

Contec is AAC



1. Contec is AAC

- 1.1 Introduction
- 1.2 About Contec
- 1.3 Contec and AAC
- 1.4 List of Products
- 1.5 Applications of Contec AAC Products
- 1.6 Manufacturing Process
- 1.7 Quality control
- 1.8 Benefits of Contec AAC



Contec is AAC

1.1 Introduction

Contec is Autoclaved Aerated Concrete (AAC). The Concrete Solution... Always!

The superior solution in the world of building materials and construction system today is CONTEC.

Thousands of architects, engineers, builders, businessmen and other professionals around the world validate the better properties of AAC in their own work because of its proven advantages for more than 60 years.

Contec is a unique building concept.

Contec provides this technical manual to the building industry to serve as a technical reference for the Contec Building System. The manual includes valuable information that you will find useful when specifying these materials.

While reviewing the information contained in this manual you may enter a different building concept. Products that originate in the Contec Building System offer innumerable building advantages.

The technology of producing building blocks from the natural raw materials quartz sand and lime has been since the end of last century. Around 1900, the process was improved by adding steam curing. This was the starting point for a completely new material: Autoclaved Aerated Concrete.

Although AAC was already being produced at the turn of the century, improvements in the manufacturing process have led to the superior AAC as we know it today.

Contec AAC and the Contec Building System provide a comfortable environment which satisfies other demands required for today's building materials:

- It is made from abundantly available natural resources.
- The manufacturing process is efficient and non-polluting.
- Its properties will continue to satisfy specifications and building codes in the future.
- Working with AAC is easy and efficient.
- AAC is both versatile and economical.

The management philosophy of Contec is to be highly service oriented. In any case, if you should require further information or have specific questions, please contact us. We will gladly see that you get the answers you need.

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1.2 About Contec

Contec was formed in 1995 produce and commercialize AAC and the Contec Building System (CBS) in Mexico and U.S. The Contec manufacturing plant in Monterrey, Mexico, has the most technologically - advanced facilities in the world for the production of AAC.

Texas Contec Inc. from its San Antonio headquarters and distribution center distributes a full line of AAC products, accesories and technical services.



Contec plant in Monterrey, Mexico.

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1.3 Contec and AAC

Autoclaved Aerated Concrete (AAC) is similar to the material formerly known as cellular concrete. AAC is defined as a lightweight product consisting of calcareous materials, such as cement and/or lime and siliceous fine materials, such as quartz sand and water to form a homogeneous cell structure. The cellular structure is attained by the inclusion of microscopic voids originating from a chemical reaction. Autoclaving is used for final curing of the material.



1.4 List of Products

The Contec Building System includes masonry components like blocks, floor and roof slab panels, wall panels, staircase steps and lintels made out of AAC, for a wide variety of construction applications:



- 1 Blocks
- 2 U-Block
- 3 Semi Jumbo
- 4 Lintel
- 5 Floor and Roof Panels
- 6 Wall Panels
- 7 Mortars and Renders
- 8 Contec Tools

