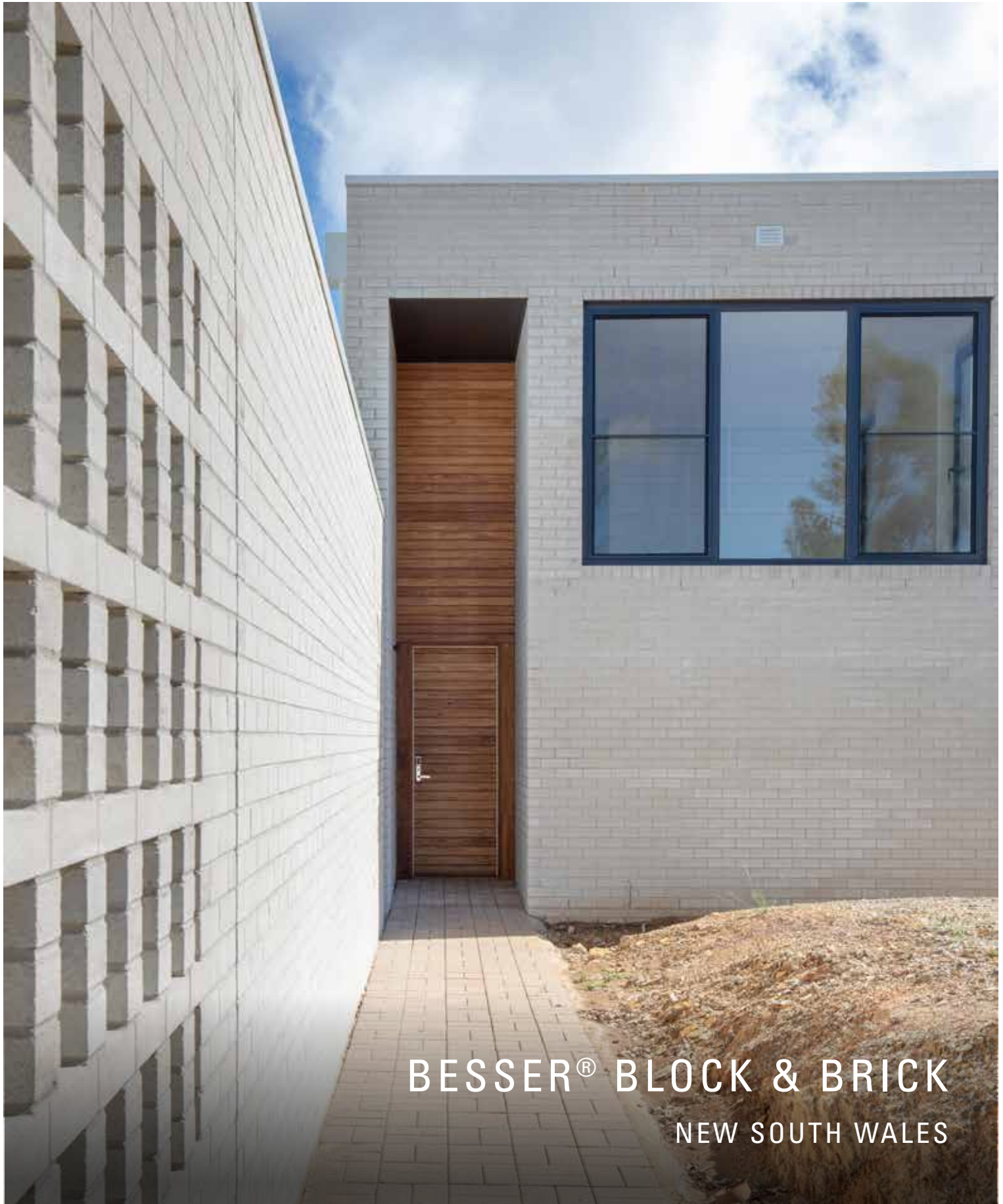


adbri MASONRY

an ADBRI company



BESSER[®] BLOCK & BRICK
NEW SOUTH WALES

Technical Information

Standards - All Adbri Masonry concrete blockwork is manufactured to AS/NZS4455.1 - Masonry Units and tested to AS/NZS4456 - Masonry Units and Segmental Pavers: Methods of Test. For more information on design and construction refer to CMAA document MA55.

Fire Resistance - AS3700 - Masonry Structures sets out the method for determining fire resistance of walls based on test data. It is recommended that designers calculate or check the structural adequacy, integrity and insulation for each wall configuration to ensure conformance to the National Construction Code (NCC). Adbri Masonry have an extensive range of bricks and blocks meeting the requirements of the NCC. Refer to the Adbri Masonry NSW Fire and Sound brochure for more information. All fire rating values provided in this document relate to non-loadbearing applications for hollow masonry unless noted otherwise. Refer to the Adbri Masonry NSW Fire and Sound brochure for fire ratings for reinforced and loadbearing applications.

