YOUR HOUSING SYSTEMS & SOLUTIONS EXPERT

“Villa El Cielo” Villahermosa, Tabasco, MEXICO – 1,500 Houses - 2nd Prize “Social Housing” CEMEX Building Awards 2012
WE ARE CEMEX

WE ARE a leading provider of housing and high-scale infrastructure and a strong partner in the socio-economic development of emerging markets throughout the world. We aim to serve the needs of our customers and create value for our stakeholders by becoming the world's most efficient and innovative building solutions company.

OUR WORLD RANKINGS

#1 CONCRETE
1,800 ready-mix concrete facilities

#3 AGGREGATES
476 aggregates quarries [sand and gravel]

#4 CEMENT
57 cement plants
WE HAVE UNMATCHED EXPERTISE IN TAILOR-MADE SYSTEMS & SOLUTIONS FOR HOUSING PROJECTS

**OUR EXPLOSIVE GROWTH IN HOUSING PROJECTS**

<table>
<thead>
<tr>
<th>OPERATING COUNTRIES</th>
<th>HOUSING UNITS</th>
<th>SQUARE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3</td>
<td>1,572</td>
</tr>
<tr>
<td>2011</td>
<td>6</td>
<td>3,259</td>
</tr>
<tr>
<td>2012</td>
<td>9</td>
<td>2,942</td>
</tr>
<tr>
<td>2013*</td>
<td>19</td>
<td>8,140</td>
</tr>
<tr>
<td>CUMULATIVE</td>
<td>15,913</td>
<td>712,412</td>
</tr>
</tbody>
</table>

* Forecast
WE PROVIDE HOUSING SYSTEMS & SOLUTIONS WITH RELEVANT AND DISTINCTIVE ATTRIBUTES

At our R&D centers in Mexico and Switzerland, we design and develop cutting-edge systems & solutions based on the thorough knowledge and application of concrete technology.

OUR SYSTEMS & SOLUTIONS ATTRIBUTES

- Easily Adapted to Construction and Design Requirements
- Resilient to Natural Disasters
- High Thermal Mass & Insulation
- Less Waste at Construction Site
- Significantly Reduces Construction Time

Our systems & solutions attributes enable a more sustainable and efficient construction process.
OUR FIRST-CLASS WALL SYSTEMS

- **CAST IN PLACE FORM WORKS**
  The Best for Mass Production & Speed

- **WIRED EPS PANELS [EXPANDED POLYSTYRENE SYSTEM]**
  High Flexibility to Accommodate Design

- **ICF [INSULATED CONCRETE FORM]**
  Perfect for High Performance Energy Efficiency

- **PRECAST SYSTEMS**
  Most Rational and Efficient Manufacturing Process
## CAST IN PLACE FORMWORKS

Walls and decks casted in place with removable and predesigned formworks within concrete is poured continuously in one step producing a solid monolithic structure.

**STANDARD**

- (A) Poured Concrete
- (B) Rebar
- (C) Formwork Panels
- (D) Connectors
- (E) Insulation Panel

**INSULATED**

- (A) Poured Concrete
- (B) Rebar
- (C) Formwork Panels
- (D) Connectors
- (E) Insulation Panel

### BENEFITS:

- **35%** Construction Time Reduction
- **40%** Indirect & Financial Costs Reduction
- **12day/wage** Reduction / Due to Savings in Labor Force

### PARTICULARLY RECOMMENDED FOR:

- Mass Production of Horizontal and Vertical Housing
- Rapid Response for Natural Disaster Relief Programs

### ATTRIBUTES:

- Analysis vs. Concrete Blocks in Mexico

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## WYRED EPS PANELS

[EXPANDED POLYESTYRENE SYSTEM]

Prefabricated panel consisting of three dimensional steel wire mesh and a polystyrene insulation foam coated with shotcrete, providing a cost-efficient, sustainable building.

**BENEFITS**:

- **15%** Lower Costs
- **42%** Energy Savings**
- **29%** Higher Acoustic Performance
- **8x** Speed of Construction

### PARTICULARLY RECOMMENDED FOR:

- Speed and Lightweight Construction
- Designs Demanding Structural Flexibility and Thermal Insulation

### ATTRIBUTES:

- Analysis vs. Red Clay Bricks in Egypt

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**R value: 2.22 m k/W (100 mm EPS panel). R value as high as 8.33 m K/W can be achieved by increase the panels thickness**
**ICF**

[INSULATED CONCRETE FORM]

Concrete wall system casted with stay-in-place formwork made of insulating materials, that is quicker to build and offers higher levels of thermal insulation, allowing you to have an insulated wall in one step.