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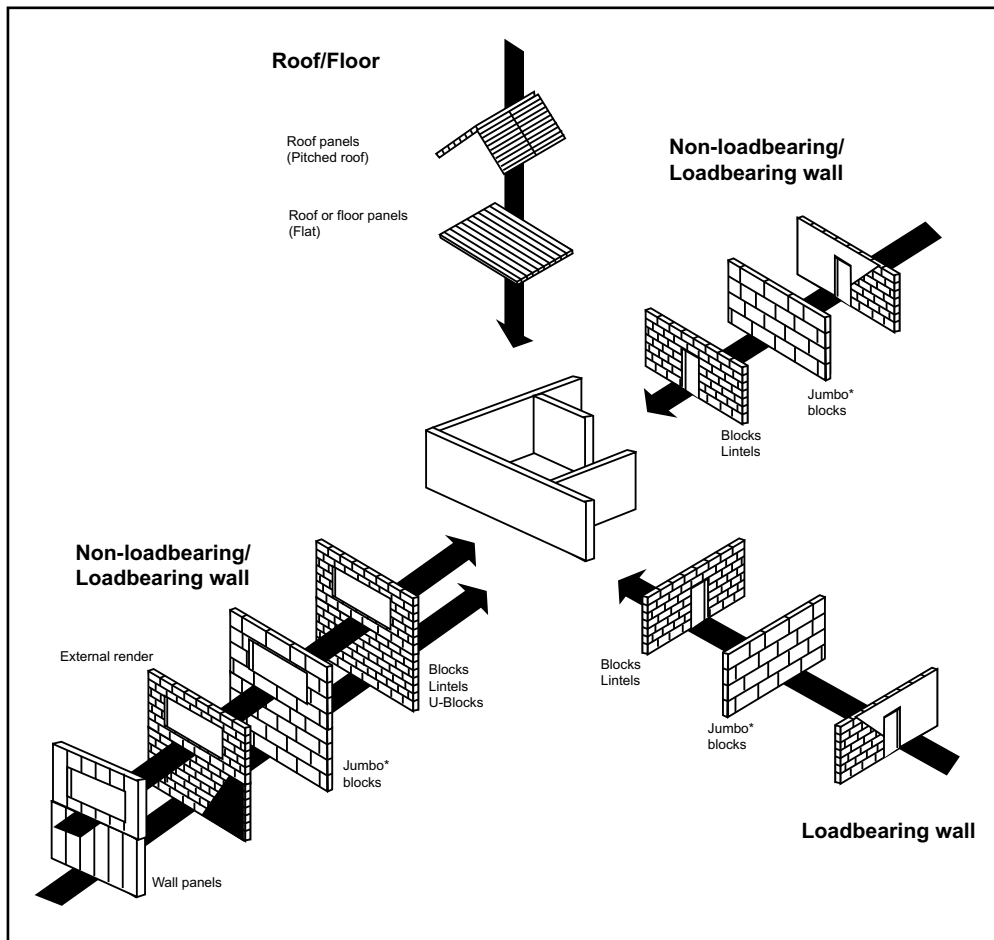
1.5 Applications of Contec AAC Products

Normally, an assembly of different materials with less than compatible properties, are needed in order to satisfy the great demands made on buildings today.

Contec AAC meets the diverse demands better than any other material due to the numerous advantages of its physical and mechanical properties. This has given rise to a complete construction system with complementary products. Contec offers products for building an entire structure from basement to roof.

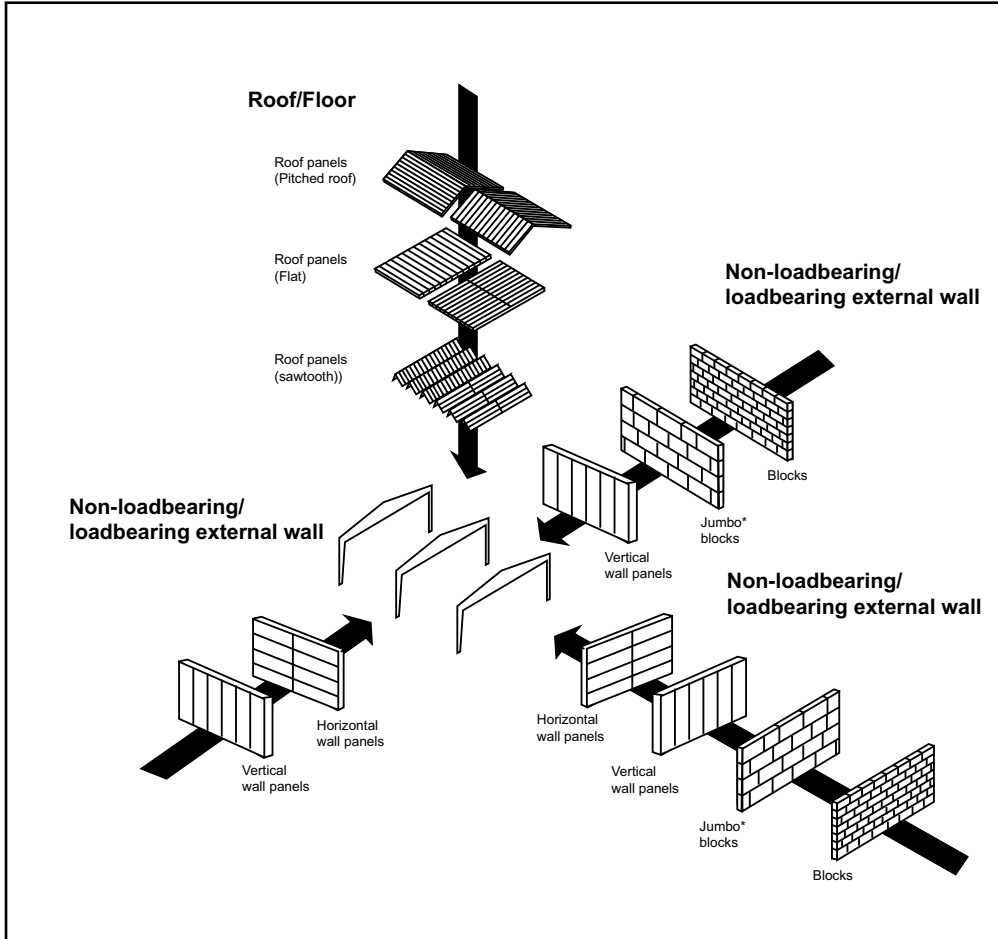
Contec also offers products for unfinished shells or finished structures. In each case, the product's properties are perfectly matched.