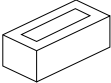
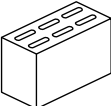
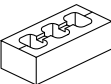
Acoustics - The statutory requirements for sound attenuation are set out in Section F5 of the NCC. Adbri Masonry have a number of high performance wall systems which have been developed to accommodate the new stringent requirements imposed by the NCC, to satisfy all acoustic needs. Refer to the Adbri Masonry NSW Fire and Sound Brochure for more information.

Compressive Strength - Adbri Masonry manufacture all masonry units to meet or exceed the minimum characteristic compressive strengths for masonry units nominated in AS4773.1.

Control Joints - Control Joints must be incorporated in masonry as necessary to control and limit the movements referred to in AS3700 clause 2.5.2. Control joints should extend the full height of the wall and be spaced at no greater than 8m centre for concrete units where walls are unreinforced and are not interrupted by full height doorways or window openings for unreinforced applications.

General Guidelines - All concrete blockwork should be laid dry, so protective covering on site is recommended. Whenever work is stopped, the tops of walls should be covered to prevent moisture entering the cores of the blocks and/or cavity. All mortar joints should be allowed to set to "thumb print" hardness before tooling. Brush away excess mortar with semi stiff brush at the end of each days work.

Cleaning - Care should be taken to keep bricks and blocks as clean as possible during laying. There are various methods of general cleaning from dry brushing, water washing and also using chemicals. For a complete listing refer to the CMAA Guide CMO3. When using a weak acid mixture it is recommended for cleaning down at no stronger than 1 part acid to 20 parts water. Walls should be wet thoroughly before application and washed thoroughly with water after application. High water pressure is not recommended. Note - Always trial solution in a small area which is not highly visible.

| Products | Type | Description | Size (mm) L x H x W | f'_{uc} (MPa) | Fire Rating Insulation (mins) | Qty. per pallet | Unit Weight (kg) | Unit per m^2 |
|--|------------------|----------------------|------------------------|-----------------|-------------------------------------|---------------------------|------------------------|-------------------|
| Common Bricks - AS4773 requires a minimum characteristic compressive strength (f'_{uc}) of 5MPa for all loadbearing bricks. | | | | | | | | |
|  | 11.076 Common | Render Brick (Solid) | 230 x 76 x 110 | ≥ 5 | 180 | 500 | 3.4 | 48.4 |
|  | 11.162 | Twin Height Brick | 230 x 162 x 110 | ≥ 5 | 180 | 300 | 6.3 | 24.3 |
|  | 11.076 Colour | Coloured Face Brick | 230 x 76 x 110 | ≥ 8 | 180 | 450 (300 for ivory) | 6.3 | 48.4 |

Blockwork

All Adbri Masonry Litec® masonry products are lightweight products produced using concrete mixes that incorporate lightweight industrial by-products. This leads to a reduced carbon footprint from the manufacturing process and from transport of the product. Being 25 to 30% lighter than traditional masonry products, Litec® masonry products increase productivity, reduces design dead loads as a result of lighter unit weight and reduces handling issues. Pallets contain more square metres reducing material handling movements and storage requirements. All Litec® masonry products have improved fire resistance and a durability grade of Exposure as per AS4455.1.

| Products | Type | Description | Size (mm) L x H x W | f'_{uc} (MPa) | Fire Rating Insulation (mins) | Qty. per pallet | Unit Weight (kg) | Unit per m ² |
|---|-------|--------------------|------------------------|-----------------|-------------------------------------|--------------------|------------------------|----------------------------|
| Litec® 100 Standard Series - AS4773 requires a minimum characteristic compressive strength of 10MPa for all unreinforced hollow masonry units. | | | | | | | | |
|  | 10.01 | Full Length Hollow | 390 x 190 x 90 | ≥10 | 120 | 180 | 9.5 | 12.5 |
|  | 10.04 | 1/4 Length Solid | 90 x 190 x 90 | ≥10 | 120 | 576 | 2 | - |
|  | 10.31 | Full Length Solid | 390 x 190 x 90 | ≥10 | 120 | 108 | 11.9 | 12.5 |

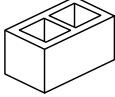
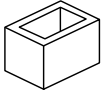
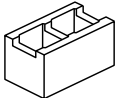
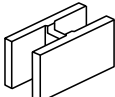
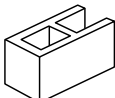
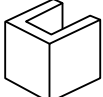
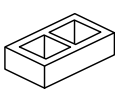
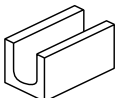
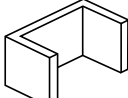
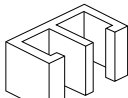
For basic compressive capacity f_c , please refer to table on page 10. For all FRL values relating to structural adequacy, please refer to the NSW Fire and Sound brochure.

