Fire & Acoustic Technical Manual

for Load Bearing & Non-load Bearing Walls

Contents

Introduction

The Baines Masonry Fire & Acoustic technical manual outlines the fire and acoustic performance of Baines masonry units for various wall applications. It has been prepared to provide design, installation and technical information for builders, building consultants, engineers and architects. Any variation of the system outlined in this manual is considered outside the scope and must be evaluated by the relevant professional consultant.

Baines Masonry products are suitable for use in load bearing and non-load bearing walls for all types of buildings. The material composition and specific unit dimensions have been optimised, tested and assessed by leading organisations around Australia in order to provide exceptional fire and acoustic performances.

Baines Masonry currently offer two types of concrete blocks that are recommended where specific fire and acoustic performance is required. These are Betta Block units and Dense Weight units. Both types are available in various unit sizes and are suitable for core filled and non-core filled applications.

Material properties

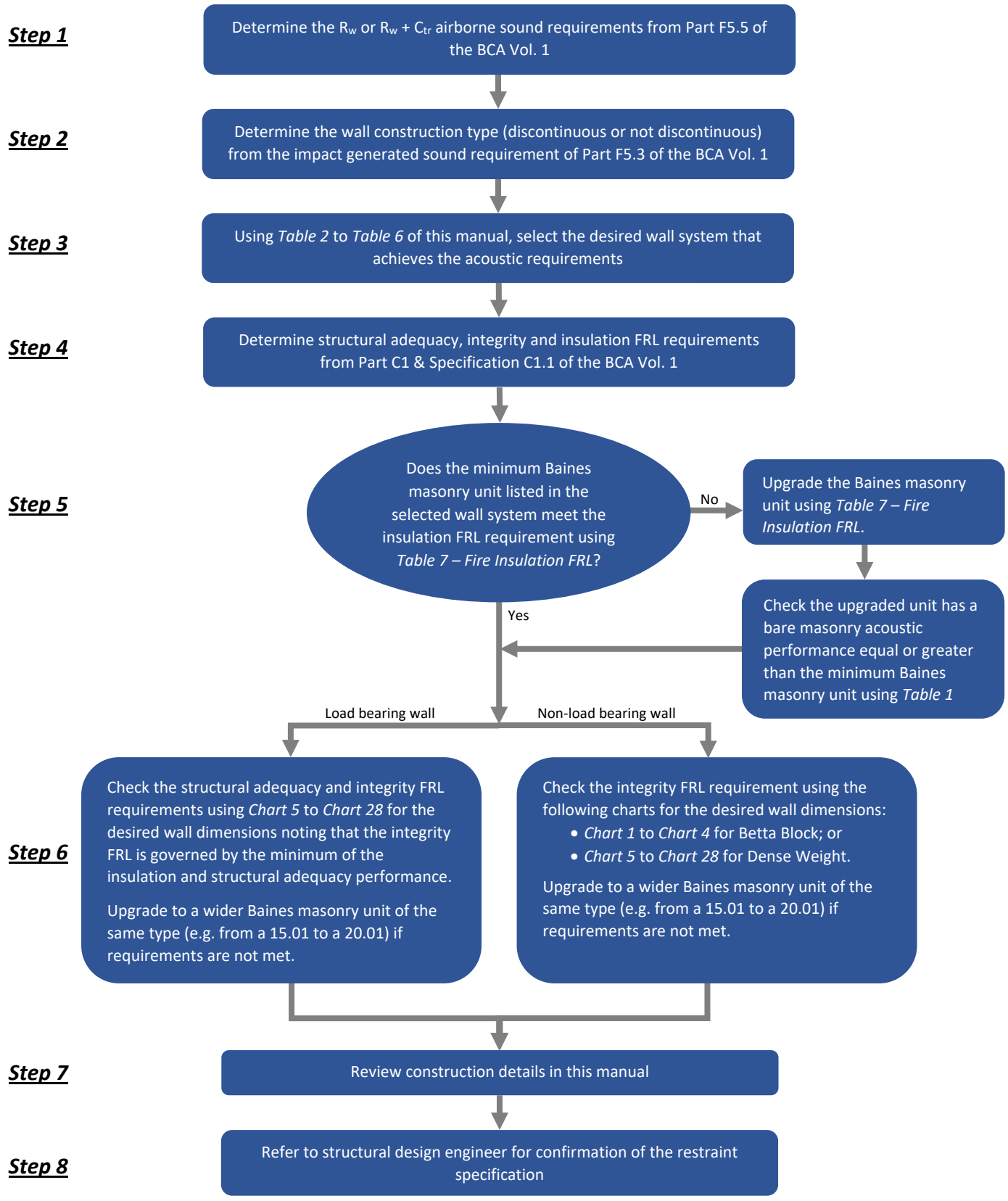
Property	Betta Block	Dense Weight
Concrete Density	<1800 kg/m^3	>1800 kg/m^3
Basaltic aggregate	< 45%	< 45%
Unconfined compressive strength f'_{uc}	≥ 15 MPa	≥ 15 MPa

