



PRODUCT PROFILE



Revised 1/2019

Glen-Gery Single Wythe Loadbearing Hollow Brick

General

Glen-Gery manufactures single wythe loadbearing hollow clay bricks in variety of shades and textures to accommodate the visual requirements of most projects. Loadbearing hollow clay bricks have a nominal eight-inch bed depth.

These extruded, single wythe loadbearing hollow clay units are often referred to as cored, stiff mud, or wirecut bricks. To differentiate between wirecut bricks and wirecut finishes, Glen-Gery refers to the wirecut finish as a velour texture.



Unit Specifications

Glen-Gery single wythe loadbearing hollow clay bricks are typically manufactured to conform to the requirements of American Society for Testing and Materials (ASTM) Standard Specification C 652, Grade SW, Type HBS, Class H40V. These products also conform to the requirements of ASTM C 652, Grade MW. Certain products may meet the requirements of ASTM C 652, Type HBX or ASTM C 652, Class H60V. Inquiries should be made for specific applications. When specifying this product, the specifications should cite:

1) The product name and state "as manufactured by Glen-Gery Corporation."

2) Conformance to the requirements of ASTM C 652, Grade SW, Type HBS, Class H40V.

3) The actual unit dimensions listed as thickness x height x length.

Example: Walnut Velour as manufactured by Glen-Gery Corporation to conform to the requirements of ASTM C 652, Grade SW, Type HBS, Class H40V. The units shall have dimensions of 7-5/8" X 3 5/8" X 11-5/8".

Design Criteria

Size:

Table 1 list size/sizes in which Glen-Gery manufacturers single wythe loadbearing hollow clay brick.

Dimensional Tolerances:

Glen-Gery single wythe loadbearing hollow clay brick are manufactured to provide specific dimensional tolerances. The dimensional tolerances of the product are intended to be within the requirements of ASTM C 652, Type HBS for general use. Some products (including but not limited to those manufactured at the Hanley Plant) may be manufactured to meet Type HBX. The product ordered will generally contain a number of units which are over or under the specified dimensions. The dimensional variations are related to the raw materials, forming, drying and firing processes, and the desired finish and color. Thus, for some products, all the units may be slightly over or slightly under the specified dimensions.

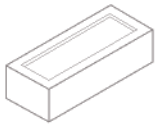
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**TABLE 1
Brick Size, Coverage and Weight**

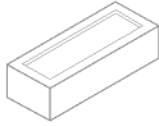
Brick Size	Specified Dimension						Brick per square foot	Average Weight per unit (kg)	
	Thickness (inches)	Thickness (mm)	Height (inches)	Height (mm)	Length (inches)	Length (mm)			
Regent*	7-5/8	194	3-5/8	92	11-5/8	295	3.00	15.5	7.0
Titan Plus*	7-5/8	194	3-5/8	92	15-5/8	397	2.25	20.0	9.1
Double Titan Plus*	7-5/8	194	7-5/8	184	15-5/8	397	1.13	40.0	18.1

*Manufactured to meet ASTM C652 H40V

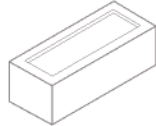
Glen-Gery Brick Sizes



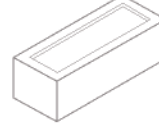
Modular
3-5/8 x 2-1/4 x 7-5/8
6.75 units/sq. ft.



Standard
3-5/8 x 2-1/4 x 8
6.55 units/sq. ft.



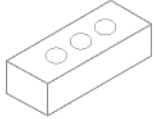
Engineer Modular
3-5/8 x 2-3/4 x 7-5/8
5.63 units/sq. ft.



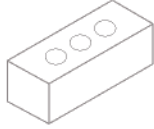
Engineer Standard
3-5/8 x 2-3/4 x 8
5.39 units/sq. ft.



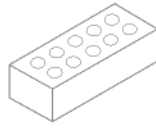
Handmade Oversized
4 x 2-3/4 x 8-1/2
5.00 units/sq. ft.



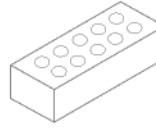
Lightweight Modular
3-1/2 x 2-1/4 x 7-5/8
6.75 units/sq. ft.