| Products | Type | Description | Size (mm) L x H x W | f'_{uc} (MPa) | Fire Rating Insulation (mins) | Qty. per pallet | Unit Weight (kg) | Unit per m ² |
|---|-----------|------------------------------|------------------------|-----------------|-------------------------------------|---------------------------|------------------------|----------------------------|
| Litec® 150 Standard Series - AS4773 requires a minimum characteristic compressive strength of 10MPa for all unreinforced hollow masonry units and 15MPa for all units that may be corefilled and reinforced. | | | | | | | | |
|  | 15.01 2hr | Full Length Hollow | 390 x 190 x 140 | ≥15 | 120* | 144 | 11.9 | 12.5 |
|  | 15.22 | 340mm Corner Block Hollow | 340 x 190 x 140 | ≥10 | 180* | 135 | 10.9 | - |
|  | 15.42 | 140mm Top Groove Full Length | 390 x 190 x 140 | ≥15 | 120* | 144 (1 in 4 full ends) | 10.6 | 12.5 |
|  | 15.48 | Single web H Block | 390 x 190 x 140 | ≥15 | 120** Corefilled | 144 | 10.6 | 12.5 |
|  | 15.49 | Full Length Open End | 390 x 190 x 140 | ≥15 | 120* | 144 | 9.9 | 12.5 |
|  | 15.12 | Lintel Bond Beam | 390 x 190 x 140 | N/A | 120* | 120 | 13.1 | - |
|  | 15.01 4hr | 4 Hour Full Length Hollow | 390 x 190 x 140 | ≥10 | 180* | 120 | 13.9 | 12.5 |
|  | 15.03 | 1/2 Length Hollow | 190 x 190 x 140 | ≥10 | 180* | 144 | 5.8 | - |

For basic compressive capacity f_c , please refer to table on page 10. For all FRL values relating to structural adequacy, please refer to the NSW Fire and Sound brochure.

*Values provided for hollow non loadbearing masonry, refer to the NSW Fire and Sound Brochure for reinforced or loadbearing applications

**Values for corefilled

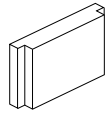
| Products | Type | Description | Size (mm) L x H x W | f'_{uc} (MPa) | Fire Rating Insulation (mins) | Qty. per pallet | Unit Weight (kg) | Unit per m ² |
|---|--------|-------------------------------|------------------------|-----------------|-------------------------------------|-----------------------------|------------------------|----------------------------|
|  | 20.01 | Full Length Hollow | 390 x 190 x 190 | ≥15 | 120* | 108 | 12.2 | 12.5 |
|  | 20.02 | 3/4 Length Hollow | 290 x 190 x 190 | ≥15 | 120* | 144 | 8.7 | - |
|  | 20.42 | 190mm Top Groove Full Length | 390 x 190 x 190 | ≥15 | 120* | 108 (1 in 6 is full end) | 12 | 12.5 |
|  | 20.48 | Single Web H Block | 390 x 190 x 190 | ≥15 | 240 corefilled | 108 | 11.5 | 12.5 |
|  | 20.49 | Open End Block Full Length | 390 x 190 x 190 | ≥15 | 120* | 108 | 11.2 | - |
|  | 20.93 | Half Block | 190 x 190 x 190 | ≥15 | 240 corefilled | 180 | 5.7 | - |
|  | 20.71 | Full Length 1/2 Height Hollow | 390 x 90 x 190 | ≥15 | 120* | 216 | 5.8 | - |
|  | 20.12 | Full Length Lintel Bond Beam | 390 x 190 x 190 | N/A | 120* | 72 | 18.5 | - |
|  | 20.61 | Clean Out Full Length Block | 390 x 190 x 190 | ≥15 | 240 corefilled | 108 | 13.1 | - |
|  | D20.45 | Clean Out Block | 390 x 190 x 190 | ≥15 | 240 corefilled | 108 | 16.1 | 12.5 |

Litec® 200 Standard Series - AS4773 requires a minimum characteristic compressive strength of 10MPa for all unreinforced hollow masonry units and 15MPa for all units that may be corefilled and reinforced.

For basic compressive capacity f_c , please refer to table on page 10. For all FRL values relating to structural adequacy, please refer to the NSW Fire and Sound brochure.
*Values provided for hollow non loadbearing masonry, refer to the NSW Fire and Sound brochure for reinforced or loadbearing applications.

| Products | Type | Description | Size (mm) L x H x W | f'_{uc} (MPa) | Fire Rating Insulation (mins) | Qty. per pallet | Unit Weight (kg) | Unit per m ² |
|----------|------|-------------|------------------------|-----------------|-------------------------------------|--------------------|------------------------|----------------------------|
|----------|------|-------------|------------------------|-----------------|-------------------------------------|--------------------|------------------------|----------------------------|

Litec® 200 Standard Series - AS4773 requires a minimum characteristic compressive strength of 10MPa for all unreinforced hollow masonry units and 15MPa for all units that may be corefilled and reinforced.



D20.45A

Clean Out Block Tile

325 x 30 x 190

≥15

N/A

288

4.1

12.5
when used
with 20.45
unit



20.03

1/2 Length
Hollow

190 x 190 x 190

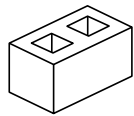
≥10

180*

180

7.5

-



20.01 4hr

Full Length
4 Hour
Hollow

390 x 190 x 190

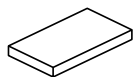
≥10

240*

90

14.5

12.5



D50.31

190mm
Capping Unit

390 x 190 x 40

≥10

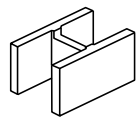
240*

144

7.0

-

300 Series Litec® Standard Series Retaining Wall - AS4773 requires a minimum characteristic compressive strength of 15MPa for units that can be corefilled and reinforced.