(A) Poured Concrete  
(B) Steel Bar  
(C) Plastic Ties  
(D) Polystyrene  
(E) Mesh  
(F) Mortar  
(G) Finishes

**EXTERIOR FINISHES**

Brick, Stucco, Hard-plank, Vinyl, Wood

**INTERIOR FINISHES**

Drywall, Tongue & Groove, Paneling, Stucco

**BENEFITS**:

- **33%** Energy efficiency**
- **27%** Material Cost Reduction
- **50%** decrease in capacity of HVAC equipment

**PARTICULARLY RECOMMENDED FOR:**

- Low-Rise Residential
- High Performance, Energy Efficient Buildings

**ATTRIBUTES:**

![Flexible Design](image1)  
![Resistant](image2)  
![Rational Innovation](image3)  
![Analysis vs. Concrete Blocks in France](image4)

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**Most Rational & Efficient Manufacturing Process**

PRECAST SYSTEMS

Walls and decks poured off site in a controlled and automated warehouse by then being transported to the job site and lifted into the place.

**BENEFITS**:

- **70%** Formwork Reduction
- **90%** Scaffolding Reduction
- **30%** Waste Reduction

**PARTICULARLY RECOMMENDED FOR:**

- Just-In-Time Production & Constant Quality
- Mass Production & Standardized High-Rise Residential

**ATTRIBUTES:**

![Flexible Design](image1)  
![Resistant](image2)  
![Rational Innovation](image3)  
![Analysis vs. Traditional Construction in Germany](image4)
We integrate design, products, and walling systems into housing solutions that are flexible & replicable.

**OUR INTEGRATED HOUSING SOLUTIONS**

- **INDUSTRIALIZED HOUSING**
  Fast, Efficient, and Large-Scale Housing Construction

- **DISASTER RELIEF HOUSING**
  The Best Response for Reconstruction After Natural Disasters

- **ENERGY EFFICIENT HOUSING**
  Most Competitive Solution for High Performance Buildings

- **AFFORDABLE HOUSING**
  The Lowest Possible Cost Without Giving Up Quality

- **VERTICAL HOUSING**
  Fast and Efficient Construction for High-Rise & Mid-Rise Residential
CEMEX offers a warranty as supplier and contractor.

Querétaro, MEXICO – 224 Houses

Toluca, MEXICO - 652 Houses

Colinas del Viento, DOMINICAN REPUBLIC – 124 Houses

INDUSTRIALIZED HOUSING
[MONOLITHIC CAST-IN-PLACE]

It’s a CEMEX Solution that allows fast, efficient, and large-scale construction through the combination of innovative products and processes.

The key element is the use of formwork molds for walls and slabs, which guarantee the project’s completion in an efficient way and the capability to move quicker to the sale stage.

ADVANTAGES:

- Reduction in construction time by using special products and formwork in walls and slabs
- Less time to recover investment
- Savings in labor force; less people to perform the work
- Major improvement in quality: quality control of inputs, better supervision of processes, standardization of geometry
- Reduction of time in homes deliveries
- Savings on finishes and rework
- Savings in materials storage

ATTRIBUTES:

- Resilient
- Minimum Waste
- Fast Build

Reduction in construction time by using special products and formwork in walls and slabs

Less time to recover investment

Savings in labor force; less people to perform the work

Major improvement in quality: quality control of inputs, better supervision of processes, standardization of geometry

Reduction of time in homes deliveries

Savings on finishes and rework

Savings in materials storage
**INDUSTRIALIZED HOUSING [PRECAST]**

CEMEX provides rational and efficient off-site manufacturing processes that ensure flexibility and adaptability for all construction requirements.

In precast construction, building elements are developed at special plants in an automated or semi-automated production process and then delivered for erection on-site.

Through this process, on-site quality concerns are reduced, enabling shorter construction times.

**ADVANTAGES:**

- Just-in-time production
- Precise prefabrication with individual geometries
- Smooth surface finishes, ready for wallpaper and painting
- Fast building process in a constant high quality
- Pre-installations [e.g., tubing for electrical wiring, plug sockets, heat conducting pipes, and openings] reduce construction time
- Adaptability to almost all customer’s specifications
- Less on-site supervision by main contractor

**ATTRIBUTES:**
Cemex has an immediate response capacity to rebuild and enhance the number and quality of houses at natural disaster sites.