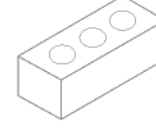
Lightweight Engineer Modular
3-1/2 x 2-3/4 x 7-5/8
5.63 units/sq. ft.



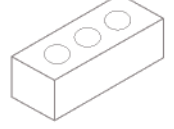
Modular
3-5/8 x 2-1/4 x 7-5/8
6.75 units/sq. ft.



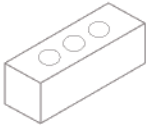
Standard
3-5/8 x 2-1/4 x 8
6.55 units/sq. ft.



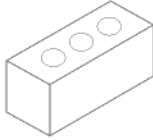
Engineer Modular
3-5/8 x 2-3/4 x 7-5/8
5.63 units/sq. ft.



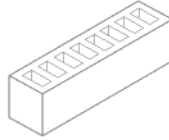
Engineer Standard
3-5/8 x 2-3/4 x 8
5.39 units/sq. ft.



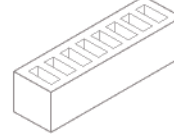
Queen
3 x 2-3/4 x 7-5/8
5.63 units/sq. ft.



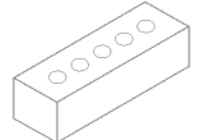
Econo
3-5/8 x 3-5/8 x 7-5/8
4.50 units/sq. ft.



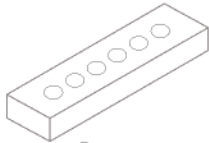
Engineer King
2-13/16 x 2-13/16 x 9-5/8
4.55 units/sq. ft.



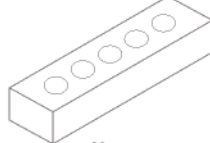
King Narrow-Bed
3-1/8 x 2-3/4 x 9-5/8
4.55 units/sq. ft.



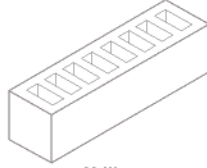
King
3-5/8 x 2-3/4 x 9-5/8
4.55 units/sq. ft.



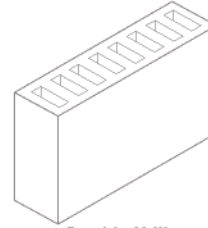
Roman
3-5/8 x 1-5/8 x 11-5/8
6.00 units/sq. ft.



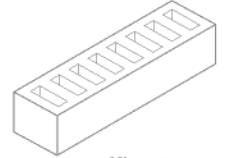
Norman
3-5/8 x 2-1/4 x 11-5/8
4.50 units/sq. ft.



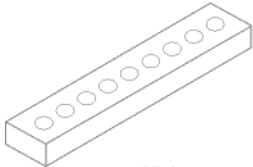
Utility
3-5/8 x 3-5/8 x 11-5/8
3.00 units/sq. ft.



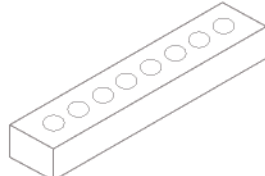
Double Utility
3-5/8 x 7-5/8 x 11-5/8
1.50 units/sq. ft.



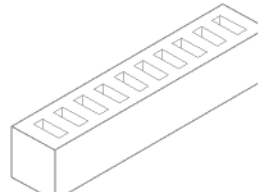
Kingston
3-5/8 x 2-3/4 x 11-5/8
3.75 units/sq. ft.



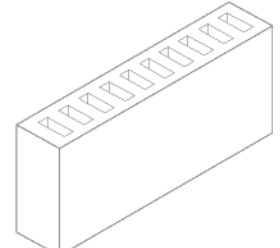
Viking
3-1/2 x 1-5/8 x 15-5/8
4.50 units/sq. ft.



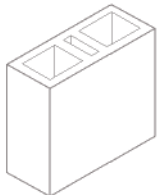
Saxon
3-5/8 x 2-1/4 x 15-5/8
3.38 units/sq. ft.