The following illustrations demonstrate the versatility and diverse applications of Contec AAC products and the Contec Building System (CBS).



Contec AAC residential and commercial application

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Contec AAC industrial application

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1.6 Manufacturing process

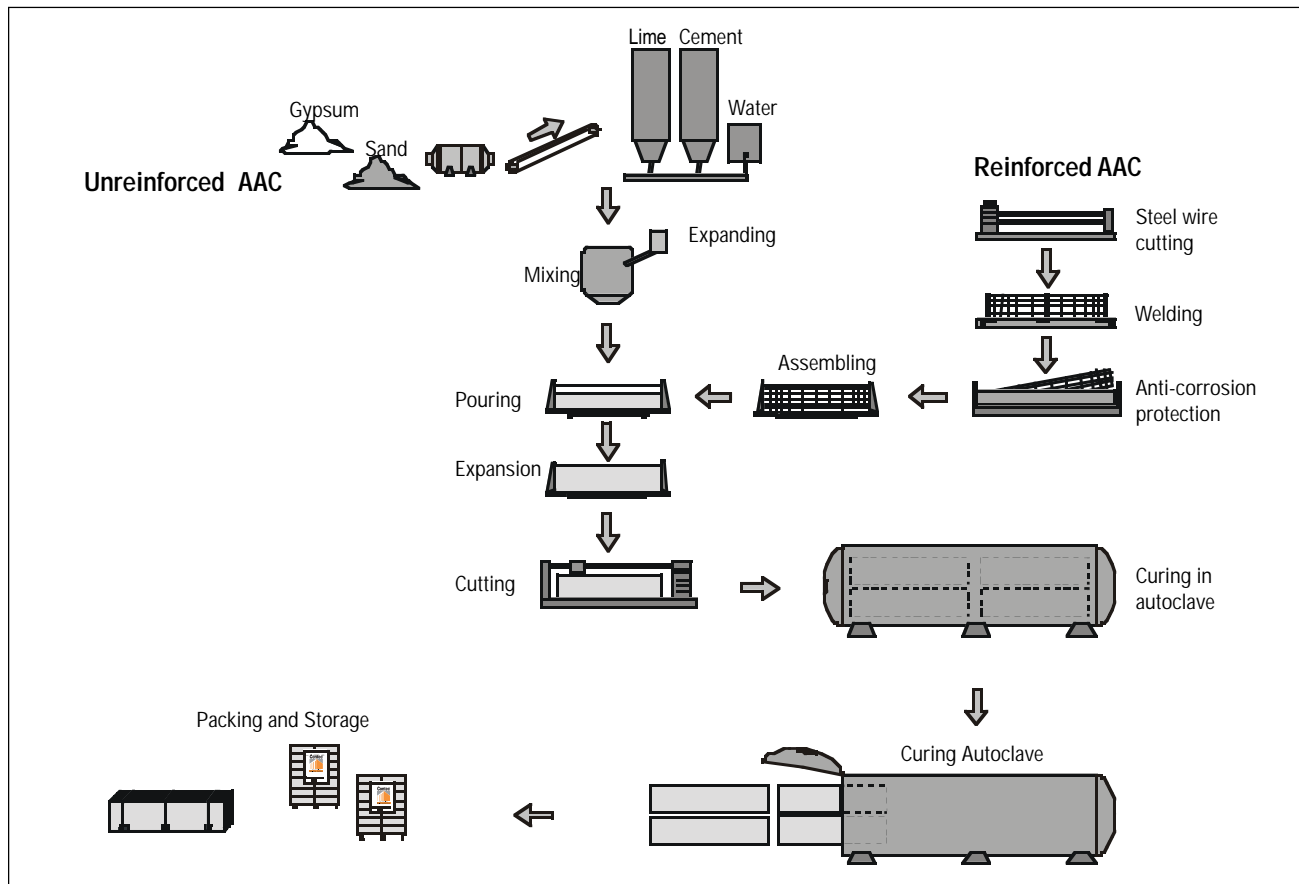
Contec Autoclaved Aerated Concrete (AAC) is made from silica sand, lime, cement and water, to which an expanding agent is added. The AAC manufacturing process starts when the sand is ground to the required fineness in a ball mill. Raw materials are then automatically weighed and measured in the mixer along with water and an aluminum paste (the expanding agent).

