per the previous stage.

3. Take the required measurements to make halves to complete building the second row and so on.

4. The white block can be cut as per the required measures by using the special saw.

5. The Glue Mortar is then added on the block to make the second row with leveling to ensure the wall is completely vertical.

6. Apply mortar to the sides with applying side pressure so that the two pieces would stick together.

7. The “NIC’s” glue mortar is added to the last part of the second row and to the side of the last piece. The next rows are built in the same steps as per the previous stages.

8. In case you build any partitions, follow the same steps of filling and building the wall until you finish the partition. Then, the partitions are fixed to the wall using steel connections as you see in the picture.

9. In case of building walls without columns in the angles, plates of steel nets are installed.

10. The height of the wall should not be more than 2 meters per day. Reinforced slab is made at the middle of the wall if its height exceeds 3½ meters.

Preparing the Glue Mortarfor the Construction Works

The special Glue Mortar is made in our factories where it contains chemical additives to improve the strength of adhesion. It is available in sacs of 40 kg which is enough to cover an area of 10 square meters per each sac.

mix NIC Glue Mortar with water in 2.5%.

Mix well to be ready for use.

Tongue and Grove

It follows the same family of white block. Its density is 480 kg/m^3 with similar breakage force for the same density and standard dimensions of 60x20x20 and 60x20x15.

Other dimensions may be produced upon request.

The main goal of producing this kind of block is to eliminate the used amount of glue mortar which is usually used in construction.

Reinforced Light Panels

It is used for the inside partitions or for coating the outside walls. It is available in many sizes ranging between 100x60x10 and 300x60x10. It is made of the same materials of the reinforced light blocks but the reinforced steel is used in less amounts because it does not bear the same loads as the blocks.

Reinforced Roof Slabs

The reinforced Roof Slabs are used for different kinds of roofs as an alternative to the reinforced concrete casted onsite, due its light weight and being ready made, It can be also used for the floorings and to the extra floors above the current houses, the open halls and otherwise.

Defining the Dimensions and Engineering Measurements of Panels

NIC reinforced light roof panels are produced in 20 and 25 cm depth, 60 cm width and 1 – 6 m lengths. Its density ranges between 500 – 700 kg/ m2. These panels contain reinforcing steel which is made of 2 reinforcing iron nets coated with anti-corrosion layer of different diameters (12 mm, 8 mm).

The Advantages of the Reinforced NIC Roof Panels

The reinforced light roof slabs are considered of the important and necessary products which have the following characteristics:

a) Light weight and Ready

The most important feature is its light weight as its density equals 600 kg/m3.

b) Heat Insulation

NIC Reinforced Light Roof Slabs are made of the same material of the insulation light white block. Then, it also insulates heat and resists fire.

c) The Speed in Ending Works

NIC Reinforced Light Roof Slabs are installed onsite in one or two days maximum. Construction may be then continued above them with doing the finishing immediately underneath them. This save the long time spent in the traditional method of building the concrete roofs which ranges between 20 to 30 days.

d) High Endurance

NIC Reinforced Light Roof Slabs are reinforced with two nets of reinforcing iron (8, 12) mm. It can bear big loads which are counted as per the plans of the project.

e) Clean upon Installation

NIC Reinforced Light Roof Slabs are considered environment friendly products because no remains are left behind when it is made and installed onsite.

f) The steel used in the slabs during manufacturing or installation is treated against corrosion.

g) NIC Reinforced Light Roof Slabs are free of minor cracks.

Some projects which were executed using the reinforced roof slab system

The company has executed many houses and projects using this system. Some of them for example are:

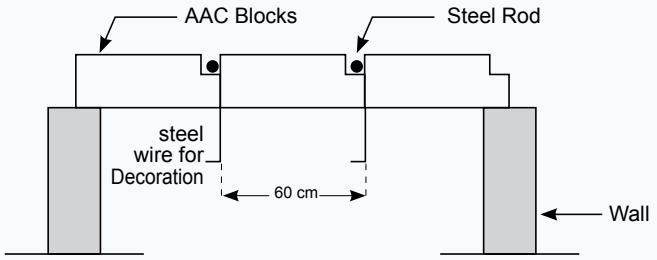
- The construction and accomplishment of Female High School at Mishref.
- Many mosques for Ministry of Awqaf
- Many houses at different locations in Kuwait
- Sheikh Jabr Ahmed Sabah Hospital, West Serrah.