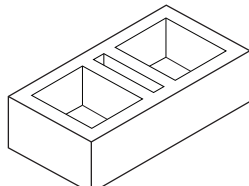
Titan
3-5/8 x 3-5/8 x 15-5/8
2.25 units/sq. ft.



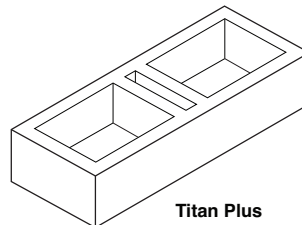
Double Titan
3-5/8 x 7-5/8 x 15-5/8
2.25 units/sq. ft.



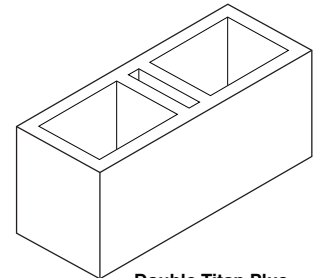
8-Square
3-5/8 x 7-5/8 x 7-5/8
2.25 units/sq. ft.



Regent
7-5/8 x 3-5/8 x 11-5/8
3.00 units/sq. ft.



Titan Plus
7-5/8 x 3-5/8 x 15-5/8
2.25 units/sq. ft.



Double Titan Plus
7-5/8 x 7-5/8 x 15-5/8
1.13 units/sq. ft.

Coring and frogs are at the manufacturer's option. Actual coring patterns may not match the illustrations. Contact plant for specific information on sizing and coring.

Inquiries should be made regarding the dimensional variations which might be expected if project detailing requires precise coursing. Specialty products or gauged products may be desirable for such applications.

Configurations:

These units are manufactured to conform to the requirements of applicable ASTM standards. Hollow Units, meeting the requirements of ASTM C652, Class H40V, may be cored up to 40% of the gross cross sectional area parallel to the bearing surface. Core size, shape and location are determined by the manufacturing facility. Variations in core size and configuration may be available on special order.

Weight:

The weight of the brick units varies with the raw material, size, manufacturing processes, and the amount and configuration of the coring. While actual weight of specific brick should be confirmed, average weight of each size of single wythe loadbearing hollow clay brick manufactured by Glen-Gery is included in Table 1.

Finishes:

Glen-Gery single wythe loadbearing hollow clay bricks are available in wirecut and blade-cut textures, including slurry and sand finishes. The availability of a particular finish is usually dependent on the specific product.

Color:

Glen-Gery single wythe loadbearing hollow clay brick are available in many colors. The colors available include various shades of pink, red, buff and brown. Some colors are the natural colors of the fired raw materials, while others are produced by fusing a surface treatment onto the surface of the brick during firing or adding minerals to the bodies of the brick. If through body colors are desired, inquiries should be made regarding the availability of the desired colors. The color selection may also be limited by the product selected and the desired finish.

Shapes:

Single wythe loadbearing hollow clay brick are available as stretchers and bond beam units.

Physical Properties of Units

Compressive Strength:

Average gross compressive strength exceeds 3,000 psi when tested with the loads applied normal to the bedding surface. Typically, the average compressive strength exceeds 5,000 psi. The actual compressive strength depends upon the specific product, and size selected.

Water Absorption:

The average maximum hot-water absorption by submersion in boiling water for five hours is less than 17% and will typically be less than 9%. The average saturation coefficient is generally less than 0.78. In instances where the saturation coefficient exceeds 0.78, the cold water absorption for Glen-Gery brick is less than 8% and the units meet the requirements of ASTM C652, Grade SW.

Initial Rate of Absorption (IRA):

The initial rate of absorption (suction) normally does not exceed 30 grams per 30 square inches per minute under laboratory conditions. However, brick can be checked on-site to determine if wetting is necessary prior to laying unless familiarity with the product has demonstrated that wetting is not required. The procedure for determining wetting requirements is the field test procedure described in ASTM C 67. If this test is not practical, the need for wetting may be estimated by the following field test:

- 1) Place a \$.25 piece on a bearing surface of a typical unit.
- 2) Draw a ring around the quarter with a wax pencil.
- 3) Place twenty drops of water within the ring.
- 4) If unabsorbed water remains after 1-1/2 minutes, the units likely do not require wetting. If all the water is absorbed into the unit, the units should be wetted prior to laying.

