

Dry Stack Surface Bonded CMU Wall Construction JHA

Worked instructional example

Work and worksite

A masonry crew will construct one engineer-designed low-rise CMU wall without openings on a released foundation. After a leveled first course in mortar, the crew dry stacks the specified units and applies the selected structural surface-bonding material to both faces under an accepted sequence. Designed temporary stability remains effective throughout stacking, coating and protected curing. This fictional learning example describes planned controls; it records no actual inspection or work authorization.

- The issued US wall design and local acceptance identify permitted units, bond, first-course bedding, movement details, temporary restraint and structural surface-bonding product; a product label alone is not structural design.
- Released footing, handed-over access and both wall faces remain accessible. Pre-sized units avoid powered cutting; the accepted sequence limits uncoated work and provides the specified curing protection.
- Both CMU-installation and structural-wall connections are partial. Conventional mortared CMU, openings, retaining walls, grout pumping, decorative stucco and temporary-brace removal are excluded.

Questions before work

- What design and project acceptance establish this wall as a permitted structural surface-bonded assembly?
- How will uncoated dry-stacked work remain stable while the crew reaches and coats both faces?
- Which actual coating and curing checks must be recorded before the wall can receive its intended loads?

Task Hazard Control

1 Release the specific wall system

Hazard: Treating a decorative coating as structural bonding can produce an unapproved and unstable assembly.

Control: Lead matches the issued design to permitted units, bonding product and local/project acceptance. Confirm first-course bedding, unit arrangement, movement details, temporary stability and the coating/cure inspection stages. Obtain current product instructions/SDS. Hold any change to unit geometry, wall dimensions or product for the designer; do not rely on a general dry-stack illustration.

Verification: Lead records the matched wall-system documents and unresolved acceptance requirements before materials are placed.

Reasoning: The structural assembly includes the units, coating and connections together.

2 Prepare the base access and materials

Hazard: A poor base or blocked wall face can leave units unstable or prevent completion of structural coating.

Control: Verify released foundation geometry and prepare the first-course bearing under the issued detail. Stage permitted pre-sized units without overloading supports. Establish wall restrictions, handed-over access and the temporary stability sequence before stacking. Keep both faces available for the specified coating process and separate mixing/material handling from pedestrian routes.

Verification: Lead checks base release, both-face access and the planned restraint/support arrangement.

Reasoning: The crew must be able to complete both faces without approaching an unstable wall.

3 Level the first course and dry stack

Hazard: An uneven first course, incompatible units or uncontrolled height can permit a dry stack to shift.

Control: Place and level the first course in the specified mortar bed, then stack the remaining units under the accepted bond, fit and alignment instructions. Use only designer/manufacture-permitted correction details; do not improvise shims or fill a design conflict with coating. Maintain temporary restraint and the permitted construction stage, stopping for rocking units, unacceptable gaps or lost alignment.

Verification: Named checker verifies first-course alignment and each permitted stacking stage against actual criteria.

Reasoning: Errors in the base propagate through joints that contain no ordinary bedding mortar.

Complete the work and hand over

4 Prepare substrate and bonding material

Hazard: Dry powder, wet cement and an incompatible mix can harm workers or defeat the structural coating.

Control: Prepare faces/moisture under current instructions without destabilizing units. Mix under the specified water/additive limits and dust controls; isolate equipment before intervention. Use SDS-selected skin/eye protection and accessible washing/first-aid provisions. Reject contaminated material or a batch outside its permitted application condition.

Verification: Mixing lead verifies product identity, substrate readiness, batch records and exposure controls.

Reasoning: A workable-looking mixture does not establish the required bonding performance.

5 Apply and check both structural faces

Hazard: Missing areas, inadequate thickness or premature loading can leave the wall without its designed bonding action.

Control: Apply the structural coating to both faces in the accepted sequence while temporary stability remains effective. Check thickness, coverage, joints and interfaces under the product/project inspection method. Protect adjacent workers from wet material and keep access controlled. Hold incomplete or damaged areas for an accepted correction; a finished appearance on one face does not release the wall.

Verification: Designated checker records both-face coverage and actual coating acceptance findings before curing handover.

Reasoning: The second face is part of this structural method, not an optional finish.

6 Protect curing and hand over the load hold

Hazard: Wind, rain, freezing or early loads can compromise unaccepted work after application.

Control: Provide the selected product's curing and weather protection without adding unplanned forces to the wall or braces. Record application conditions, checks and defects. Maintain temporary restraint and the prohibition on construction loading until the project's actual cure/strength and support-release criteria are met. Transfer monitoring, protection and holds to the next supervisor.

Verification: Lead records the protected curing state and the person responsible for the eventual wall release.

Reasoning: Coating completion starts a protected acceptance period rather than immediate load readiness.

Pause and reassess

- The wall-system design, local/project acceptance, product identity or temporary-stability sequence is missing or incompatible.
- Units rock or shift, alignment/gaps fail the actual criteria, a face becomes inaccessible or required restraint/access protection is lost.
- Coating coverage, material condition or weather/cure protection cannot meet the selected requirements, or loading is proposed before release.

Improve the controls

Needs improvement: Dry stack the blocks and add ordinary stucco later.

More useful: Use an accepted structural surface-bonded wall system with specified units, base bedding, temporary stability and product-controlled coating on both faces.

Needs improvement: One side looks finished, so the wall is ready.

More useful: Verify both structural faces, actual thickness/coverage and protected curing, then retain the load and support holds until project acceptance.

Decisions that change the analysis

Why is this different from the existing CMU and stucco examples?

Conventional CMU develops the designed masonry assembly through its specified mortared joints, reinforcement and grout. Stucco applies a finish system. This method stacks units without ordinary mortar joints above the first course and uses a specified structural coating on both faces. Its complete assembly and temporary uncoated state need separate acceptance.

What must the crew record for actual use?

Record the work boundary, design/equipment documents, responsible people, acceptance criteria, control findings and unresolved actions. Communicate restrictions and obtain required project authorization. This learning example supplies no evidence that a control was installed or accepted.

Training needs

- Selected dry-stack system instruction covering unit tolerances, first-course leveling, accepted stacking sequence, both-face coating and actual curing requirements.
- Masonry stability and restricted-access duties, plus product-SDS controls for dry powder, wet cement contact, cleanup and first-aid readiness.

Confirm applicable qualifications and actual training evidence for the people assigned. Related toolbox talks support discussion; they do not establish competence.

References and adaptation

CMHA TEK 03-05A Surface Bonded Concrete Masonry Construction
<https://www.cmha.org/resource/tek-03-05a/>

Sakrete Surface Bonding Cement technical data sheet
<https://www.sakrete.com/wp-content/uploads/2021/07/Surface-Bonding-Cement.pdf>

OSHA 1926.706 Requirements for masonry construction
<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.706>

References reviewed October 9, 2026. Use actual equipment and product instructions, project design and site requirements. This original draft supplies no fabricated inspection, signature or approval.