



AL BONYAN





A New Dawn:

Collective minds of different Engineering Construction, Business, Technical, & Industrial backgrounds combined years of professional experience, seized the opportunity to participate in the initiation/breaking of a "New Dawn" era to rebuild Iraq by providing much needed quality building materials that contribute to her social well-being and economic development.

Having spared no expense to invest in the latest technology and state of the art machineries and having valued the importance of attracting a qualified, experienced, and highly trained work force, "Al-Bonyan" is consistently delivering quality products to the highest specifications easily meeting standards stated by national and international building codes.

"Al-Bonyan Al-Jadeed Industry, Ltd." is an industrial plant producing the most elementary, yet essential, materials needed in the nation building industry:

- ▶ Standard Building Block,
- ▶ ThermoLite Block,
- ▶ Split Block,
- ▶ Thermal Building Block,
- ▶ Street/sidewalk Paver block, and
- ▶ Curb stones.



Production Method & Policy:

Using cutting edge machineries/production lines and adopting scientifically proven production techniques, "Al-Bonyan Al-Jadeed" is transforming elementary building materials into "Extraordinary Specialty Products" following the below method & Policy:

Raw Materials Procurement: Time is allocated and extra care is given to choose/ source the best available cement, salt free sand, & strong/clean aggregates to use for the concrete mix, no matter the sourcing distance at times.

Water treatment: To control the supply quality of salt free water, and to ensure having an abundant water supply for the production without interruption or shortage, a fully automated PLC controlled "RO" water treatment plant is in place. For a most conducive concrete mixing water temperature, treated water is stored underground in **buried concrete reservoirs** to maintain a stable cool 20°C temperature year round even in the hottest of Basra summer heat.





Batching Plant: The ample aggregate bunkers, four cement silos, and two concrete mixers of the batching plant are strategically placed to accommodate for any future addition/expansion of the overall production capacity of the Plant. For optimum mixing consistency (segregation free mix), the batching plant is equipped with two "Planetary" mixers made by Sicoma of Italy. Achieving excellent mixing consistency is an essential prerequisite to a successful result at the subsequent block making stage. With its state-of-the-art PLC controlled automation system (by Schneider), the Batching plant is fully integrated to work in perfect harmony with the ongoing concrete block making plant to create an uninterrupted manufacturing production circle.

Block Making Machine: With its performance and strategic production capacity, the installed cutting edge concrete block making machine has redefined the rules of the game in the block making industry in Iraq. The Fully Automated/PLC controlled Block production line has a maximum production capacity of up to 50,000 (of 20x40x20cm) blocks/day, or **70,000 (15x50x20cm) blocks/day**, or 4,500m² of paver/day, or 15,000 pieces of 1m long curb

stones/day. Should the need arise, the installed concrete batching plant capacity is capable of supplying enough concrete mix to allow for the addition of another Block Making Machine to double the overall capacity of the plant within a time frame of not more than 3-4 months.

With installed Top and Bottom Vibrators (by Schneider), and using pneumatic bellow on the fixation points of the mould and compaction head of the block machine, **vibration & compaction** is fairly distributed through the mould allowing the concrete mix to be thoroughly vibrated/compacted thereby optimizing the compressive strength of the product to its highest possible level.

With such advanced block making technology, some block moulds design are optimized to hold a reduced volume of the raw material mix needed to achieve the block's desired/required compressive strength. The result of this process is a lighter and cost effective block produced at the required compressive strength. This makes for a logical/optimal overall use of the raw materials.

To save on valuable production time, and to efficiently accommodate simultaneous orders for a variety of blocks to different customers, a "Rapid Mould Changing Unit" is provided with the machine. The Plant operates fully automatic. Controlled via PLC automation software, each unit of the plant communicates to each other in real-time. The entire plant could be operated by one person, as a result, human errors in production are minimal and quality is stable.





Instantaneous Curing: Immediately after casting the dry concrete mix into blocks, the product is transferred to one of nine (humidity injected) closed curing and cooling chambers allowing the freshly moulded product to cure for its (critically important) initial few hours. This critical step ensures the success of attaining the desired level of cohesiveness and strength of the product even in the hottest of Basra summer heat.

Packaging and Outdoor Curing: An outdoor water spraying system awaits the freshly packaged products to start the several days water dosing journey until tested and approved by the Quality Control unit.



Extraordinary Products:

Executing the "Production Policy & Method" with patience and dedication resulted in producing building materials of higher compressive and tensile strengths where needed or lighter weight with better thermal/sound insulation when preferred.

For a healthier living and working environment & a stronger future, "Al-Bonyan" is confidently producing a very extraordinary line of building material products that are essential elements to Iraq's construction industry.

Standard Concrete Block:

This product is widely known as one of the most practical, long-lasting and cost-effective material used in construction. Due to its strength, durability, and excellent fire rating, concrete blocks provide a sensible alternative to many other building materials. Al-Bonyan delivers this block in the needed compressive strength right at the lowest possible weight. This makes for a logical overall use of the material. Al-Bonyan does right by this block. Properties of the Block to consider are:

- ▶ Cost effective.
- ▶ High compressive strength
- ▶ Reasonable weight (around 20 kg for a 20x40x20 cm block).
- ▶ Easy and fast workability.
- ▶ No special mortar required.
- ▶ Water resistant.
- ▶ Fire resistant



Split Block:

Al-Bonyan Al-Jadeed pays attention to providing products with character and appeal as well as all the other good properties. Satisfying customers needs and fulfilling their dreams is our goal..... This decorative exterior wall block adds curb appeal and value to any property. Apart from the cost, it has all the properties of standard concrete block.