30.48

Single Web
H Block

390 x 190 x 290

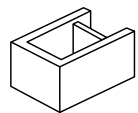
≥15

240
corefilled

72

15 / 14.7
TBC

12.5



30.92

Closed End Full Length
Block

390 x 190 x 290

≥15

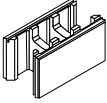
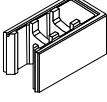
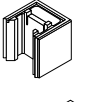
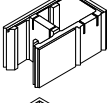
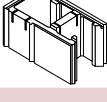
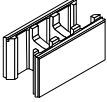
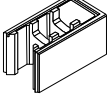
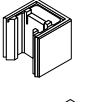
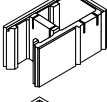
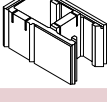
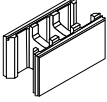
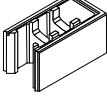
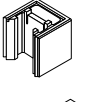
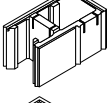
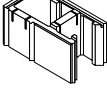
240
corefilled

72

16.5

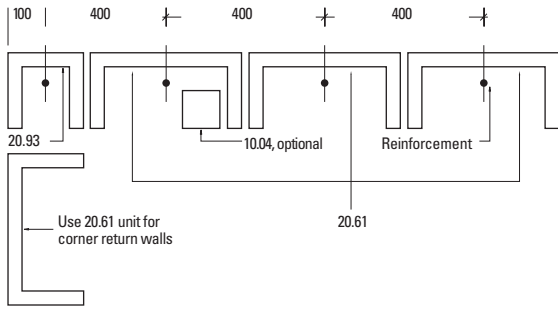
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For basic compressive capacity f_c , please refer to table on page 10. For all FRL values relating to structural adequacy, please refer to the NSW Fire and Sound brochure.
*Values provided for hollow non loadbearing masonry, refer to the NSW Fire and Sound brochure for reinforced or loadbearing applications.

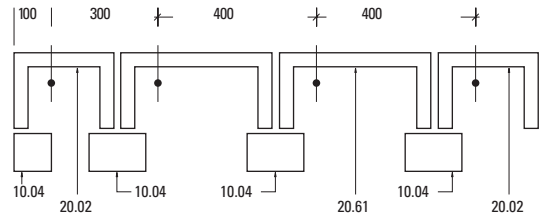
| Products | Type | Description | Size (mm) L x H x W | f'_{uc} (MPa) | Fire Rating Insulation (mins) | Qty. per pallet | Unit Weight (kg) | Unit per m ² |
|--|---------|--|------------------------|-----------------|-------------------------------------|------------------------------|------------------------|----------------------------|
| Versaloc® Mortarless Masonry System - 150 Series - Versaloc® is manufactured to a minimum characteristic compressive strength of 20MPa. | | | | | | | | |
|  | BV5991 | 150mm Versaloc® Standard Block | 400 x 200 x 150 | ≥20 | 120 | 96 | 15.1 | 12.5 |
|  | BV5992 | 150mm Versaloc® End Block* | 400 x 200 x 150 | ≥20 | 120 | 96 | 14.41 | |
|  | BV5993 | 150mm Versaloc® Half End Block* | 200 x 200 x 150 | ≥20 | 120 | 192 | 8 | 25 |
|  | BV5995R | 150mm Versaloc® Righthand Corner Block* | 350 x 200 x 150 | ≥20 | 120 | 84 | 13.11 | |
|  | BV5995L | 150mm Versaloc® Lefthand Corner Block* | 350 x 200 x 150 | ≥20 | 120 | 84 | 13.11 | |
| Versaloc® Mortarless Masonry System - 200 Series | | | | | | | | |
|  | BV2991 | 190mm Versaloc® Standard Block | 400 x 200 x 190 | ≥20 | 240 | 72 | 15.65 | |
|  | BV2992 | 190mm Versaloc® End Block* | 400 x 200 x 190 | ≥20 | 240 | 96 (48 of each Block) | 17.5 | |
|  | BV2993 | 190mm Versaloc® Half End Block* | 200 x 200 x 190 | ≥20 | 240 | 96 (48 of each Block) | 9 | |
|  | BV2995R | 190mm Versaloc® Righthand Corner Block* | 390 x 200 x 190 | ≥20 | 240 | 72 (36 of each Corner) | 15.35 | |
|  | BV2995L | 190mm Versaloc® Lefthand Corner Block* | 390 x 200 x 190 | ≥20 | 240 | 72 (36 of each Corner) | 15.35 | |
| Versaloc® Mortarless Masonry System - 300 Series | | | | | | | | |
|  | BV3991 | 290mm Versaloc® Standard Block | 400 x 200 x 290 | ≥20 | 240 | 60 | 19.25 | 12.5 |
|  | BV3992 | 290mm Versaloc® End Block* | 400 x 200 x 290 | ≥20 | 240 | 48 | 21.06 | |
|  | BV3993 | 290mm Versaloc® Half End Block* | 200 x 200 x 290 | ≥20 | 240 | 96 | 12.48 | 25 |
|  | BV3995R | 290mm Versaloc® Righthand Corner Block* | 490 x 200 x 290 | ≥20 | 240 | 40 | 21.06 | |
|  | BV3995L | 290mm Versaloc® Lefthand Corner Block* | 490 x 200 x 290 | ≥20 | 240 | 40 | 21.06 | |

For basic compressive capacity f'_c , please refer to table on page 10. For all FRL values relating to structural adequacy, please refer to the NSW Fire and Sound brochure.
*Sold as pairs only.