Limitations

The information contained in this technical manual relates specifically to Baines Masonry products and must not be used in relation to any other products or masonry manufacturers. The technical manual does not replace the need for qualified designers (e.g. engineers & architects) to specify project specific information and it is their responsibility to confirm the suitability of using Baines Masonry products for a particular project. Baines Masonry accepts no liability for errors or omissions in this technical manual and it is the user's responsibility to ensure the current edition of the manual is being used.

User Guide

The flow chart below illustrates how this manual can be used to achieve the fire and acoustic requirements of the National Construction Code – Building Code of Australia (BCA) for load bearing and non-load bearing walls incorporating Baines Masonry units.



Acoustic Performance

Where necessary, the acoustic performance of a wall must be considered in order to safeguard the occupants of a part of a building from illness or loss of comfort. The two main aspects of consideration in regards to acoustic performance are airborne sound and impact generated sound.

Airborne sound is commonly measured by playing a series of differing frequency sounds on one side of a wall and measuring the sound loss on the other side. It is stated in terms of a weighted sound index (R_w), the higher the index value, the higher the element prevents the transmission of the sound. An adjustment factor is typically associated with the weighted sound index which is called the spectrum adaption term (C_{tr}) which accounts for low frequency noise. This adjustment factor is always a negative number and is added to the weighted sound index to give a combined value lower than R_w. For example, an R_w of 53 with a C_{tr} of -6 gives an $R_w + C_{tr}$ of 47. These values are typically obtained from testing in accordance with AS/NZS 1276.1 or ISO 717.1.

Acoustic BCA Requirements

For airborne sound, the BCA outlines the requirements of walls in part F5.5 & F5.6 of Volume I for Class 2-9 buildings. For impact generated sound, the BCA requires that some walls are constructed using discontinuous construction; refer to Part F5.5 for class 2-9 buildings. These requirements can be summarised with the following list of wall types:

- Walls Separating Habitable Areas (not discontinuous construction) $R_w + C_{tr} \geq 50$
- Walls Separating Habitable and/or Wet Areas (discontinuous construction) $R_w + C_{tr} \geq 50$
- Walls Separating Common Areas (not discontinuous construction) $R_w \geq 50$
- Walls Separating Plant Room / Lift Shaft Areas (discontinuous construction) $R_w \geq 50$
- Walls Separating Class 9c Aged Care Sole Occupancy Units (not discontinuous construction) $R_w \geq 45$

