



**NOVABRIK MORTARLESS CONCRETE BRICK VENEER
SPECIFICATION**

MASTERFORMAT SECTION 04818
(Mortarless Concrete Brick Veneer)

Section 04818

NOVABRIK MORTARLESS BRICK SIDING SPECIFICATION

This specification has been numbered, organized and formatted in accordance with the MasterFormat , SectionFormat and PageFormat documents of Construction Specifications Institute (CSI).

The content of this specification is of general order and must be adapted to the specific requirements of a project. It is offered as a guide to experienced and knowledgeable construction professionals who must assume full responsibility for its interpretation and use.

The square brackets [] containing texts indicate an option to be selected by the specifier. Remove brackets and unused options before printing.

For more information about this specification contact the Novabrik technical department or your local representative.

1 GENERAL

1.01 SECTION INCLUDES

- A. Mortarless brick siding.
- B. All accessories including flashings, sheathing protection, adhesives, non-corrosive attachments, wood furring strips, and other backing materials as specified herein.

1.02 RELATED SECTIONS

- A. Section 04200 - Masonry substrate
- B. Section 05410 - Steel stud substrate
- C. Section 06100 - Rough carpentry substrate
- D. Section 07200 - Insulation
- E. Section 07260 – Air/Vapor Barriers
- F. Section 07620 – Metal Flashing and Trim

1.03 SUBSTITUTIONS

- A. Submit requests for substitute products and methods of execution in writing to Architect at least ten days prior to bid closing date. Accompany requests with evidence substantiating similarity in quality including technical data and proposed methods of installation.

1.04 REFERENCES

- A. 2003 International Building Code (IBC).
- B. 2003 International Residential Code (IRC)
- C. International Code Council (ICC-ES) Evaluation Report ESR-1235.
- D. ASTM A653/A653M Standard specification for steel sheet zinc-coated (galvanized) or zinc iron alloy-coated (galvannealed) by hot-dip process.
- E. ASTM B2209M-04. This specification covers 55% aluminium-zinc alloy-coated steel sheet in coils and cut lengths.
- F. ASTM A153/A153M-04 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- G. ASTM E330, Test method for structural performance of exterior windows, curtain walls and doors by uniform static air pressure difference.
- H. ASTM E514-04, Standard Test method for water penetration and leakage through masonry.
- I. North American Specification for the Design of Cold-Formed Steel Structural Members (2001).

1.05 SYSTEM DESCRIPTION

- A. Novabrik, a mortarless concrete brick siding is designed to serve as a non-loadbearing masonry rainscreen cladding for exterior walls for residential, commercial or industrial building conforming to the intent of the International Building Code (IBC-2003) and International Residential Code (2003).
- B. Novabrik provides a level of performance equivalent to that required in or by:
 - 1. ASTM C55.
 - 2. ASTM C140-05e1 as Grade N Type II Masonry Units except:
 - A. The net minimum compressive strength is 3500 psi (24.1 MPa).
 - B. The maximum allowable absorption is 5% for normal weight units.

- C. The Novabrik units are attached to furring strips every four rows. The system also includes a PVC starter strip for alignment, corner strip, concrete window sills, and corner units.

1.06 SUBMITTALS

- A. International Code Council Report ESR-1235.
- B. Submit two copies of the latest product data indicating material properties, installation methods and use.
- C. Submit two samples of each material comprising the brick siding system. Include flashings, corner units, starter strip, door and window trim, and fasteners employed.
- D. If required submit shop drawings in accordance with Section [01340]. Clearly indicate layout, typical details, and relationship of brick siding to openings, terminal points, and substrates.
- E. Manufacturer's Installation Guide, dated April 2005.
- F. Submit laboratory tests and methods used at request of Architect.

1.07 WARRANTY

- A. Manufacturer's Guarantee: Provide written limited guarantee for fifty years on product.
- B. Contractor to warrant work for [5] years against defects in construction or installation.

1.08 QUALITY ASSURANCE

- A. Install brick siding in strict accordance with manufacturer's installation guidelines.
- B. Apply brick siding only to structures conforming to IBC-2003 for foundation and structural integrity, and only to a maximum height of 30'-0" (9.1 m) unless an independent structural review is performed.
- C. Reconstruct substrates exhibiting structural degradation due to wet or dry rot with new substrate materials before installing brick siding.
- D. Installer: Company specializing in performing the work of this section with minimum [two] years [documented] experience. Submit references for installer [two] months before installation.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Deliver brick siding and accessories in accordance with manufacturer's technical guide, in original wrapping and bearing ESR-1235 label on each pallet. Inspect bricks upon delivery at site and immediately inform manufacturer or dealer of any observed defects.
- B. Handle materials in manner to prevent chipping, breaking or any damage to the job site. Store materials to avoid contamination from mud, grease or other debris prior to installation.
- C. Protect bagged materials and brick siding units from precipitation and groundwater by covering and storing on pallets or other acceptable means.
- D. Store materials to avoid contamination from mud, grease or other debris prior to installation.
- E. Carefully stack and store flashings and metal trim to prevent creasing, twisting, or other damage.
- F. Store materials close to point of assembly.