200MM CLEAN OUT COURSE

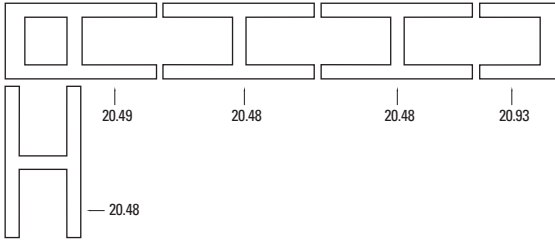


300MM CLEAN OUT COURSE

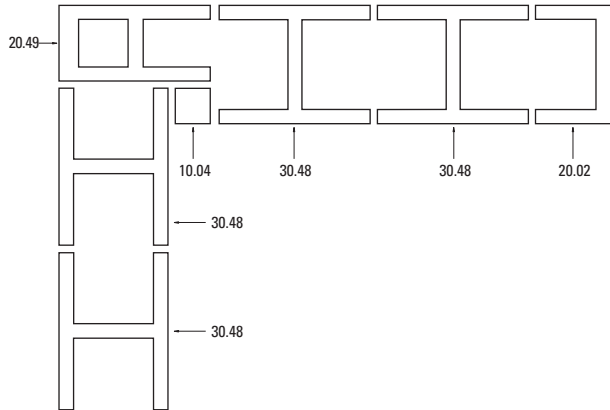


Dimensions include an allowance for a 10mm mortar joint in the perp ends

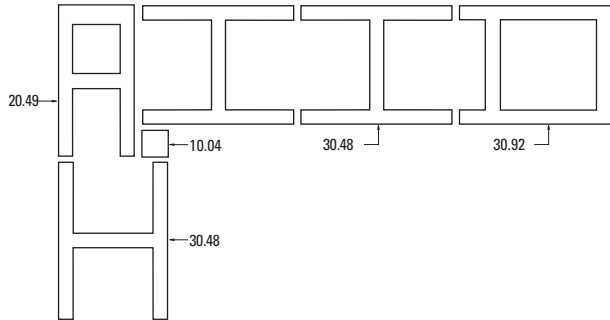
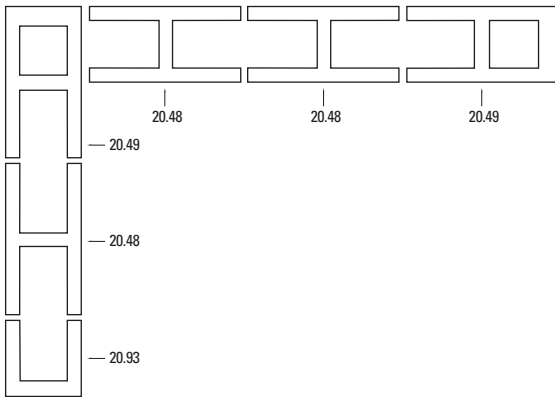
ALTERNATE COURSE



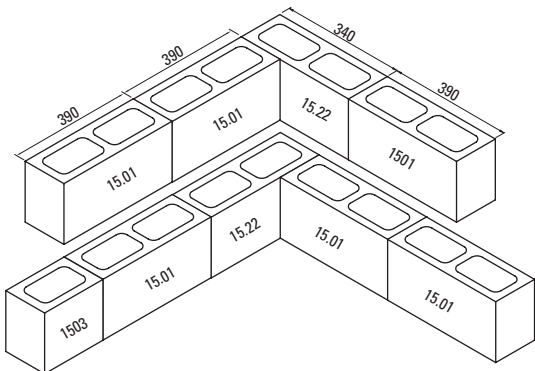
ALTERNATE COURSE



ALTERNATE COURSE



| Block Type | Cubic Metres per sq. Metre of Wall | Block Filled per Cubic Metre of Grout |
|------------|------------------------------------|---------------------------------------|
| 15.42 | 0.078 | 160 |
| 20.42 | 0.114 | 110 |
| 20.48 | 0.114 | 110 |
| 30.48 | 0.18 | 69 |