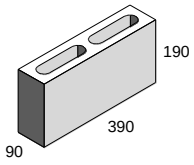
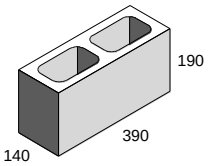
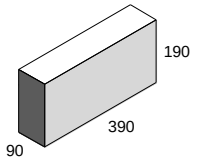
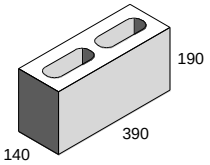
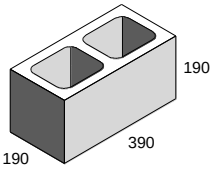
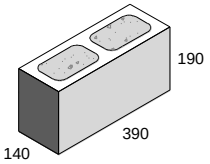
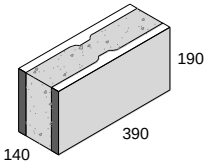
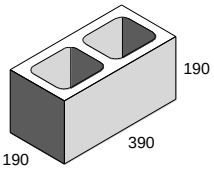
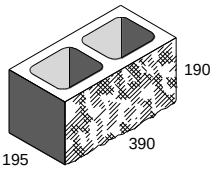
Discontinuous construction is defined by the BCA as a wall having a minimum 20 mm cavity between 2 separate leaves, and

- for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and
- for other than masonry, there is no mechanical linkage between leaves except at the periphery.

The acoustic performance of internal Baines Masonry walls have been assessed by a leading Australian acoustic firm (refer to report reference PKA-A168). The outcomes are summarized in the following acoustic performance tables that provide solutions incorporating Baines Masonry units meeting the BCA requirements with and without discontinuous construction.

Acoustic Performance - Bare Masonry

The table below outlines the acoustic performance of the various Baines Masonry units alone.

Unit Code	Product type	Core-filled	Diagram	Sound Insulation Rating (R_w)
10.01	Betta Block	No		42
15.01	Betta Block	No		45
10.31	Betta Block	No		46
15.705	Betta Block	No		47
20.01	Betta Block	No		47
15.01	Betta block	Yes		50
15.48	Betta Block	Yes		50
20.01	Dense weight	No		50
20.121	Dense weight	No		50

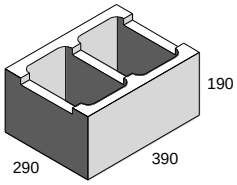
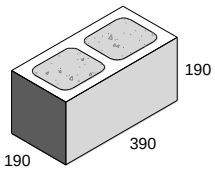
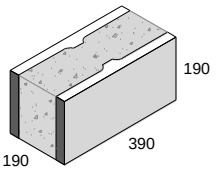
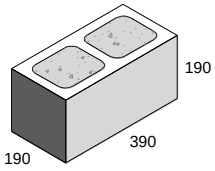
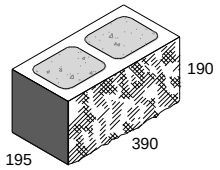
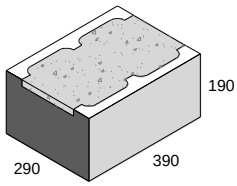
30.42	Betta Block	No		51
20.01	Betta Block	Yes		53
20.48	Betta Block	Yes		54
20.01	Dense weight	Yes		55
20.121	Dense weight	Yes		55
30.42	Betta Block	Yes		57

Table 1 – Acoustic Performance - Bare Masonry

Acoustic Performance - Walls Separating Habitable Areas (not discontinuous construction) $R_w + C_{tr} \geq 50$