CEMEX’s solution prioritizes the provision of decent, safe, and sanitary housing, with an emphasis on housing design and materials to reduce maintenance and insurance costs. The scope of intervention also includes site infrastructure construction. CEMEX’s disaster relief housing designs are resistant to hurricanes, earthquakes, and tornadoes.

**ADVANTAGES:**

- Exterior walls withstand high temperatures without igniting
- Housing able to withstand winds in excess of 200 miles per hour
- Passive cooling/heating strategies due to the location and alignment of doors and windows
- Greater discounts on insurance costs if risk mitigation is considered adequate for natural disasters
- Solid and insulated roof decks prepared for acceptable vertical expansions

**ATTRIBUTES:**
CEMEX offers a thermal envelope evaluation service

ENERGY EFFICIENT HOUSING

CEMEX combines its special products and systems to construct high-performance buildings, which consume less energy and natural resources and achieve high green building certification standards.

Our construction solutions maintain thermal continuity, minimizing thermal bridging and uncontrolled infiltration. Specific design principles on detailing issues are included in our solutions to avoid surface condensation and mould growth at junctions.

ADVANTAGES:

- Savings on energy consumption
- Energy efficient buildings diminish demands on central heating systems
- Simple service installation
- Less requirements for tools and equipment on site
- High design flexibility
- Variety of finishes

ATTRIBUTES:
AFFORDABLE HOUSING

CEMEX has developed high quality housing, offered at the lowest possible cost.

CEMEX's Affordable Housing Solution takes advantage of the optimal use of materials and standardized production to minimize costs, reduce waste, and ensure housing quality.

Affordable Housing Solutions are offered in rural and urban areas, for housing developments, and to individual land users.

ADVANTAGES:

✓ Standardized production reduces the costs of windows, doors, and finishing due to the lower deviations in measurement
✓ Job site activities are simplified through better quality control and reduced rework
✓ Durability and monolithic construction require minimum maintenance
✓ Standardized production reduces the number of people required to perform the work, creating labor force savings

ATTRIBUTES:
VERTICAL HOUSING

CEMEX has an integral solution for vertical housing, designed for quick construction. The construction system allows a wide variety of architectural designs, making it ideal for social and residential complexes.

Mid-rise and high-rise residential buildings can be completed quickly and efficiently with high quality results.

ADVANTAGES:

- 3 days in shell structure work by floor vs. 2 weeks in traditional systems
- Steel reinforcement optimization
- Use of slender elements reduces the structure’s weight and foundation costs
- Safer system; fewer people working at heights
- No need to brake up walls for plumbing and electrical work

ATTRIBUTES:
We work side-by-side with you on each project to fulfill all your needs.

**WE OFFER INTEGRATED SERVICES TO REALIZE YOUR NEXT HOUSING PROJECT**

- Financing
- Land and Planning
- Urban Development
- Design
- Materials’ Supply
- Construction
- After Sales

We can take part in any of the phases of a project or participate in all phases as a **ONE-STOP-SHOP** for your housing project.
Mexico City, MEXICO – 1st Prize “Housing Complex” CEMEX Building Awards 2011

We help your project obtain relevant sustainability credentials to differentiate it.

WE BRING HIGH VALUE-ADDED GREEN BUILDING SERVICES TO OUR CUSTOMERS

- Bioclimatic Architecture
- Integrated Engineering
- Building Energy Modeling
- Sustainable Materials & Solutions
- Energy Monitoring & Auditing
- Renewable Energy Supply
- Building Certifications [e.g., LEED, BREEAM]

We help our clients with specialized services that differentiate their projects through sustainable attributes.
Our LEED AP’s can assist you throughout the entire certification process.