All units installed with a 10mm mortar joint in the perp ends.
(Not included in block dimensions noted above)



| Property | Wall Thickness, t_w (mm) 90 | | Wall Thickness, t_w (mm) 110 | | Wall Thickness, t_w (mm) 140 | | Wall Thickness, t_w (mm) 190 | | Wall Thickness, t_w (mm) 290 |
|----------|----------------------------------|--------------------|-----------------------------------|---------------------|-----------------------------------|----------------------------|-----------------------------------|----------------------------|-----------------------------------|
| | Unit Code 10.01 | Unit Code 10.31 | Unit Code 11.076 | Unit Code 11.162 | Unit Code 15.01 | 150 Series Grout filled | Unit Code 20.01 | 200 Series Grout filled | 300 Series Grout filled |

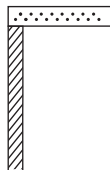
Basic Compressive Capacity

| | | | | | | | | | | | |
|--------------------------------|--|--|--------------|---------------|---------------|--------------|--------------|--------------|--------------|------------|---------------|
| \emptyset | | | 0.50 | 0.75 | 0.75 | 0.75 | 0.50 | 0.60 | 0.50 | 0.60 | 0.60 |
| h_u (mm) | | | 190.00 | 190.00 | 76.00 | 162.00 | 190.00 | 190.00 | 190.00 | 190.00 | 190.00 |
| A_v (m ² /m) | | | 0.06 | 0.09 | 0.11 | 0.11 | 0.056 | 0.056 | 0.056 | 0.056 | 0.06 |
| f_{uc}^1 (MPa) | | | 10.00 | 10.00 | 5 | 5 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| f_{mb}^1 (MPa) | | | 5.10 | 4.40 | 3.1 | 3.1 | 6.20 | 6.20 | 6.20 | 6.20 | 6.20 |
| K_n | | | 1.30 | 1.30 | 1.00 | 1.24 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| f_m^1 (MPa) | | | 6.63 | 5.72 | 3.1 | 3.84 | 8.06 | 8.06 | 8.06 | 8.06 | 8.06 |
| f_o (kN/m) | | | 198.9 | 386.10 | 255.75 | 317.1 | 225.7 | 645.3 | 225.7 | 841 | 1268.9 |

| Wall Loading Condition | Wall Design Height, H (mm) | Wall Thickness, t_w (mm) 90 | | Wall Thickness, t_w (mm) 110 | | Wall Thickness, t_w (mm) 140 | | Wall Thickness, t_w (mm) 190 | | Wall Thickness, t_w (mm) 290 |
|------------------------|----------------------------|----------------------------------|-----------------|-----------------------------------|------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|
| | | Unit Code 10.01 | Unit Code 10.31 | Unit Code 11.076 | Unit Code 11.162 | Unit Code 15.01 | 150 Series Grout filled | Unit Code 20.01 | 200 Series Grout filled | 300 Series Grout filled |

Wall Compressive Load Capacity, F_d (kN/m)

Concrete slab on wall



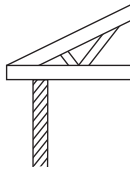
| | | | | | | | | | |
|------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2400 | 83.54 | 162.16 | 130.43 | 161.74 | 135.41 | 387.17 | 151.21 | 563.5 | 850.16 |
| 2700 | 69.62 | 135.14 | 117.65 | 145.88 | 126.38 | 361.36 | 151.21 | 563.5 | 850.16 |
| 3000 | 55.69 | 108.11 | 102.3 | 126.85 | 117.35 | 335.55 | 142.18 | 529.85 | 850.16 |
| 3300 | 41.77 | 81.08 | 89.51 | 111 | 108.33 | 309.74 | 135.41 | 504.62 | 850.16 |
| 3600 | | | 74.17 | 91.97 | 97.04 | 277.47 | 128.64 | 479.39 | 850.16 |
| 3900 | | | 61.38 | 76.11 | 88.02 | 251.66 | 121.87 | 454.16 | 850.16 |
| 4200 | | | | | 78.99 | 225.85 | 115.10 | 428.93 | 837.47 |
| 4500 | | | | | 69.96 | 200.04 | 106.07 | 395.29 | 812.1 |
| 4800 | | | | | 58.68 | 167.78 | 101.56 | 378.47 | 786.72 |
| 5100 | | | | | 49.65 | 141.96 | 92.53 | 344.83 | 761.34 |
| 5400 | | | | | | | 85.76 | 319.59 | 735.96 |
| 5700 | | | | | | | 78.99 | 294.36 | 710.58 |
| 6000 | | | | | | | 72.22 | 269.13 | 672.52 |

| Wall Loading Condition | Wall Design Height, H (mm) | Wall Thickness, t_w (mm) 90 | | Wall Thickness, t_w (mm) 110 | | Wall Thickness, t_w (mm) 140 | | Wall Thickness, t_w (mm) 190 | | Wall Thickness, t_w (mm) 290 |
|------------------------|----------------------------|----------------------------------|-----------------|-----------------------------------|------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|
| | | Unit Code 10.01 | Unit Code 10.31 | Unit Code 11.076 | Unit Code 11.162 | Unit Code 15.01 | 150 Series Grout filled | Unit Code 20.01 | 200 Series Grout filled | 300 Series Grout filled |