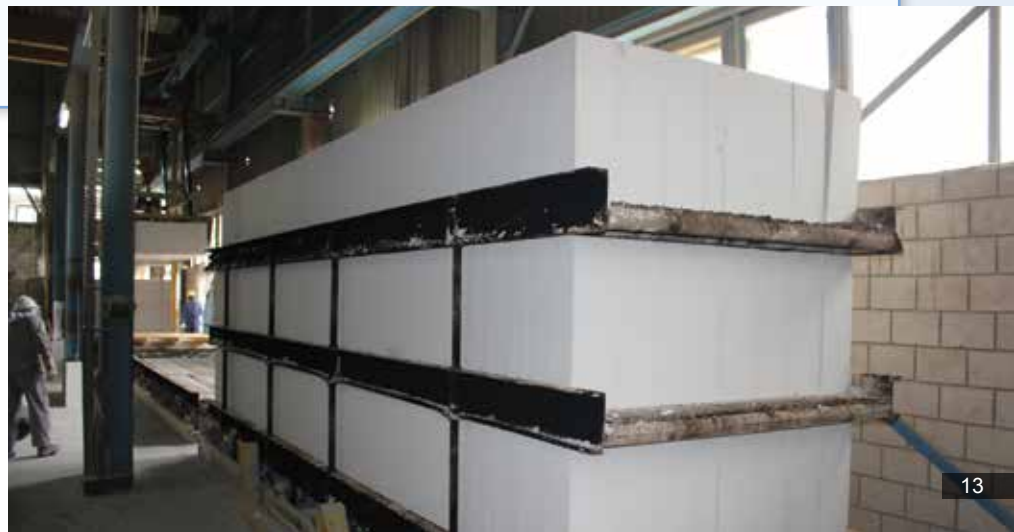
A comparison between the NIC Roof slab the traditional reinforced concrete blocks

No.	The Reinforced Blocks for Roves	The Reinforced Concrete Blocks
1	Ready and light weight. Density = 600 kg/m^3	Heavy and coated onsite. Density = 2500 kg/m^3
2	Easy to lift and install within one or two days	It is executed within 20 -30 days
3	Works and finishing can be resumed immediately.	Finishing cannot be resumed unless the wooden tie is loosened.
4	Thermal insulation	Does not insulate heat.
5	The used steel is treated against corrosion.	The used steel may not be treated against corrosion and rust.
6	Clean upon installation.	Concrete remains accumulate onsite when coated the molds.
7	It does not contain minor cracks.	Minor cracks may happen to it.
8	It does not need time to spray water after installation.	It needs treatment with water immediately after pouring.

5. Method of Installation

- After finishing the main body of the building (columns, frames and the block walls), the company sends a specialized technician to supervise work during the construction of the skeleton and to give its remarks which will be of benefit later on when installing the slabs
- The technician takes all the measurements of the locations where installation of light slab is needed.
- The installation is made by installing the slab beside each other where it leans on the frames or the block as per its dimensions.
- After finishing the required area, steel rods are fixed inside the upper spaces (5x7) cm where the slab meet, leaving a steel wire for the required decorations. Then, the spaces are filled with concrete and this is when the installation works end.





6. The Steps of Installing the Reinforced Roof Slabs

Easy to transport

Iron skeleton before installation in wide buildings

Lifting the slabs to be installed

Install the slab adjacent to each other.

Install the slabs close to each other near the edge of the rib to form letter (U).

Make a circular rib from the outside of the slabs to tie them

Install a reinforced steel net of 8 mm diameter (optional).

Cast a concrete layer of maximum 7 cm thickness (optional).

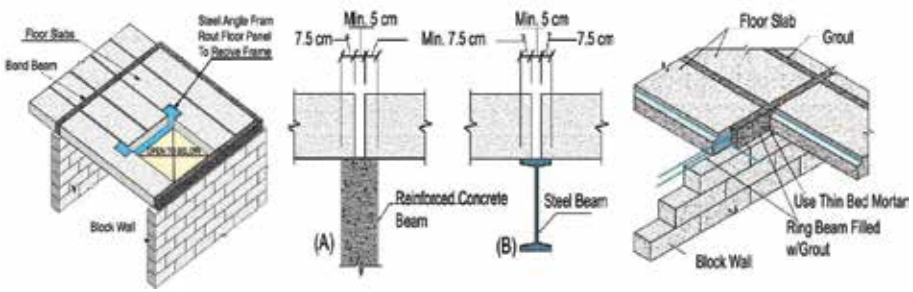
Install a reinforced steel net of 8 mm diameter (optional).

