CORE CONCEPT

Concrete Block and AAC Manufacturing Course: Block Machines, Autoclave Curing and Unit Testing

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Introduction:

Concrete block and AAC manufacturing, covering block machines, autoclave curing and unit testing, is a 1-week course for production, machine setting, laboratory and maintenance teams that ends with a Block and AAC Plant Performance and Quality Plan for a case factory. Factories lose margin when green blocks crack, paver faces wear early, AAC cakes collapse before cutting and failed strength results reach buyers. Nominees already run, set or test a block, paver or AAC line and learn through inspection walkthroughs of presses, curing chambers and autoclaves. CoreConcept Training Center delivers this concrete block and AAC course.

Course Objectives:

- Proportion earth-moist mixes for hollow blocks, solid blocks and two-layer interlocking pavers using aggregate grading, cement content and moisture targets
- Set vibro-press block machine vibration, tamper head pressure, mould fill and cycle time to hold unit height, density and edge quality
- Control green block handling, curing chamber humidity and temperature and cube stacking so units reach handling strength without cracking
- Run AAC slurry dosing, aluminium powder rising, pre-curing, wire cutting and autoclave steam curing to target density and strength classes
- Test compressive strength, water absorption, density, drying shrinkage and dimensions to ASTM C140 and EN 772 methods and release lots against product specifications
- Calculate block machine and AAC line OEE and energy per cubic metre and build a Block and AAC Plant Performance and Quality Plan

Target Audience:

- Production teams responsible for daily output of block, paver and AAC lines on shift
- Machine setting teams responsible for block press moulds, tamper heads, vibrators and pallet circulation
- AAC process teams responsible for slurry preparation, casting, rising, cutting and autoclave cycles
- Quality laboratory teams responsible for sampling, unit testing, lot release and complaint records
- Maintenance teams responsible for mixers, presses, cubers, cutting lines, boilers and autoclaves

Course Outline:

Day 1: Masonry Unit Product Families, Raw Materials and Plant Baseline

- Hollow, Solid, Split-Face and Lintel Block Product Map
- Interlocking Paver Shapes, Face Mix and Base Mix Layers
- AAC Blocks, Panels and Density Class Product Range
- Cement, Sand, Crushed Aggregate and Pigment Raw Material Specifications
- Factory Baseline Sheet for Output, Breakage and Energy Use

Day 2: Earth-Moist Mix Proportioning and Vibro-Press Block Machine Set-Up

- Aggregate Grading Curve and Fineness Targets for Block Mixes
- Cement Content, Water Ratio and Hand Squeeze Moisture Check
- Vibro-Press Vibration Frequency, Amplitude and Tamper Head Pressure
- Mould and Tamper Shoe Wear Measurement and Changeover Routine
- Feed Drawer Fill, Pallet Circulation and Press Cycle Time Setting

Day 3: Green Block Curing and AAC Cake Production Through the Autoclave

- Green Block Transfer, Rack Loading and Cuber Stacking Pattern
- Curing Chamber Humidity, Temperature Profile and Residence Time Log
- AAC Slurry Dosing of Lime, Cement, Gypsum and Aluminium Powder
- Cake Rising, Pre-Curing Hardness Check and Wire Cutting Sequence
- Autoclave Steam Pressure, Temperature Hold and Condensate Recovery Cycle

Day 4: Unit Testing, Thermal Blocks, Defects and Line Loss Analysis

- ASTM C140 and EN 772 Strength, Absorption and Density Tests
- ASTM C90, ASTM C936, EN 771-3 and EN 771-4 Limits
- Insulated Block Inserts and AAC Thermal Conductivity Class Selection
- Green Cracks, Cake Collapse and Paver Efflorescence Root Cause Trees
- OEE Availability, Speed and Breakage Loss Mapping by Station

Day 5: Inspection Walkthrough Building the Plant Performance and Quality Plan

- Case Factory Block Press and Mould Condition Walkthrough
- Case Curing Chamber and Autoclave Log Review Against Targets
- Case Lot Test Results Checked Against Strength and Absorption Limits
- Energy per Cubic Metre and OEE Gap Ranking
- Block and AAC Plant Performance and Quality Plan Completion

Skills You Will Gain:

- Earth-Moist Mix Adjustment
- Block Press Set-Up
- Mould Wear Assessment
- Curing Chamber Control
- Autoclave Cycle Supervision
- Masonry Unit Testing
- Thermal Block Selection
- Line Loss Analysis

Why Attend This Course:

- Deliver a Block and AAC Plant Performance and Quality Plan for a case factory to the plant manager and the quality lead
- Decide whether a strength, absorption or breakage problem calls for a mix, press, curing or autoclave correction
- Avoid rejected lots, cracked pallets, collapsed cakes and wasted steam that raise cost per cubic metre
- Pass on press set-up sheets, curing logs, test record forms and loss maps to shift crews and laboratory staff

Conclusion:

Back at the factory, the participant hands the plant manager, quality lead and maintenance planner a Block and AAC Plant Performance and Quality Plan that sets mix, press, curing and autoclave targets, unit test limits and station loss figures. Management uses it to decide which losses to remove first and where mould, spare part and energy budgets go, while shift crews use its set-up sheets and logs at the line. After the first full month under the plan, the team should compare breakage, OEE, energy per cubic metre and failed test results against the baseline.

Frequently Asked Questions FAQ:

What should participants know before the concrete block and AAC manufacturing course?

Participants should already run, set, maintain or test a block, paver or AAC line and read shift logs and test sheets. No engineering degree is needed. Bringing anonymised breakage records, curing logs or strength and absorption results helps apply the walkthroughs to their own factory.

How does concrete block and AAC manufacturing differ from a precast concrete or concrete mix design course?

It covers small masonry units made on high-cycle presses and AAC cutting lines, with earth-moist mixes and autoclave curing. Precast courses cover casting large reinforced elements in moulds, and mix design courses cover fluid concrete for site pours, which this course does not address.

Why does autoclave curing matter in concrete block and AAC manufacturing?

Autoclave curing gives AAC its strength. High-pressure saturated steam makes quartz sand react with lime to form calcium silicate hydrate within hours. Pressure, temperature hold and cycle length decide strength, shrinkage and the steam cost of each cubic metre.

What do participants take back from the concrete block and AAC manufacturing course?

Participants take back a Block and AAC Plant Performance and Quality Plan for a case factory, with a press set-up sheet, mould wear log, curing and autoclave records, a unit test form and an OEE loss template to adapt to their own lines.