Wall Compressive Load Capacity, Fd (kN/m) - Continued

| | | | | | | | | | |
|------|------|--------|-------|--------|--------|--------|--------|--------|--------|
| 2400 | 53.7 | 104.25 | 97.19 | 120.51 | 112.84 | 322.64 | 137.66 | 513.03 | 850.16 |
| 2700 | 35.8 | 69.50 | 81.84 | 101.48 | 101.56 | 290.38 | 130.89 | 487.8 | 850.16 |
| 3000 | 17.9 | 34.75 | 61.38 | 76.11 | 90.27 | 258.12 | 119.61 | 445.75 | 837.47 |
| 3300 | 3.98 | 7.72 | 46.04 | 57.08 | 76.73 | 219.4 | 112.84 | 420.52 | 812.1 |
| 3600 | | | 28.13 | 34.88 | 63.19 | 180.68 | 103.81 | 386.88 | 786.72 |
| 3900 | | | 10.23 | 12.69 | 51.91 | 148.42 | 94.79 | 353.24 | 748.65 |
| 4200 | | | | | 40.62 | 116.15 | 85.76 | 319.59 | 723.27 |
| 4500 | | | | | 29.34 | 83.89 | 76.73 | 285.95 | 685.21 |
| 4800 | | | | | 18.05 | 51.62 | 67.7 | 252.31 | 659.83 |
| 5100 | | | | | 4.51 | 12.91 | 58.68 | 218.67 | 621.76 |
| 5400 | | | | | | | 49.65 | 185.03 | 596.38 |
| 5700 | | | | | | | 40.62 | 151.39 | 545.63 |
| 6000 | | | | | | | 31.6 | 117.75 | 520.25 |

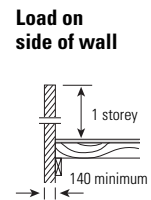
Other loads on wall



| Wall Loading Condition | Wall Design Height, H (mm) | Wall Thickness, t_w (mm) 90 | | Wall Thickness, t_w (mm) 110 | | Wall Thickness, t_w (mm) 140 | | Wall Thickness, t_w (mm) 190 | | Wall Thickness, t_w (mm) 290 |
|------------------------|----------------------------|-------------------------------|-----------------|--------------------------------|------------------|--------------------------------|-------------------------|--------------------------------|-------------------------|--------------------------------|
| | | Unit Code 10.01 | Unit Code 10.31 | Unit Code 11.076 | Unit Code 11.162 | Unit Code 15.01 | 150 Series Grout filled | Unit Code 20.01 | 200 Series Grout filled | 300 Series Grout filled |

Wall Compressive Load Capacity, Fd (kN/m) - Continued

| | | | | | | | | | | |
|------|--|--|--|--|--|-------|-------|-------|-------|-------|
| 2400 | | | | | | 13.77 | 39.36 | 15.12 | 56.35 | 85.02 |
| 2700 | | | | | | 12.86 | 36.78 | 15.12 | 56.35 | 85.02 |
| 3000 | | | | | | 11.28 | 32.26 | 14.22 | 52.99 | 85.02 |
| 3300 | | | | | | 10.83 | 30.97 | 13.54 | 50.46 | 85.02 |
| 3600 | | | | | | 9.93 | 28.39 | 12.86 | 47.94 | 85.02 |
| 3900 | | | | | | 8.8 | 25.17 | 12.19 | 45.42 | 85.02 |
| 4200 | | | | | | 7.9 | 22.59 | 11.51 | 42.89 | 83.75 |
| 4500 | | | | | | 7 | 20 | 10.83 | 40.37 | 81.21 |
| 4800 | | | | | | 6.32 | 18.07 | 9.93 | 37.01 | 78.67 |
| 5100 | | | | | | 4.96 | 14.2 | 9.25 | 34.48 | 76.13 |
| 5400 | | | | | | | | 8.58 | 31.96 | 73.6 |
| 5700 | | | | | | | | 7.9 | 29.44 | 71.06 |
| 6000 | | | | | | | | 7.22 | 26.91 | 68.52 |



Greater capacity can be achieved using reinforced masonry.

Brick Strength

All Adbri Masonry bricks are tested for compressive strength. Bricks with less than 30% coring are tested as full bed units. This is defined as the units being installed with a full layer of mortar covering the entire upper surface of the brick unit.

The Australian Standard for Masonry in Small Buildings requires loadbearing bricks to be manufactured to a minimum characteristic compressive strength of 5MPa.

Adbri Masonry concrete masonry bricks are all manufactured to achieve a minimum characteristic compressive strength of 8MPa for coloured face brick and 5MPa for natural coloured bricks.

Design Tables are provided to supply the compressive design capacity for the different brick types.

There are two calculations undertaken for unreinforced masonry acting in compression. F_o is the compressive capacity of the masonry wall, whereas F_d is the actual design compressive capacity of the wall. F_d is a factored value of F_o . The factor applied to determine the design compressive capacity F_d is calculated based on the restraint conditions of the wall and how the load is applied to the wall ie does it apply an eccentricity and therefore introduce bending forces.