After mixing, the slurry is poured into metal molds in which the expanding agent reacts with the other elements. The mixing results in a chemical reaction that expands the mixture to form small, finely-dispersed air spaces. The molds are sent to a pre-curing room for several hours. Then the semi-solid material is transported to the cutting machine. The cutting machine cuts the molds,

using steel wires, into the size required for the building elements. The product homogeneity combined with our high precision cutting technology, results in pieces with dimensional tolerances of $\pm 1/16"$.

The final phase in the production process is steam pressure curing in autoclaves for up to 12 hours. Block, panels and other AAC elements are removed from the autoclave, packaged and sent to the finished product storage.

Contec reinforced elements, such as slab panels, wall panels, and lintels contain steel reinforcement mesh that is treated for corrosion with a water based acrylic, then placed in the mold before the slurry is added. The manufacturing process is then the same as described above for unreinforced elements.



Production process of Contec AAC.

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1.7 Quality control

Quality Control and Quality Assurance at the Contec plant begins with the purchasing of the raw materials and continues through to the delivery of the final product. Raw material certificates are obtained from suppliers of cement, aluminum paste and reinforcement steel.

In-house quality assurance tests are conducted for silica sand, gypsum and quicklime. Final product testing includes: compressive strength, dry bulk density, and flexural testing of panels.

One critical step during manufacture is the formulation selection and mixing. This is a computerized process overseen by our full-time Quality Control Manager.

Contec plant is inspected on a regular basis by Underwriters Laboratories (UL) Follow Up Services.

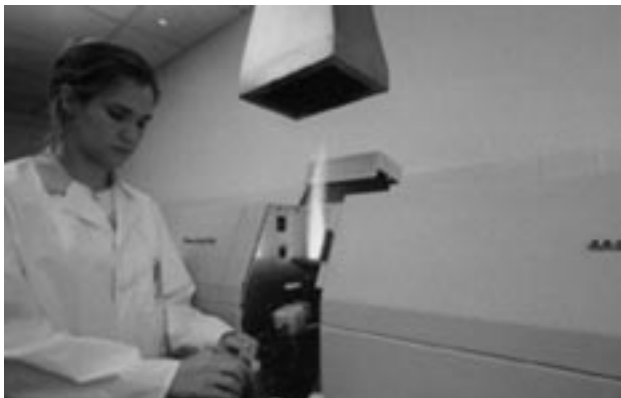
Contec AAC Material Identification and Marking

Blocks are banded in pallets and marked with a stamp denoting density type and date of production. Subsequently, block pallets are shrink-wrapped and sent to storage or distribution.

Reinforced panels are marked before autoclaving with a stamp code containing information about date of production, mold number, project number and position.

Contec AAC Shipping and Handling

Contec AAC is shipped by trucks, platforms, multi-modal containers, etc. They can be transported by road, train and by sea for international projects. Contec block and panel pallets should be handled by forklift trucks and/or cranes with appropriate straps to avoid damage to the material.



