

Cement

PENTA continues to be a leader in providing full-service engineering to the cement industry.

PENTA's extensive experience is behind all its recommendations, be it capacity upgrade with minimum investment costs or concept-to-completion Greenfield/brownfield plants.

PENTA has engineered over 100 projects for the cement industry with innovative solutions to improve the performance, optimize the operation and reduce the cost of production.

As a full-service engineering firm, PENTA's range of services covers mining, grinding, pyroprocessing, material handling and bulk storage structures.

PENTA's expertise extends to geological evaluations, mine and quarry planning, raw materials evaluations, plant system design, capital and operating cost estimates, plant layouts, process and operation evaluation, operations analysis, commissioning, start-up, operator training and management consulting.

PENTA understands clients needs and tailors its solutions optimally.

PENTA's Areas of Cement Expertise:

- **Quarrying Operations:** Design of geological investigation, including drilling, blasting, mine plans, crushing and screening plants
- **Material Handling:** Belt, screw, bucket, pan and drag conveyors; overland belt conveyors; bucket elevators; truck and rail loading and unloading systems; storage and reclaim systems
- **Grinding and Milling:** Design of optimum systems for drying and grinding in ball and roller mills, roll presses, classification by High Efficiency Separators and cyclones and screens
- **Pyroprocessing:** Develop suitable systems of kilns, preheaters, precalciners and coolers,

emission management and solid fuel firing systems and clinker handling and storage

- **Instrumentation and Process Control:** Design of instrumentation scheme and process control loops
- **Bulk Storage:** Concrete and metal silos and domes, steel bins and A-frame and process control loops
- **Cement Terminal:** Truck, rail and marine facilities

PENTA's PROJECTS

Continental Cement Company, Hannibal, Missouri

- Process engineering
- Preliminary mechanical, civil/structural and electrical engineering
- Plant interface engineering and construction management
- Integration of key equipment from various suppliers



Caribbean Cement Co. Ltd., Rockfort, Jamaica

- Consulting services for a new 2850 MTPD clinker line
- Conceptual process design and layout
- Bid documents for major process equipment, evaluated bids and provided recommendations
- Detail electrical, structural and balance of plant mechanical engineering
- Economical and balanced designs for various structures
- Integration of key equipment from various suppliers

Cement

Ash Grove Cement Company

Chanute, Kansas
Louisville, Nebraska
Foreman, Arkansas

- Feasibility study and bid document for major process equipment for a new 1,000,000 ton/year clinker line
- Feasibility study and bid documents for a new 6800 HP finish mill installation
- Installation of equipment for liquid waste fuel system with truck/rail unloading, three new storage tanks and feed system to cement kiln
- Turnkey specification of a new 30 MVA substation for new cement kiln line
- Modifications of raw material silo hoppers, vibrating screen, and cross-belt gamma ray analyzer to improve the quality control of the raw mill feed
- Design/Build for 90,000 ton cement dome
- Design/Build for 75,000 ston clinker dome



Loma Negra C.I.A.S.A., Olavarria, Argentina

- Technical assistance and detail engineering for a 5,100 MTPD greenfield cement plant
- Five miles of overland conveyor to transport limestone from the quarry to the new plant, and to an existing plant
- Prepared construction bid packages and assisted in scheduling and contractor selection



Monarch Cement Co., Humboldt, Kansas

- Process, conceptual and final engineering, construction observation, start-up and commissioning assistance for upgrade and doubling of capacity of an existing 2-kiln system
- Modified two existing concrete preheater towers, two preheater fans, two clinker coolers
- Added downdraft calciners, conditioning towers, support steel and tertiary air ducts.
- Modified clinker handling system, added a new finish mill grinding system with a 5000 HP synchronous induction motor and all associated work



Dragon Products Co., Inc. Thomaston, Maine

- Conversion of 1500 TPD wet process to 2100/2500 TPD 4-stage preheater/calciner
- New equipment: cross bar cooler, vertical raw mill, baghouse, blending silo, conversion of raw mill to pre-grinding and all materials handling
- Conceptual and final design, value engineering, procurement and construction management