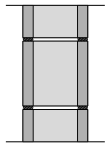
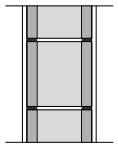
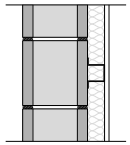
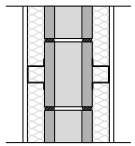
ID	Diagram	Description	Lining 1	Cavity 1	Minimum Baines Masonry unit	Core-filled	Cavity 2	Lining 2	Wall Thickness	Acoustic Performance	
										R_w	R_w+C_{tr}
01		Bare masonry	-	-	20.48 Betta Block	YES	-	-	190 mm	54	51
02					20.01 Betta Block				190 mm	54	51
03					20.01 Dense Weight				190 mm	55	52
04		Lining 1 Baines Masonry Lining 2	13 mm render	-	20.48 Betta Block	YES	-	13 mm render	216 mm	55	52
05					20.01 Betta Block				216 mm	55	52
06		Baines Masonry Cavity Lining 2	-	-	20.01 Dense Weight	NO	Furring channel with adjustable clip (50 mm cavity) 50 mm glass wool	13 mm plasterboard	253 mm	59	51
07					15.01 Betta Block	YES			203 mm	60	52
08		Lining 1 Cavity Baines Masonry Cavity Lining 2	13 mm plasterboard	Furring channel with adjustable clip (50 mm cavity) 50 mm glass wool	15.01 Betta Block	YES	Furring channel with adjustable clip (50 mm cavity) 50 mm glass wool	13 mm plasterboard	266 mm	66	51

Table 2 - Acoustic Performance - Walls Separating Habitable Areas (not discontinuous construction)

Notes:

1. '13 mm plasterboard' refers to 13 mm standard grade plasterboard (8.4 kg/m^2). A higher grade or increased thickness plasterboard will provide better acoustic performance.
2. '50 mm glass wool' refers to 50 mm thickness glass wool or mineral wool insulation (11 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
3. 'Furring channel' refers to 28 mm furring channel 0.5 BMT equivalent to Rondo 129.
4. 'Adjustable clip' refers to 30 mm adjustable clip equivalent to Rondo BetaGrip.
5. '64 mm steel stud' refers to 64 mm steel stud 0.75 BMT equivalent to Rondo 491.

Acoustic Performance - Walls Separating Habitable and/or Wet Areas (discontinuous construction) $R_w + C_{tr} \geq 50$

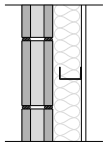
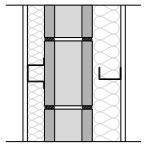
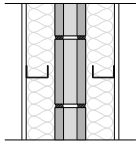
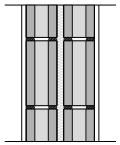
ID	Diagram	Description	Lining 1	Cavity 1	Baines Masonry product type	Core-filled	Cavity 2	Lining 2	Wall Thickness	Acoustic Performance	
										R_w	R_w+C_{tr}
01		Baines Masonry Cavity Lining 2	-	-	10.01 Betta Block	NO	20 mm gap 64 mm steel studs 75 mm glass wool	13 mm plasterboard	187 mm	60	52
02		Lining 1 Cavity 1 Baines Masonry Cavity 2 Lining 2	13 mm plasterboard	Furring channel with adjustable clip (50 mm cavity) 50 mm glass wool	15.01 Betta Block	NO	20 mm gap 64 mm steel studs 75 mm glass wool	13 mm plasterboard	300 mm	66	50
03					10.31 Betta Block	-			250 mm	67	52
04		Lining 1 Cavity 1 Baines Masonry Cavity 2 Lining 2	13 mm plasterboard	64 mm steel studs 75 mm glass wool 20 mm gap	10.01 Betta Block	NO	20 mm gap 64 mm steel studs 75 mm glass wool	13 mm plasterboard	284 mm	68	53
05		Lining 1 Baines Masonry Cavity 1 Baines Masonry Lining 2	13 mm render	20 mm gap 25 mm glass wool	Two skins of 10.01 Betta Block	NO	-	13 mm render	226 mm	58	52

Table 3 - Acoustic Performance - Walls Separating Habitable and/or Wet Areas (discontinuous construction)

Notes:

1. '13 mm plasterboard' refers to 13 mm standard grade plasterboard (8.4 kg/m^2). A higher grade or increased thickness plasterboard will provide better acoustic performance.
2. '75 mm glass wool' refers to 75 mm thickness glass wool or mineral wool insulation (14 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
3. '50 mm glass wool' refers to 50 mm thickness glass wool or mineral wool insulation (11 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
4. '25 mm glass wool' refers to 25 mm thickness glass wool or mineral wool insulation (18 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
5. 'Furring channel' refers to 28 mm furring channel 0.5 BMT equivalent to Rondo 129.
6. 'Adjustable clip' refers to 30 mm adjustable clip equivalent to Rondo BetaGrip.
7. '64 mm steel stud' refers to 64 mm steel stud 0.75 BMT equivalent to Rondo 491.