ThermoLite Block:

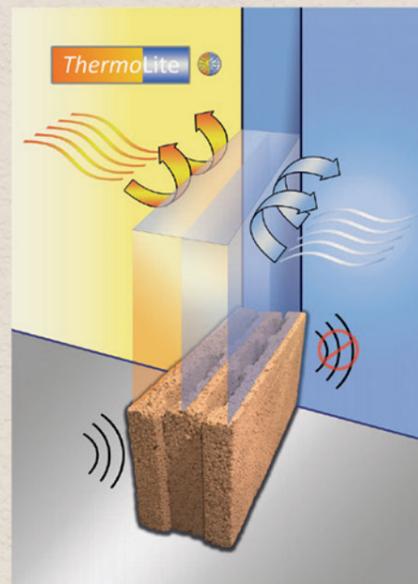


In a market where thermal blocks/bricks increases the value of building properties by up to 30%, **ThermoLite** block is the product of choice. **At a lower overall cost than both Brick (Taboog) and AAC block (Thermostone), ThermoLite is lighter & a better thermal insulator than both.**

ThermoLite is a block made with a composite mixture of high quality non decomposable lightweight aggregates, cement, additives, & sand. It is casted, strongly compacted, evenly vibrated into form, then, it is immediately transferred to protected, moisture injected, & closed curing chambers. The result is a cohesive, strong, rigid & lightweight block.

ThermoLite is an ultra lightweight concrete masonry block that is ideal for all types of exterior and interior walls and suitable for any physical operation such as cutting, nailing, transfixing or screwing, also ridge extending to make proper route for wire, pipe, etc.. it has the workability of normal block and does not have the limitations of other lightweight blocks.

ThermoLite aggregates' internal cellular structure of thousands of air filled cavities gives it much of its following exceptional physical characteristics & attributes:



- 1. Thermal Insulation:** With **ThermoLite's** low thermal conductivity, approximately 0.09 W/m.k. per 15cm thick block, it is much lower than AAC's (Thermostone) thermal conductivity of 0.16 W/m.k. per 20cm thick block. **ThermoLite is a better thermal insulator than Thermostone** (by up to 30%).
- 2. Sound Insulation:** Ranging from 46 to 53 db, **ThermoLite is a better sound insulator than Thermostone's** 37-42db.
- 3. Lightweight:** At 11 to 12 kg/block of 15x50x20 cm (thickness x length x height), **ThermoLite is Lighter than Thermostone**, & one third the weight of standard concrete blocks.
- 4. Tensile strength:** **ThermoLite** is rigid against sudden impact, resists damage caused by handling, transport, & environmental attacks. **ThermoLite is stronger than the fragile Thermostone block.**
- 5. Compressive strength:** **ThermoLite** carries a compressive strength of 2-3.5 MPa., in accordance with American and European standards.
- 6. Fire Resistant:** Non combustible, fire reaction class A1 (no contribution to fire).
- 7. Water Absorption:** Minimal absorption of moisture. tested to absorb 20% of its weight in 72 hours of submersion in water. **Less absorbent than Thermostone.**
- 8. Surface Treatment:** The low moisture absorption and large surface pores make **ThermoLite** block suitable for plastering by both manual and mechanical means. **it is more workable than Thermostone**, and similar to standard concrete block.

Styro Thermal Block

This is the block of choice when looking to combine compressive strength with Thermal/sound insulation. Six convincing reasons to use this block when considering energy construction:

- ▶ Very high insulation coefficient, u value = 0.41 W/m.k (more than 6 times better than normal Hollow Blocks, excellent thermal storage capacity. Cool in summer, warm in winter).
- ▶ Best sound barrier due to high mass
- ▶ High compressive strength
- ▶ Water resistant ($\mu = 150$)
- ▶ Fire resistant
- ▶ Easy and fast workability. No special mortar required.





Pavers and Curb Stones:



Al-Bonyan's Pavers & Curb Stones are highly economical with outstanding capability. A surface laid with these block takes up high loads & impact without any deformation being caused to the surfaces. This capacity of taking loads increases the durability of traffic surfaces laid with Concrete Pavers & Curb Stones. The Pavers come in different shapes with thickness of 6 cm, 8 cm and 10 cm and in an edged design according to the new European norm for paving blocks. Albonyan's Curb Stone comes in 50cm and 100cm lengths.

In addition to the visual aspect and compressive strength of Pavers and Curb stones, "cleaning comfort, durability, and general maintenance", play an increasingly important role.



Future concrete oriented processing companies are forced to seek the technical answers to a host of technical parameters relating to the materials & additives to be used. In the past, processors of concrete had only traditional effective materials at their disposal. In addition, the confusing variety of concrete protection systems often made it very difficult for the processors to find the appropriate system for their purpose.

Al-Bonyan is working with a new system which opens up entirely new perspectives for manufacturing concrete paving stones optimized to resist environmental attack. Due to the nature of their use, concrete pavers & curb stones are permanently exposed to a whole variety of environmental influences and strains. Damage to concrete quite simply starts with water. It carries harmful substances in dissolved form into the capillary system of stone. Many of the reactions which take place due to these influences have a damaging effect and reduce durability. Therefore, if it is possible to protect the stone materials from absorbing water and watery solutions in their capillary systems, their durability can be increased significantly and the expense of maintenance considerably reduced.

The function of moisture-proofing is thus to prevent or impede the concrete surface from becoming wet to eliminate or reduce the capillary absorbency to such an extent that the paving stones remain unaffected by damaging media.

Special targeted protective additives and chemicals developed by expert European Laboratories are added to the face mix layer of Al-Bonyan's Pavers giving it a lifetime protection.

With the installed cutting edge production line/machineries, curing system, and the quality control system put in place, producing Pavers & Curbstones with high compressive strength & long lasting durability comes as second nature at Al-Bonyan Al-Jadeed.

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