The below is included to provide the value of F_o for the Adbri Masonry brick range, and the F_d values for two different forms of installation. Bricks are not suitable for the attachment of a load to the face of the units.

| Products | Wall Height (mm) | Slenderness Ratio | K_{sl} | K_j | F_d | | F_o (kN/m) |
|--|------------------|-------------------|----------|-------|---------------------------------|----------------------------------|--------------|
| | | | | | Supporting concrete slab (kN/m) | Supporting timber framing (kN/m) | |
| Coloured face brick Architectural brick | 2400 | 21.82 | 0.51 | 0.37 | 165.26 | 120.51 | 321.75 |
| | 2600 | 23.64 | 0.48 | 0.33 | 153.56 | 105.89 | |
| | 2800 | 25.45 | 0.44 | 0.28 | 141.86 | 91.26 | |
| | 3000 | 27.27 | 0.40 | 0.24 | 130.16 | 76.64 | |
| | 3200 | 29.09 | 0.37 | 0.19 | 118.46 | 62.01 | |
| | 3400 | 30.91 | 0.33 | 0.15 | 106.76 | 47.39 | |
| | 3600 | 32.73 | 0.30 | 0.10 | 95.05 | 32.76 | |
| | 3800 | 34.55 | 0.26 | 0.06 | 83.36 | 18.14 | |
| | 4000 | 36.36 | 0.22 | 0.01 | 71.66 | 3.51 | |
| Twin height brick | 2400 | 21.82 | 0.51 | 0.37 | 161.74 | 120.51 | 317.13 |
| | 2600 | 23.64 | 0.48 | 0.33 | 152.22 | 107.82 | |
| | 2800 | 25.45 | 0.44 | 0.28 | 139.54 | 85.63 | |
| | 3000 | 27.27 | 0.40 | 0.24 | 126.85 | 76.11 | |
| | 3200 | 29.09 | 0.37 | 0.19 | 117.34 | 66.6 | |
| | 3400 | 30.91 | 0.33 | 0.15 | 104.65 | 50.74 | |
| | 3600 | 32.73 | 0.30 | 0.10 | 91.97 | 34.88 | |
| | 3800 | 34.55 | 0.26 | 0.06 | 82.45 | 22.2 | |
| | 4000 | 36.36 | 0.22 | 0.01 | 72.94 | 9.5 | |

Basic Compressive Capacity and Design Compressive Capacity of Bricks using simplified method (AS3700-2108 Clause 7.3.3)

The values in the table should be considered in addition to the slenderness ratio limitations for FRL values. In many instances it will be necessary for external walls to use a cavity or veneer system, or to utilise engaged piers.

In terms of the values above, the design capacity F_d is the maximum load that can be applied to the wall and the wall maintains structural adequacy.

The ultimate loads applied to the wall should be calculated based on the dimensions and detailing of the structure.

For example, a 2 storey home with a tiled roof, 3m high walls and a 175 thick slab for the upper floor, bedrooms to the upper floors and a structure width of 10m that subjects your walls to a 5m load width, would be roughly calculated as follows:

DEAD LOADS

Roof - 5m load width x 1.2 load factor x 0.4kPa for roof sheeting, timber framing, ceiling & insulation = 2.4kN/m

Upper Wall - 3m high x 0.11m wide x 21kN/m³ density x 1.2 load factor = 8.3kN/m

Slab - 5m load width x 1.2 load factor x 0.175m deep slab x 24kN/m³ density = 25.2kN/m

Lower Wall - 3m high x 0.11m wide x 21kN/m³ density x 1.2 load factor = 8.3kN/m

LIVE LOADS

Roof - Allow 1.5kPa for maintenance x 1.5 load factor x 5m load width = 11.25kN/m

Slab - Allow 3kPa for bedroom x 1.5 load factor x 5m load width = 22.5kN/m

***Total Load applied to base course of brick* = 2.4 + 8.3 + 25.2 + 8 + 11.25 + 22.5 = 77.65kN/m**

Face Bricks have a design capacity of 130.16kN/m for a 3m high wall restrained at the top by a concrete slab, therefore would be structurally sound in this type of application.

Twin height brick has a design capacity of 126.85kN/m for a 3m high wall restrained at the top by a concrete slab, therefore would be structurally sound in this type of application.

Timber framing attached to the top of the wall will give you a lower design capacity, but will also impose less dead load than a reinforced concrete slab.

The load width carried by a wall will have a great impact on the design force applied to the wall. The wall height will also determine the factor applied to the wall to determine design capacity. The greater the wall height, the lower that factor will be, timber framing attached to the top of the wall offers virtually no capacity at all when walls get to 3.5m in height or higher.

External walls or internal walls where loads are applied with an eccentricity should be calculated independently using the refined method provided in Clause 7.3.4 of AS3700-2018.

The design capacity of the Adbri Masonry concrete masonry bricks will permit multi storey structures up to 15m in height to be constructed, as long as earthquake loading is adequately provided for, the load widths and wall heights are within reason, and engaged piers are used to assist in carrying loads where required.



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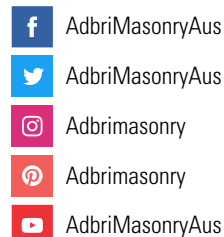
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