2 GENERAL

2.01 MANUFACTURER

- A. Provide products as manufactured by a Novabrik Producer and distributed according to the terms of licensing contracts granted by Novabrik International Inc. 1-866-678-2745 or 1-514- 354-1555, Montreal, Quebec.

2.02 MANUFACTURED UNITS

SPEC NOTE: Delete items not applicable.

- A. (2-9/16) thick, [_____] color as selected from manufacturer's; with minimum average compressive strength of 3500 psi (24.1 Mpa) to ASTM C140-05e1, adequate freeze-thaw protection and an average absorption rate of no more than 5% for a normal weight unit.

SPEC NOTE: Header reinforcement is required for remodelling work only since the lintel has not been designed to support the extra weight of Novabrik. In the case of new construction, Architect can ensure lintel is designed so that no extra reinforcement is necessary.

- B. Header reinforcement: 3/4" (19 mm) S-P-F plywood or 1/4" (6 mm) steel plate as per the installation guide requirements.

- C. Furring: nominal 1" x 3" (19 mm x 64 mm) or 1" x 4" (19 mm x 89 mm) wood furring strips, SPF no.1/no.2 dry having a minimum specific gravity equal to 0.55.
- D. Starter strip: 100% recycled PVC.
- E. Water resistive barrier: exterior grade sheathing membrane shall comply with IBC Section 1402.2 or IRC Section R703.2.
- F. Construction adhesive: PL Premium polyurethane construction adhesive or equivalent.
- G. Screw fasteners: corrosion-resistant type for attaching brick siding to wood furring to conform to Sections 2303.6, 2304.9.5 and 2306.1 of the IBC as required per installation guidelines. Fasteners used to attach wood furring strips to cold-formed steel framing conform to Section 2209.1 of the IBC.

SPEC NOTE: For coastal areas less than 5 mi (8 km) from the ocean or near any corrosive environment, specify stainless steel fasteners. (Type 304 and 316 are the recommended grade use).

SPEC NOTE: Ensure fasteners for use with ACQ pressure-treated wood products are protected with a minimum hot-dip galvanized requirement and conform to ASTM A153.

- H. Steel sheet flashing: Hot-dip galvanized to ASTM A653/A653M, 26 ga (0.0194") to dimensions and profiles indicated. Incorporate allowance for adjustment to suit site conditions and tolerances. Color: As selected by Architect from manufacturer's standard color range.
- I. Aluminium flashing: Type 6061-T6 alloy to ASTM B221-2000, mill finish.

SPEC NOTE: Walls retrofitted with thermal insulation must meet the requirements for heat transfer, air leakage and condensation control of the IBC-2003.

- J. Wall insulation: [_____].

2.03 SOURCE QUALITY CONTROL

- A. Exterior dimensions to be uniform and consistent with length of brick controlled to 1/8" (3 mm) from nominal length and 1/32" (0.75 mm) dimensional tolerance on all other contact surfaces.
- B. Actual color of delivered brick may vary slightly, similar to other colored masonry products.

3 EXECUTION

3.01 EXAMINATION

- A. Prior to brick siding installation, examine dimensions, alignment and level of substrate supports in accordance with best industry practise. Notify Architect in writing when supporting substrates do not comply with construction requirements and tolerances.
- B. Commencement of work constitutes acceptance of substrate and anchoring points by Contractor.

3.02 PREPARATION

- A. Prepare walls, gable ends, around doors and windows, and corners in accordance with manufacturers Installation Guide.
- B. Pull and mix brick from several pallets during installation to blend and assure proper color treatment.

3.03 PROTECTION

- A. Protect and prevent damage to exposed surfaces of existing work during transportation of materials and accessories. Provide traffic circulation routes and accesses for persons and materials to minimize accidents.