Acoustic Performance - Walls Separating Common Areas (not discontinuous construction) $R_w \geq 50$

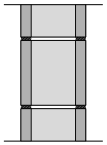
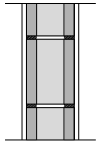
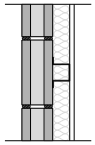
ID	Diagram	Description	Lining 1	Cavity 1	Baines Masonry product type	Core-filled	Cavity 2	Lining 2	Wall Thickness	Acoustic Performance
										R_w
01		Bare masonry	-	-	15.01 Betta Block	YES	-	-	140 mm	51
02					20.01 Dense Weight	NO		-	190 mm	50
03		Lining 1 Baines Masonry Lining 2	13 mm render	-	15.705 Betta Block	NO	-	13 mm render	166 mm	50
04		Baines Masonry Cavity Lining 2	-	-	10.01 Betta Block	NO	Furring channel with adjustable clip (50 mm cavity) 50 mm glass wool	13 mm plasterboard	153 mm	51

Table 4 - Acoustic Performance - Walls Separating Common Areas (not discontinuous construction)

Notes:

1. '13 mm plasterboard' refers to 13 mm standard grade plasterboard (8.4 kg/m^2). A higher grade or increased thickness plasterboard will provide better acoustic performance.
2. '75 mm glass wool' refers to 75 mm thickness glass wool or mineral wool insulation (14 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
3. '50 mm glass wool' refers to 50 mm thickness glass wool or mineral wool insulation (11 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
4. '25 mm glass wool' refers to 25 mm thickness glass wool or mineral wool insulation (18 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
5. 'Furring channel' refers to 28 mm furring channel 0.5 BMT equivalent to Rondo 129.
6. 'Adjustable clip' refers to 30 mm adjustable clip equivalent to Rondo BetaGrip.
7. '64 mm steel stud' refers to 64 mm steel stud 0.75 BMT equivalent to Rondo 491.

Acoustic Performance - Walls Separating Plant Room / Lift Shaft Areas (discontinuous construction) $R_w \geq 50$

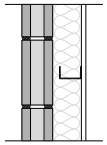
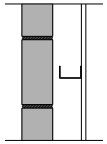
ID	Diagram	Description	Lining 1	Cavity 1	Baines Masonry product type	Core-filled	Cavity 2	Lining 2	Wall Thickness	Acoustic Performance
										R_w
01		Baines Masonry Cavity 2 Lining 2	-	-	10.01 Betta Block	NO	20 mm gap 64 mm steel studs 75 mm glass wool	13 mm plasterboard	187 mm	60
02		Baines Masonry Cavity 2 Lining 2	-		10.31 Betta Block	-	20 mm gap 64 mm steel studs	13 mm plasterboard	187 mm	52

Table 5 - Acoustic Performance - Walls Separating Plant Room / Lift Shaft Areas (discontinuous construction)

Notes:

1. '13 mm plasterboard' refers to 13 mm standard grade plasterboard (8.4 kg/m^2). A higher grade or increased thickness plasterboard will provide better acoustic performance.
2. '75 mm glass wool' refers to 75 mm thickness glass wool or mineral wool insulation (14 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
3. '50 mm glass wool' refers to 50 mm thickness glass wool or mineral wool insulation (11 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
4. '25 mm glass wool' refers to 25 mm thickness glass wool or mineral wool insulation (18 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
5. 'Furring channel' refers to 28 mm furring channel 0.5 BMT equivalent to Rondo 129.
6. 'Adjustable clip' refers to 30 mm adjustable clip equivalent to Rondo BetaGrip.
7. '64 mm steel stud' refers to 64 mm steel stud 0.75 BMT equivalent to Rondo 491.