OUR PRODUCTS, SYSTEMS & SOLUTIONS CONTRIBUTION TO LEED CERTIFICATION

UP TO 46 POINTS OUT OF 110 AT STAKE

**SUSTAINABLE SITES**
- Credit 2: Development Density and Community Connectivity
- Credit 3: Brownfield Redevelopment
- Credit 5.1: Site Development - Protect/Restore Habitat
- Credit 5.2: Site Development - Maximize Open Space
- Credit 6.1: Stormwater Design - Quantity Control
- Credit C 6.2: Stormwater Design - Quality Control
- Credit 7.1: Heat Island Effect - Nonroof
- Credit 7.2: Heat Island Effect - Roof

**ENERGY & ATMOSPHERE**
- Credit 1: Optimize Energy Performance

**MATERIALS & RESOURCES**
- Credit 1.1: Building Reuse - Maintaining Existing Walls, Floors, and Roof
- Credit 2: Construction Waste management
- Credit 4: Recycled Content
- Credit 5: Regional Materials

**INDOOR ENVIRONMENTAL QUALITY**
- Credit 4.3: Low Emitting Materials - Flooring Systems
- Credit 8.1: Daylight and Views - Daylight

**INNOVATION IN DESIGN**
- Credit 1: Innovation in Design
# Benefits of Cemex’s Housing Solutions to Our Customers

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Architects/Engineers</th>
<th>Construction Companies/Project Managers</th>
<th>Developers/Real Estate Investors</th>
<th>Government Agencies/Social Housing Officials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability to all Specifications</td>
<td>✓ Adaptability to all Specifications</td>
<td>✓ Reduction in Construction Time and Costs</td>
<td>✓ Lower Overall Costs</td>
<td>✓ Reduction of Time in Homes Deliveries</td>
</tr>
<tr>
<td>High Design Flexibility</td>
<td>✓ High Design Flexibility</td>
<td>✓ Savings in Labor Force</td>
<td>✓ Less Time to Recover Investment</td>
<td>✓ Durable and Resilience</td>
</tr>
<tr>
<td>Variety of Finishing</td>
<td>✓ Variety of Finishing</td>
<td>✓ Less On-site Supervision</td>
<td>✓ Shorter Construction Time</td>
<td>✓ Support to Develop Communities</td>
</tr>
<tr>
<td>Precise Construction</td>
<td>✓ Precise Construction</td>
<td>✓ Less Waste During Construction</td>
<td>✓ Cemex Warranty as Supplier and Contractor</td>
<td>✓ Social Intervention</td>
</tr>
<tr>
<td>Durable and Resilience</td>
<td>✓ Durable and Resilience</td>
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<td>Variety of Finishing</td>
<td>✓ Variety of Finishing</td>
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<tr>
<td>Shorter Construction Time</td>
<td>✓ Shorter Construction Time</td>
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<td></td>
<td></td>
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<tr>
<td>Social intervention</td>
<td>✓ Social intervention</td>
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</table>
BENEFITS
OF CEMEX’S HOUSING SOLUTIONS TO OUR
FINAL USERS

OCCUPANTS
✓ Higher Quality Standards
✓ Lower Energy Bills
✓ More durable structures, resistant to fire, tornado, earthquake and floods
✓ High Indoor Air Quality
✓ Improved Acoustic Performance

LOCAL COMMUNITIES
✓ Use of Local Labor
✓ Utilize Regional Materials
✓ Shorter Construction Time and less waste production
✓ Less Requirements of Equipment On-Site
✓ Resistant to Natural Disasters
WE CREATE
PRODUCTS, SYSTEMS & SOLUTIONS
AT OUR R&D CENTERS
IN SWITZERLAND AND MEXICO
AND ADAPT THEM TO
OUR CLIENTS’ LOCAL
NEEDS & REQUIREMENTS
IN EACH COUNTRY

WE HAVE
UNRIVALLED EXPERIENCE
DELIVERING SYSTEMS AND SOLUTIONS
FOR HOUSING PROJECTS
WORLDWIDE

WE HAVE operations in 50 countries
throughout 4 continents.

ARGENTINA AUSTRIA BAHAMAS BANGLADESH BARBADOS
BERMUDA BOSNIA AND HERZEGOVINA BRAZIL CHINA COLOMBIA
COSTA RICA CROATIA CZECH REPUBLIC DOMINICAN REPUBLIC
EGYPT EL SALVADOR FINLAND FRANCE GERMANY GADELOUPE
GUATEMALA HAITI HUNGARY IRELAND ISRAEL JAMAICA LATVIA
LITHUANIA MALAYSIA MARTINIQUE MEXICO MONTENEGRO
NETHERLANDS NICARAGUA NORWAY PANAMA PERU PHILIPPINES
POLAND PUERTO RICO SLOVAKIA SPAIN SWEDEN SWITZERLAND
TAIWAN THAILAND TRINIDAD AND TOBAGO UNITED ARAB EMIRATES
UNITED KINGDOM UNITED STATES