The look of slabs after installation.

The building upon installing the slabs

Data Sheet for A.A.C Slabs							
AAC SLABS			Height				
			10 cm	15 cm	20 cm	25 cm	30 cm
Width of Slab	b	cm	Width = 60 cm				
Design Density For Dead Load of AAC Slab	ydl	kg/m^3	Design Density For Dead Load = 670				
Width of Groove For Slab	bg	cm	4	4	4	4	4
Height of Slab	h	cm	10	15	20	25	30
Compressive Strength of AAC Slabs	f'c	kg/cm^2	50	50	50	50	50
Yield Strength of Steel = fy ,max. fy = 1800 kg/cm2	fy	kg/cm^2	1800	1800	1800	1800	1800
Modulus of Elasticity for Steel	Es	kg/cm^2	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Modulus of Elasticiry for AAC = (y)1.25. (f'c)0.42	Eac	kg/cm^2	12,541	12,541	12,541	12,541	12,541
Dead Load = D.L. = ydl . h	D.L	kg/m^2	67	100	134	167	201
Live Load = L.L	L.L	kg/m^2	200	200	200	200	200
Permissible Length of Slab	Lper	CM	2.05	3.50	5.68	5.96	6.36
Esign Method of AAC Slab			Act. Def	Shear	Act. Def	Shear	Shear

**Note: The final structure should be approved by the manufacturer.



Slab Fixing

Span over 6 meter

A/C Opening with Clamping

Lintels and Arches

For a complete thermal insulation in a white block building system and to avoid the heat leakage resulting from using the traditional concrete lintels, National Industries Company has produced the reinforced light lintels for the upper parts of the doors and windows.

Whereas the traditional concrete lintels need a lot of work of carpentry, furnishing and reinforcement and a long time of waiting to disassemble the wood, “NIC” lintels represent the ideal alternative. It is made of the same material as the white block and reinforced according to the German standard specifications DIN4223 with reinforcing steel chemically treated against rust. It is also coated with special materials to keep it from the surrounding factors and materials which make it a high quality product. It can be produced in arches as well.

The Technology of Making Lintels:

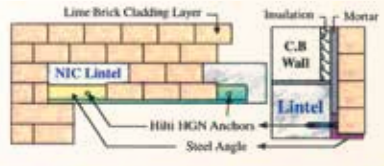
- The production of lintels is fully automated. Lintel are made of cellular concrete mix which contains the reinforced iron which is treated as per the international standards. The stages of production of lintel are as follows:
- The reinforcement iron is formed in the reinforcement iron unit in the form of letter (U).
- Steel is treated against rust and coated with a protective material.
- Steel is entered into the cellular concrete mix after being ready.
- Lintels are cut according to the required measures using the cutting wires.
- Lintels are cured with steam for at least 14 hours.
- The stamp of quality control is printed with the arrow heading up on both sides of the Lintel.
- Lintels are transported to storage area.

The Task of the Lintel

- Covering the inside and outside openings of doors and windows in all their forms.
- It can be used for sun shades and decorations.

Installing the Lintels in Special Cases:

- When covering the outside walls with a layer of sand lime bricks and to cover the face of the slab, a metal fixture should be put along the lintel using special nails to prevent the side movement of the angle. Sand Lime Bricks are installed on the metal angle.



- When there is a reinforced concrete column close to the opening of the lintel, a metal angle is fixed on the column using special screws. These screws withstand the total cutting force and the tension force generated by the bending torque resulting from the decentralization. The metal angle holds the lintel and the wall built on

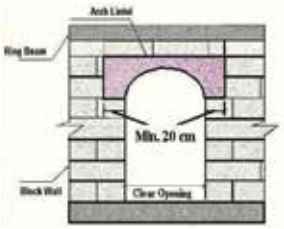
The Conditions of Installing the Lintel

- The damaged lintels are not used.
- The track of the lintel should not exceed three quarters of its length.
- The net track of the lintel should not exceed the maximum length of 3 meters.
- Make the leaning spaces from both sides.