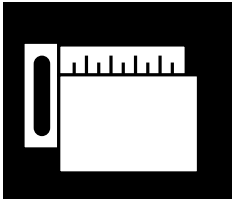
Quality Control Procedure.

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1.8 Benefits of Contec AAC

Contec AAC has many properties and advantages which will radically change “construction practices” in the U.S.

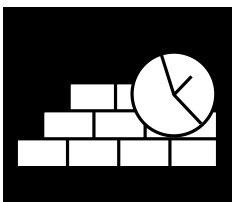
3.1 Precision



The production process guarantees the exact dimensions of the pieces that comprise the Contec Building System.

This property allows for a great building quality with perfectly straight and plumb walls, resulting in savings of material and execution time for finishes. Also, the precision of the pieces allows for a perfect contact among them, resulting in a better structural performance. The dimensional tolerance of the Contec products is + 1/16”.

3.2 Speedy/Easy Construction

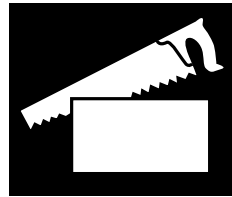


The main elements of the Contec Building System are prefabricated pieces, ready to be used in construction.

These elements, combined with the minimum

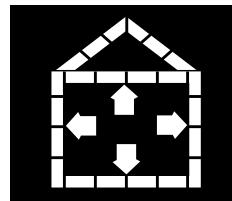
requirements in thin-bed mortar, its mounting facility and the product’s light weight, result in reduced construction times and a notable improvement in efficiency and productivity.

3.3 Workability



Contec AAC products are easy to cut, drill, slot, grind, etc., which makes them easier to install than other building materials.

3.4 Structural Versatility



The wide variety of Contec AAC products covers all of the requirements of construction: blocks for load bearing and non-load bearing walls, door and window lintels, roof or floor panels, wall panels, wall boards, mortars and finishes such as stucco and plaster.

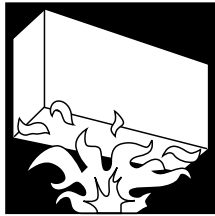
3.5 Lightness



Contec AAC material is up to 4 times lighter than traditional concrete. Its light weight means significant advantages in transportation costs, ease of material handling at the building site, and in overall speed of construction.

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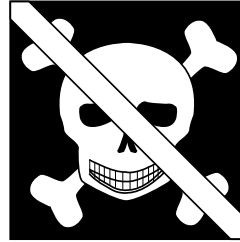
3.6 Fire Resistance



Contec AAC is fire resistant, totally inorganic, and does not contain any combustible materials. A 4" thick wall built with Contec AAC blocks provides 4-hour fire

resistance (UL Classified).

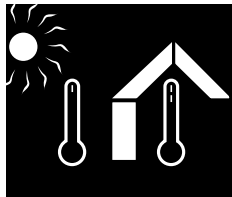
3.9 Non-Toxic



The AAC does not contain any toxic substances. The product does not possess any health hazard for humans or the environment. The material

composition does not foster nor attract any pests.

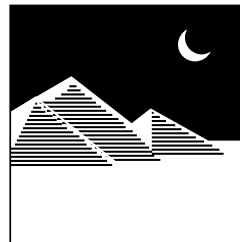
3.7 Thermal Insulation



Contec AAC has excellent thermal insulation characteristics. The presence of these features in all the elements of the Contec

Building System guarantees a comfortable environment inside the building without the need for additional insulation. An analysis shows that a house built with 8" Contec exterior walls and roof slabs outperforms a home built under traditional R30 insulation energy savings.

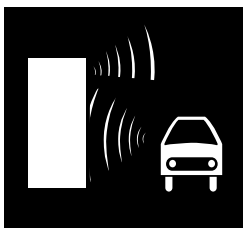
3.10 Durability



Contec AAC products are very durable and will not degrade under normal climatic conditions. They have outstanding durability characteristics over

traditional materials relative to humidity, freeze/thaw cycles and chemical attack.

3.8 Acoustic Insulation



The elements of the Contec Building System have acoustic insulation properties in excess of more traditional materials,

reducing the transmission of sound. Depending on the design, the walls provide a Sound Transmission Class (STC) up to 68.