Acoustic Performance - Walls Separating Class 9c Aged Care Units (not discontinuous construction) $R_w \geq 45$

Note: This is only for walls that separate the sole occupancy units in class 9c aged care buildings.

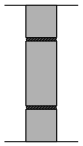
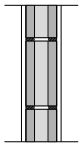
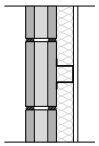
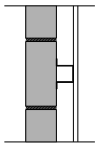
ID	Diagram	Description	Lining 1	Cavity 1	Baines Masonry product type	Core-filled	Cavity 2	Lining 2	Wall Thickness	Acoustic Performance R_w
01		Baines Masonry	-	-	10.31 Betta Block	-	-	-	90 mm	46
02					15.01 Betta Block	NO			140 mm	45
03		Lining 1 Baines Masonry Lining 2	13 mm render	-	10.01 Betta Block	NO	-	13 mm render	116 mm	45
04		Baines Masonry Cavity 2 Lining 2	-	-	10.01 Betta Block	NO	Furring channel with adjustable clip (50 mm cavity) 50 mm glass wool	13 mm plasterboard	153 mm	51
05		Baines Masonry Cavity 2 Lining 2	-	-	10.31 Betta Block	YES	Furring channel with adjustable clip (50 mm cavity)	13 mm plasterboard	153 mm	48

Table 6 - Acoustic Performance - Walls Separating Class 9c Aged Care Sole Occupancy Units (not discontinuous construction)

Notes:

1. '13 mm plasterboard' refers to 13 mm standard grade plasterboard (8.4 kg/m^2). A higher grade or increased thickness plasterboard will provide better acoustic performance.
2. '75 mm glass wool' refers to 75 mm thickness glass wool or mineral wool insulation (14 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
3. '50 mm glass wool' refers to 50 mm thickness glass wool or mineral wool insulation (11 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
4. '25 mm glass wool' refers to 25 mm thickness glass wool or mineral wool insulation (18 kg/m^3). An increased thickness of density of insulation will provide better acoustic performance.
5. 'Furring channel' refers to 28 mm furring channel 0.5 BMT equivalent to Rondo 129.
6. 'Adjustable clip' refers to 30 mm adjustable clip equivalent to Rondo BetaGrip.
7. '64 mm steel stud' refers to 64 mm steel stud 0.75 BMT equivalent to Rondo 491.

Fire resistance performance

The fire resistance performance of a masonry wall is considered with regards to three characteristics; *structural adequacy, integrity & insulation*. Each characteristic is expressed in terms of the number of minutes that the wall can resist a particular fire intensity defined by AS 1530.4-2005. For example a fire resistance level (FRL) of 180/120/120 implies 180 minutes of resistance for structural adequacy, 120 minutes of resistance for integrity and 120 minutes of resistance for insulation. Each characteristic is defined by AS 1530.4-2005 as follows:

Structural adequacy:	The ability of a load-bearing element of construction to support a load when tested in accordance with AS 1530.4-2005.
Integrity:	The ability of an element of construction to resist the passage of flames and hot gases from one space to another, when tested in accordance with AS 1530.4-2005.
Insulation:	The ability of an element of construction to maintain a temperature on the surface that is not exposed to the furnace, below the limits specified, when tested in accordance with AS 1530.4-2005.

When a wall is in a non-load bearing situation, the FRL for structural adequacy is stated as a dash, e.g. -/120/120.