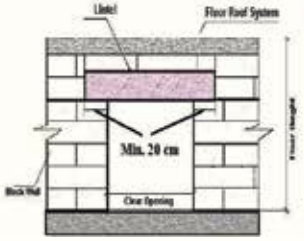
- Abide by the leaning distance of the lintel from both sides in order to be minimum 15 cm.
- Make the leaning space of the lintel from both sides full of Glue Mortar.
- Make the arrow painted on the lintel heading up.
- Balance the lintel and make sure its upper face is horizontal.
- Do not cut “NIC” lintels before getting an approval.
- The outside lintels should be protected from rain.
- When you need consultation concerning installation, please call us.

The Advantages of “NIC” Lintels:

- The lintel is hold by hand and does not need special lifting machines.
- It saves time because you can resume building immediately above it without stoppage.
- It does not need leaning tools and there is no need to wait for the concrete to be solid.
- It has a unified world system to protect it from rust and the outside factors.
- The lintels may be coated with any of the available coating systems.
- It can be restored using the ”NIC” Glue Mortar or the normal concrete.
- It can resist the approved distributed loads.
- Its maximum bent is less than the allowed one.



Arches

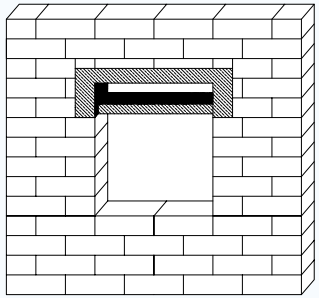


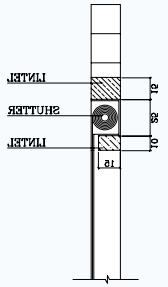
Lintels

width x Height	15x30	20x30	15x30	20x30	Span (cm)
Length	Weight (kg)		Allowable Loads (kg/m)		
140	42	55	1390	2870	105
190	56	75	750	1560	143
240	71	95	470	970	180
290	86	115	320	670	218

Shutter- Space Lintels

The company provides special lintels to make the shutter spaces above doors and windows as per the required specifications





Comparison between “NIC” Lintels and Lintels Made Onsite	
‘NIC’ Lintels	**Lintels Custed Onsite**
Ready, light and load resistant.	Poured onsite, heavy and load resistant.
Easy to lift and install. It can be installed in 5 minutes as follows: - Move the lintel to its place. - Provide cement to where it is going to be installed. - install the lintel and level it.	It needs many stages to be made: - Install the mould with forming and putting steel - Pour concrete and water it daily. - Wait for it to be solid and then remove the mold.
You can resume building above it without stoppage.	You cannot build above it until after approximately one week.
Thermal insulation and fire resistant.	It does insulate heat and may be affected by fire.
The used steel is treated using a unified system against rust and corrosion. It is coated with a material to protect it from the environmental conditions.	The iron may not be treated and may rust or corrode which leads to damage the lintel after a short period of being used.
Does not contain minor cracks.	Minor cracks may happen.
Saves time and it is economic.	It delays construction works and it is expensive.

Hordy Blocks 300

The Properties of the ribbed slabs by using the Hordy Blocks 300

The ceiling of the ribbed slabs is made of regular ribs of reinforced concrete with equal spaces which contain the Hordy blocks made of light concrete with upper reinforced concrete block.

The ribbed slabs by using the light Hordy Blocks 300 have the following properties:

Fire Resistant

It does not generate poisonous fumes with high temperatures or burning.

Thermal Insulation

As per the requirements of the Ministry of Electricity and Water.

The thermal transmission coefficient of the ceiling does not exceed 0.91 Btu/ft^2.F˚.hr

Noise Insulation

Insulates noise as per required according to the building rules and codes.

Economic

It is more economic than other slabs of more than 5 meter length and the routine live loads. It decreases the overall cost of construction by decreasing the amount of concrete and the reinforcement of pillars and foundations. Hordy installation saves time.

Light Weight

Because the Hordy Slabs 300 is light and bears loads, the Hordy slabs with the block contribute in resisting the design loads.

The Hordy Slabs are lifted to the roof by using a suitable crane or manually. It can be cut by the normal saw. Installing the electrical or sewage links is easier and safer. It can be coated with any one of the available coating systems because its surface is straight from the bottom and there are no ribs suspending from it.