3.04 INSTALLATION

- A. Novabrik veneer shall be installed in accordance with IBC Section 1405.5 or IRC Section R703.7. Additionally installation shall comply with Section 6.1 and 6.2 of Building Code Requirements for Masonry Structures (ACI 530-02, ASCE 5-02, TMS 402-2)
- B. Install brick siding as follows:

Brick Siding Over Wood Structure

1. Install an air barrier system on the sheathing and secure with staples. Overlap all seams a minimum of 4" (100 mm) and seal all joints with an approved tape manufacturer prior to screwing the wood furring strip into the studs.
2. Apply a self-adhesive waterproof membrane flashing around openings, windows and doors to seal from water penetration. Ensure that adhesive flashing is adequately bonded to vapor/air barrier and in full contact with perimeter surface of opening.

3. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips fastened to studs using #10 wood screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into stud. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
4. Level and fasten PVC starter strip to furring strips using #10 wood screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into sill plate, stud or perimeter joist.
5. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw at every furring strip.
6. Fasten every fourth row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.

Brick Siding Over [1" (25mm)] [2" (50 mm)] Rigid Insulation

SPEC NOTE: Limit insulation thickness to maximum 2" (50 mm)

1. Install metal flashing (26 Ga. min.) on the backup wall at the bottom of the wall.
2. Install insulation board [EXPS] [EPS] strip. Seal all joints with an approved tape manufacturer prior to screwing the wood strip into the studs.
3. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips fastened to studs using #10 wood screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into stud. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
4. Level and fasten PVC starter strip to furring strips using #10 wood screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into sill plate, stud or perimeter joist.
5. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.
6. Fasten every fourth row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.

Brick Siding Over Steel Studs

1. Install an air barrier system on the sheathing and secure with staples. Overlap all seams at a minimum of 4" (100 mm) and seal all joints with an approved tape manufacturer prior to screwing the wood furring into the studs.
2. Apply a self-adhesive waterproof membrane flashing around openings, windows and doors to seal from water penetration. Ensure that adhesive flashing is adequately bonded to vapor/air barrier and in full contact with perimeter surface of opening.
3. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips fastened to studs using a Tek (wood to metal fastener) #12-24 self-drilling screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into stud. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
4. Level and fasten PVC starter strip to furring strips using Tek (wood to metal fastener) #12-24 self-drilling screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into sill plate, stud or perimeter joist.
5. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.
6. Fasten every fourth row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip

Brick Siding Over Concrete Block Wall

1. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips fastened to concrete wall using a minimum of 3/16" (5mm) Ø concrete screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into concrete block. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
2. Level and fasten PVC starter strip to furring strips using a minimum of 3/16" (5mm) Ø screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into structure.
3. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.
4. Fasten every fourth row of brick using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.

Brick Siding Over Rigid Insulation On Concrete Block Wall

SPEC NOTE: Limit insulation thickness to maximum 2" (50 mm).

1. Install metal flashing to concrete block wall. Ensure flashing extends minimum 1" (25 mm) beyond face of brick siding.
2. Install rigid insulation over concrete block wall using a compatible adhesive.
3. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips over insulation fastened to concrete wall using a minimum of 3/16" (5 mm) Ø concrete screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into concrete block. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
4. Level and fasten PVC starter strip to furring strips using a minimum of 3/16" (5 mm) Ø concrete screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into structure.
5. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw at every furring strip.
6. Fasten every fourth row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.

Brick Siding On Insulating Concrete Forms (ICF) with furring strips

SPEC NOTE: Limit insulation thickness to maximum 2" (50 mm).

SPEC NOTE: Do not screw into plastic or steel tie.

1. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips fastened to concrete wall using a minimum of 3/16" (5 mm) Ø concrete screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into concrete wall. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
2. Level and fasten PVC starter strip to furring strips using a minimum of 3/16" (5 mm) Ø concrete screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into structure.
3. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw at every furring strip.
4. Fasten every fourth row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.

Brick Siding On Insulating Concrete Forms (ICF) without furring strips

SPEC NOTE: Limit insulation thickness to maximum 2" (50 mm)

SPEC NOTE: Do not screw into plastic or steel tie.

1. Level and fasten PVC starter strip to furring strips using a minimum of 3/16" (5 mm) Ø concrete screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into structure.
2. Fasten first row of brick siding using one a minimum of 3/16" (5 mm) Ø concrete screw per brick. Screws must penetrate a minimum of 1-1/4" (32 mm) into structure.
3. Fasten every fourth row of brick using one a minimum of 3/16" (5 mm) Ø concrete screw per brick at each furring strip. Screws must penetrate a minimum of 1-1/4" (32 mm) into structure.