Properties of Walls

Compressive Strength:

When tested in accordance with ASTM C 1314, "Standard Test Method for Compressive Strength of Masonry Prisms," the prism compressive strength of Glen-Gery hollow, single wythe loadbearing bricks laid with an ASTM C 270, Type "S," mortar exceeds 5,500 psi.

Thermal Performances:

The thermal resistance of Glen-Gery single wythe loadbearing hollow clay brick is approximately 0.11 (hr. • sq. ft. • deg f)/(Btu • in.). A nominal eight-inch wythe, excluding air films, will provide a thermal resistance of approximately 0.85 (hr. • sq. ft. • deg f)/(Btu). The thermal resistance is used to predict the thermal performance of wall elements under steady-state conditions. The mass and specific heat of this product provide additional benefit when subjected to the dynamic conditions of the natural environment. As described in the American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1, the effects of mass, specific heat, and the color of the brick should be considered. Reference: BIA Technical Notes on Brick Construction 4 Revised, "Heat Transmission Coefficients of Brick Masonry Walls", 4B Revised, "Energy Code Compliance of Brick Masonry Walls" and 43D, "Brick Passive Solar Heating Systems, Part IV – Material Properties."

Sound Transmission:

A nominal eight-inch wythe of hollow brick masonry has a sound transmission classification (STC) of approximately 51. Reference: BIA Technical Notes on Brick Construction 5A, "Sound Insulation – Clay Masonry Walls."

Fire Resistance:

Fire resistance ratings are directly related to wall assembly including the equivalent thickness of masonry. For example: A wall built with fully grouted or insulated single wythe loadbearing hollow clay bricks (7 5/8" thick) can provide a fire rating of 4 hours. Partially grouted or insulated units can provide a fire rating of 3.4 hours.

Fire ratings can be calculated in accordance with the International Building Code (IBC) or Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies, ACI 216.1/TMS 0216 or determined through Testing (per ASTM E119). Reference: BIA Technical Notes on Brick Construction 16 Revised, "Fire Resistance of Brick Masonry."

Coefficient of Thermal Expansion:

Brick walls constructed of Glen-Gery single wythe loadbearing hollow clay brick have a coefficient of thermal expansion of approximately 0.000004 in. (in. • °F) as listed in The Building Code Requirements for Masonry Structures (TMS 402/ACI 530/ASCE 5) . A one hundred foot length (or height) of wall constructed of Glen-Gery single wythe loadbearing hollow clay brick, and exposed to an annual extreme temperature difference of 100 °F, is expected to experience a total thermal movement of approximately one-half inch.

Coefficient of Moisture Expansion:

The coefficient of moisture expansion of Glen-Gery single wythe loadbearing hollow clay brick veneer is less than 0.0005 in./in. Although most of the moisture expansion of Glen-Gery single wythe loadbearing hollow clay brick occurs immediately after the brick are fired, before the brick arrive at the job site, the maximum design moisture expansion of one-hundred foot long (or high) wall constructed of these products is less than five-eighths of an inch.

Construction

Storage and Protection:

Store brick off ground to avoid contamination by water, mud, dust or materials likely to cause staining or other defects. Do not use cubes of brick as supports or work surfaces. Cover units with a weather resistant membrane held securely in place or otherwise protect units from the elements.

Wetting:

As deemed necessary (see IRA), wet units prior to laying. Wetting typically consists of saturating the units three to twenty four hours before laying the units. Units should be saturated but surface dry when laid.

Weather Extremes:

Follow the procedures required by The International Building Code (IBC). The IBC references cold and hot weather construction provisions for masonry that are based on those found in Specification for Masonry Structures (TMS 602/ACI 530.1/ASCE 6) and required by Building Code Requirements for Masonry Structures (TMS 402/ACI 530/ASCE 5). While specific cold and hot weather provisions are not included within the International Residential Code (IRC) the IRC states that mortar for use in masonry construction shall comply with ASTM C 270, which requires mortar for other than masonry veneer to be prepared in accordance with the Masonry Industry Council's "Hot and

Cold Weather Masonry Construction Manual." Further information is also available in the BIA Technical Notes on Brick Construction 1, "Cold and Hot Weather Construction."