The Standard Types of Hordy Slabs 300

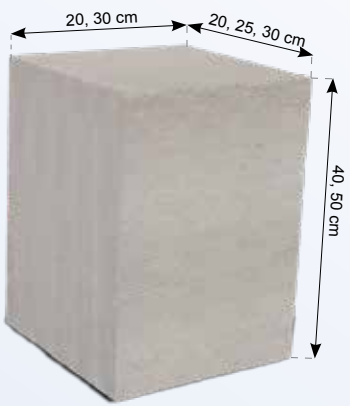
The height of the Hordy Slabs is chosen as per the requirements of the heat and noise insulation and fire resistance whereas its length is chosen as per the constructive design of the tiles of the ceiling.

The Standard Dimensions of the Hordy Slabs 300		
Length	Width	Height
40.50 cm	20.30 cm	20.25.30 cm

Other types and dimensions of Hordy are also produced with different densities upon request.

The Stages of Making the Ribbed Slabs By Using the Hordy Slabs 300

- Install the wooden mould. Make sure its surface is straight and stable and it is solid and clean.
- Put the ribbed reinforcement steel and beams as per the designs.
- Align the Hordy slabs one after another in parallel lines (one direction) or perpendicular lines (two directions).
- Put light steel net to the upper slab above the



Hordy after finishing the whole line of Hordy.

- Cast concrete in the ribs and beams and cast the upper slab above the Hordy.
- Disassemble the wooden mould when the concrete becomes solid and after its treatment.
- The used Hordy slab is not removed after casting the ceiling but it always remains inside it.

Note: You can install the Hordy Slab first and then put the rib reinforcement steel and the bridges.

Design Information

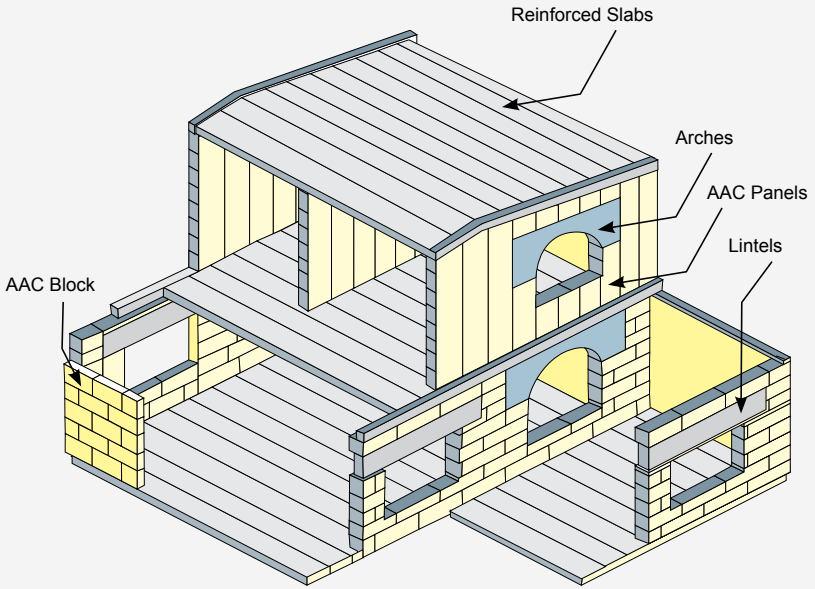
- You should put a light net of reinforcement steel to the upper slab of a minimum percentage of 0.18% in both directions.
- A horizontal beam should be installed on the ribs when the length of the rib exceeds 6 m.
- You should install beams under the inner cuts and under the central loads.
- You should stop the Hordy line near the rests to increase the cutting resistance.
- The depth of the steel reinforcement steel ranges between 2 to 6 cm as per the hours of fire resistance.
- When there is any kind of installation inside the slab, the thickness of covering should not be less than 2.5 cm.

Testing Hordy Slabs 300

The factor of the white blocks performs many tests to ensure the validity of the raw materials which are used in the production process as per the international specification set for each test.

Samples of the Hordy slabs are tested as follows:

The Test	The Allowed Values	The Standard
Density	300-500 kg/cm^3	DIN 4165
Pressure resistance	20-25 kg/cm^3	DIN 4165
Heat conductivity	307 Btu/ft2.f.hr	ASTM-C-518