Brick Siding Over SIP Panels

SPEC NOTE: Exterior sheathing shall have a minimum thickness of 7/16" (11.1 mm)

1. Install an air barrier system on the sheathing and secure with staples. Overlap all seams a minimum of 4" (100 mm) and seal all joints with an approved tape manufacturer prior to screwing the wood furring strip into the studs.
2. Apply a self-adhesive waterproof membrane flashing around openings, windows and doors to seal from water penetration. Ensure that adhesive flashing is adequately bonded to vapor/air barrier and in full contact with perimeter surface of opening.
3. Install [1" x 3" (19 mm x 64 mm)] [1" x 4" (19 mm x 89 mm)] vertical wood furring strips fastened to sheathing using #8 wood screws at 10" (250 mm) o.c. Screws must penetrate a minimum of 1-1/4" (32 mm) into stud. Furring strips must be installed 1/2" (12.7 mm) above foundation line or desired level.
4. Level and fasten PVC starter strip to furring strips using #8 wood screws. Screws must penetrate a minimum of 1-1/4" (32 mm) into sill plate, stud or perimeter joist.
5. Fasten first row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.
6. Fasten every fourth row of brick siding using one #10 x 2-1/2" (64 mm) wood screw per brick at every furring strip.

C. Door and Windows

SPEC NOTE: Header reinforcement is required for remodelling work only since the lintel has not been designed to support the extra weight of Novabrik. In the case of new construction, Architect can ensure lintel is designed so that no extra reinforcement is necessary.

1. Install plywood reinforcement header, sized according to manufacturer's Header Chart and recommendations.
2. Extend header 6" (150 mm) out from opening each side and secure according to manufacturer's fastening recommendations.
3. Install brick siding window sill by first fastening a horizontal furring strip down at a distance equal to the height of the sill plus 1/8" (3 mm) from the bottom of the opening. Check spacing with actual sill piece.
4. Making sure there is enough space between the window frame and horizontal furring strip, insert and set the manufacturers proprietary sill in construction adhesive and reinforce using #10 screws as necessary either on sides or underneath of sill. Screws must penetrate a minimum of 1-1/4" (32 mm) into stud. Caulk joint between window frame and top of sill.

D. Overhanging Walls

1. Check structural capacity of floor systems supporting overhanging walls and reinforce if necessary. Extend baseboard from bottom of floor joist to 6" (150 mm) above top of joist to achieve maximum pullout resistance.

E. Second Story Wall Sections Over Roofs

1. Check sections of walls wrapping over the top of lower roofs for structural capacity to ensure they can carry imposed loads.

F. Large Gables

1. On gables larger than 12'-0" (3.66 m) replace sheathing with plywood of the same thickness. Cover with house wrap and install furring strips.
2. Add bracing between first and second truss in attic space to prevent wall from racking.

G. 90° or 45° Outside Corner Block

SPEC NOTE: If installing over rigid insulation, use 19 mm x 140 mm (1''x6') furring strips

1. Install [19 mm x 89 mm (1'' x 4'')] [19 mm x 140 mm (1'' x 6'')] vertical furring strips over corner while correcting out of plumb corners as the work progresses.
2. Install first section of metal corner strip starting 2'' (50 mm) from base and fasten with self-drilling screws at 10'' (250 mm) o.c.
3. Slide first corner block down onto corner strip and align with first course of brick siding. Fasten block to corner strip using one self-drilling screw.
4. Apply construction adhesive between blocks. Install subsequent blocks to end of first corner strip, and continue in same fashion with subsequent corner strips.
5. Cut last corner strip and blocks to fit and secure as assembly to wall.

H. 90° Outside Corner Block Joined to Dissimilar Siding.

1. Terminate brick siding at corner or wrap around corner as indicated on drawings. Modify metal corner strip by bending or twisting if necessary.
2. Install J channel or moulding against brick siding and apply bead of caulk at joint.
3. Apply furring as necessary sized to suit application.

I. 90° or 45° Inside Corner Block

1. Install 1'' x 6'' (19 mm x 140 mm) boards over corner and align the first corner block with the first course of brick siding.
2. Fasten each block with one #10 wood screw and apply a small amount of construction adhesive between blocks to lock them together.

J. Inside Corner With Overlapping Brick Siding

1. Cover corner with a self adhesive waterproof membrane shield and install 1" x 6" (19 mm x 150 mm) boards over corner.
2. Install brick siding on one wall all the way to the corner.
3. While installing the adjoining wall, apply backer-rod foam up the full length of the brick wall Cut and attach end pieces to achieve a consistent 3/8" (10 mm) gap.
4. Run bead of sealant down entire joint between the bricks

3.5 CLEANING

1. Remove excess adhesive or sealant with solvent recommended by manufacturer.
2. Clean installation of debris or residue and remove unused materials and products.
Leave site clear for other work.

End of Section