Installation:

Lay in one-half running bond. Face shell bed units, taking special care to assure that cross webs are mortared when cells are to be grouted. Use a Type "S" Portland cement lime mortar conforming to ASTM C 270. A prepackaged mortar mix conforming to these specifications is Glen-Gery Color Mortar Blend. Reference: Glen-Gery Product Profile "Glen-Gery Color Mortar Blend."

Diagram a movement joint at every corner. Visually, it is usually best to place this joint in the less important elevation at the plane of the rear of the wythe on primary elevation.

Tooling:

When thumbprint hard, tool all joints to produce a concave, grapevine, or vee joint finish.

Protection of Work:

At the end of each day and before each shut down period, cover all work with a strong weather resistant membrane which is held in place securely. Scaffold boards closest to the wall should be tilted up at days end to prevent splatter during rain. Care should also be taken to protect brickwork located near the ground from mud and dirt.

TABLE 2
Brick and Mortar Quantities¹
Nominal 3/8 Inch Mortar Joints

Brick Size	Vertical Coursing in courses per inch	Units per square foot	Cubic Foot per 100 square foot	Quantity of Mortar per 1000 units
Regent*	1 Course per 4"	3.00	6.98	23.27
Titan Plus*	1 Course per 4"	2.25	6.58	29.23
Double Titan Plus*	2 Courses per 16"	1.13	2.63	23.27

¹ These values are actual quantities and must be increased for waste and any possible construction requirements which may necessitate additional quantities.

*Manufactured to meet ASTM C652 H40V

Cleaning:

At the end of each shift, remove excess mortar with a stiff bristle brush. Clean with wooden paddles and stiff fiber brushes using clean water. If a cleaning agent is necessary, presoak the wall with clean water prior to applying the cleaning agent and thoroughly rinse the wall with clean water after cleaning. Prior to determining a final cleaning solution, test the procedure and cleaning agent on a small sample area to observe the effectiveness of the overall cleaning solution and, most importantly, to detect any possible deleterious effects or changes in appearance of the brick. Additional information is available in the Glen-Gery Technical Profile "Cleaning New Brickwork." Check with your Glen-Gery Distributor or District Sales Manager prior to making a final selection of a cleaning procedure and solution. When using Type N mortars, clean down should never occur prior to 7 days after work is completed to assure appropriate curing of the mortar. Reference: BIA Technical Notes on Brick Construction 20, "Cleaning Brickwork."

Estimating:

The quantities of brick and mortar required for a project vary with the wall construction, the number of field cuts necessary, the coring configuration of the units, and the workmanship. Table 2 provides the quantities of brick and mortar quantities per 1,000 brick units. The figures are based on the units being placed in the wall as stretchers in running bond. The quantities are provided for a single wythe of brickwork. Additional information regarding mortar or grout for grouted applications can be found in the referenced BIA

Technical Notes. The values provided are estimates of the quantities in the finished wall and do not account for waste. The values are based on a nominal three-eighth inch mortar joint. Reference: BIA Technical Notes on Brick Construction 10, "Dimensioning and Estimating Brick Masonry."

For further information contact:
 Glen-Gery Technical Services
 433 South Pottsville Pike
 Shoemakersville, PA 19555
 (610) 562-3076

TABLE 3
Units Per Linear Foot in Various Positions
 Nominal 3/8 Inch Mortar Joints

Brick Size	Stretcher	Rowlock	Soldier	Header
Regent	1.00	3.00	3.00	1.50
Titan Plus	0.75	3.00	3.00	1.50
Double Titan Plus	0.75	1.65	1.65	1.50



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 www.glengery.com

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Seller warrants title to said goods and that the goods supplied shall meet applicable specifications where such are designated in the Buyer's order. Should the said goods fail to conform to the foregoing warranty, Seller will, at its option replace the same, F.O.B. job site or refund the portion of purchase price paid for such non-conforming goods. SELLER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR ANY BREACH OF THESE WARRANTIES. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, INCLUDING, WITHOUT LIMITATION, WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.