



LABORATORY TESTING SERVICES

One of the major advantages of the production research facility is that is housed within the NCMA Research and Development Laboratory. Thus, those units that are manufactured for research purposes can be tested and evaluated in the same facility and by the same professionals where production occurred. The laboratory offers a complete range of testing services:

- Evaluating aggregates used in the production of units
- Testing properties of manufactured units
- Full-scale evaluation of assemblies constructed using manufactured products
- Engineering analysis and recommendations



PROFESSIONAL TRAINING

The addition of the production research facility has resulted in an ideal environment for the education and certification of industry professionals involved with concrete plant operations. NCMA's Concrete Products UniversitySM (CPUSM) offers courses and certification programs in several related areas, including production technology, quality assurance and quality control, technical sales, and safety. The production facility, laboratory, and NCMA's classroom facilities are regularly used for CPU courses, and are also available for use by individual companies and organizations.



GENERAL INFORMATION

The NCMA Research and Development Laboratory exists for the purpose of providing valuable service to the concrete masonry and hardscape industry. For a complete list of laboratory services and for more information, please contact us or visit us on our website, www.ncma.org.

Unit Production Research Facility



Concrete Masonry and Hardscape Products



National Concrete Masonry Association Research and Development Laboratory

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Research and Development Laboratory

Concrete Masonry Units • SRWs • Pavers • Concrete Brick • Revetment Block • Masonry Assemblies

PRODUCTION RESEARCH FACILITY OVERVIEW

The NCMA Production Research Facility is a production plant that can produce full size concrete masonry units and hardscape products in a research environment. The manufacturing line is specifically designed to accomplish different batching, manufacturing and curing methods to simulate various high capacity production facility variables.

This state-of-the-art production facility, installed in 2008, represents a perfect balance between the need for small research-oriented test batches and the reality of high-production equipment influences on manufactured units.

The scale of the facility can accommodate a wide range of unit sizes, from reduced-scale concrete masonry units to as many as three 8 inch (200 mm) equivalent concrete masonry units as well as concrete pavers and segmental retaining wall units.

The laboratory production environment is ideal for...

- **Evaluating production materials:**
 - Aggregates
 - Admixtures
 - Pozzolans and cements
 - Recycled materials
- **Optimizing curing procedures**
- **Perfecting mix designs**
- **Developing prototype units**
- **Conducting production related training programs**



CURING AND MIX DESIGN OPTIMIZATION

Curing

A custom-designed curing system provides incredible flexibility and the simulation capabilities needed in a production research facility. The curing system features two separate and independently controlled bays, providing for the ability to compare the influence of different curing methods on identical products.

The state-of-the-art curing system is capable of simulating nearly every curing methodology used in modern manufacturing plants:

- **Ambient room curing**
- **Staged low-pressure steam curing**
- **Hot air circulation**
- **Cold mist curing**
- **Heat-of-hydration curing**



These curing research capabilities can be used to maximize production curing efficiency, reduce cement and other material costs, decrease curing cycle times, improve product quality, and enhance color consistency.

Mix Designs

The production research facility simulates a wide range of plant batching systems, regardless of their level of automation and processing. The facility includes four separately controlled aggregate silos that can easily blend combinations of aggregates and other raw materials. The laboratory environment also enables clients to control nearly every phase of the batching process to achieve the desired mixing operations.



PROTOTYPE UNIT DEVELOPMENT

An objective of the production research facility is to assist those companies and entrepreneurs that are developing new concrete unit products for introduction to the masonry marketplace. NCMA's production research and evaluation facility can fill an important link between the bench top and the full-scale manufacturing plant in producing and evaluating new unit configurations or applications. The use of prototype molds and a research environment can serve as a cost-effective and preferred approach over the investment in high-capacity production molds and interrupting valuable production time in a manufacturing plant.

Proprietary unit configurations and applications include:

- **Hardscape products: SRWs, ACBs, pavers**
- **Thermally efficient unit configurations**
- **Sound absorbing units**
- **Mortarless systems**
- **Veneers**