AAC Blocks usage in various parts of the building


The United States of America

The Director of the United States Patent and Trademark Office

United States Patent

The patent of the National Industries Factory

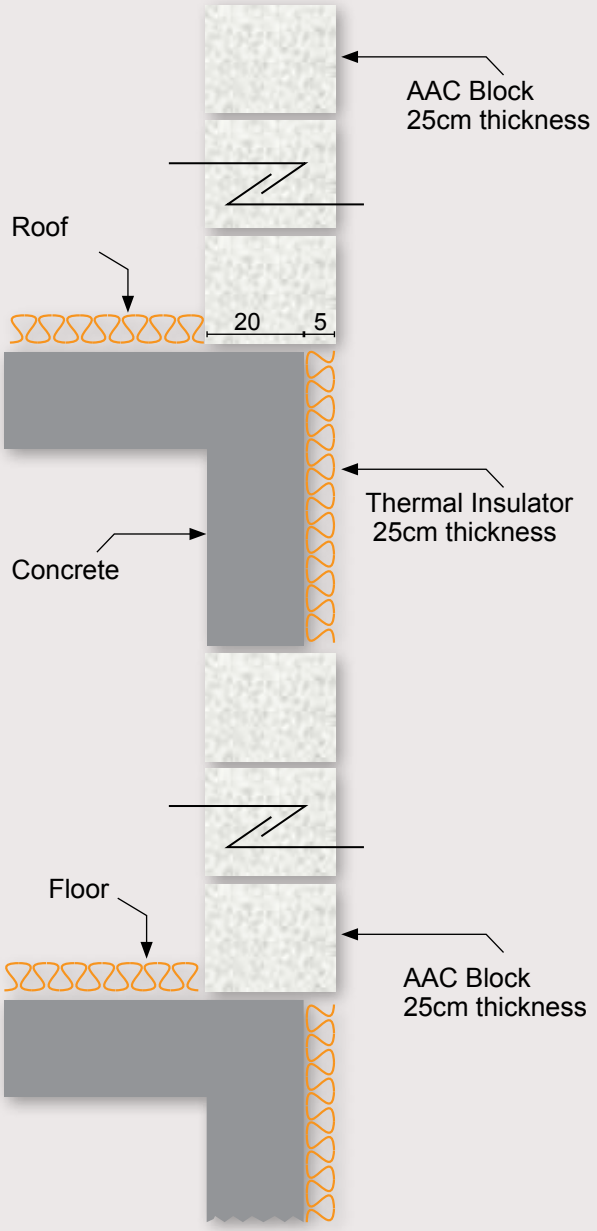
The Ideal Heat Insulation of Buildings

Looking at the attached picture as a general sample of buildings, we notice that a high percentage of the building is not insulated like the colums and the bridges which in total together with the weak insulation of the ceilings reduces the insulated area of the outer walls to less than 30% which in turn deprives the consumer of a lot of its benefits of saving e energy and comfort.

For the ideal heat insulation, we demonstrate the following:

- The outside walls are built with the insulation white slabs of 25 cm thickness. 20 cm of it shall be on the lintel of the floor and 5 cm free in the air. (figure2)
- When you complete the outside walls, the columns and bridges are insulated with the approved insulation like Stiropor, the glass wool or otherwise of 5 cm thickness. The roof is also insulated for heat by using the 'NIC' slabs or other effective insulation materials like the Poly Ethylene.
- The building is then finished and the ceiling is tiled as per the owner's wish.

(Figure 1)



(Figure 2)

Branches

Headquarter Shuwaikh

South Shuwaikh
intersection of Jahra Road
and the Airport Road,
Next to the
Red Crescent Society.

Tel: 24642100
Kuwait Hotline: 1844555

Working Hours*:
Sunday - Thursday
7:30am - 3:00pm

Our Section in ABYAT Showroom

Insdustrial Shuwaikh
Canada Dry St.
ABYAT Showroom
Tel: 1848000

Working Hours*:
Saturday - Friday
8:00am - 10:00pm

Industrial Shuwaikh Showroom

Industrial Shuwaikh2
Block1 - Area 92
Al-Zaben Complex
Shops : 12,13,14
Tel. : 24642101/2/3/4/9
Fax : 24642110

Working Hours*:
Saturday - Thursday
7:00am-9:00pm

Ceramics Showroom

Industrial Shuwaikh
Humaidhi Complex
Opposite to Bin Nisf Co.
Tel: 24950871/2
Factory: 23262714/10

Working Hours*:
Saturday - Thursday
9:00am - 9:00pm

Western Industrial Shuaiba

Tel: 24642300
Ceramics Factory:
23262714/10

Working Hours*:
Saturday - Thursday
7:30am - 3:00pm

Sulaibiya

Tel: 24642200

Working Hours*:
Saturday - Thursday
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