Fire BCA Requirements

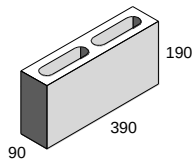
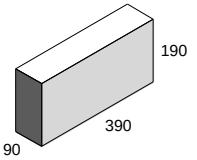
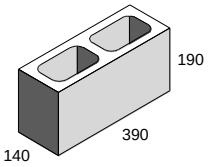
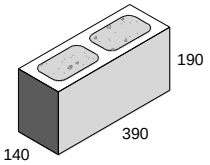
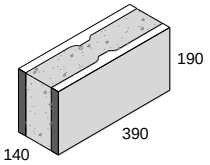
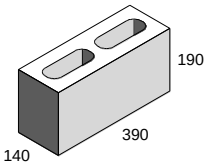
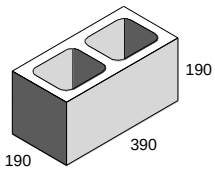
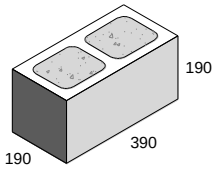
The BCA sets out the FRL requirements for all wall situations in various building types, refer to Part C1 and Specification C1.1 of the BCA Volume 1. For masonry structures, the BCA allows the use of AS 3700-2011 to determine the FRL of a particular masonry wall solution, as stated in specification A2.3 of BCA Volume I, in order to meet the required FRL. That is, by designing a masonry wall in accordance with AS 3700-2011 for an FRL equal to or greater than the FRL required by the BCA, the requirements of the BCA are satisfied.

AS 3700-2011 provides two methods for determining the fire resistance of a masonry wall in section 6 of the standard. The methods consists of a) design from tabulated values; and b) design based on test results.

Baines Masonry have undertaken extensive non-load bearing fire testing of the Betta Block product range with CSIRO in North Sydney, NSW. Refer to CSIRO test report reference FSV 1674 & FSV 1646. The results of these tests have been used in accordance with section 6 of AS 3700-2011 to provide the insulation and integrity FRL's listed in the manual for the Betta Block products. For all other products and situations, the FRL's stated in this manual have been designed by the tabulated values of AS 3700-2011.

Fire Insulation Performance - Load Bearing & Non-load Bearing Walls

The table below outlines the fire resistance performance of Baines Masonry units for insulation FRL's.

Insulation FRL for Baines Masonry Load Bearing & Non-load bearing walls											
Unit Code	**Product type**	**Core-filled**	**Diagram**	**Material Thickness (mm)**	**Fire resistance level for insulation FRL (mins)**						**Reference document**
					30	**60**	**90**	**120**	**180**	**240**	
10.01	Betta Block	No		64.1			**90**				CSIRO Test & 0170-R1D
10.31	Betta Block	No		90.0				**120**			CSIRO Test & 0170-R1D
15.01	Betta Block	No		84.0				**120**			CSIRO Test & 0170-R1D
15.01	Betta block	Yes		140.0				**120**			Deemed to satisfy AS 3700
15.48	Betta Block	Yes		140.0				**120**			Deemed to satisfy AS 3700
15.705	Betta Block	No		104.0					**180**		CSIRO Test & 0170-R1D
20.01	Betta Block	No		98.2				**120**			CSIRO Test & 0170-R1D
20.01	Betta Block	Yes		190.0						**240**	Deemed to satisfy AS 3700

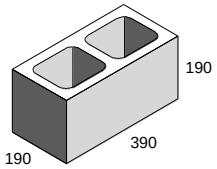
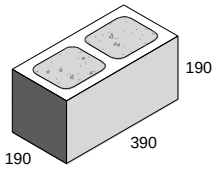
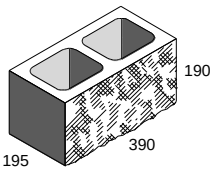
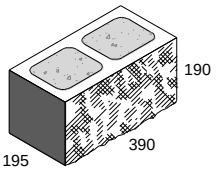
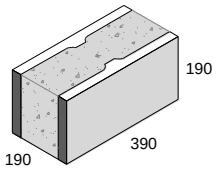
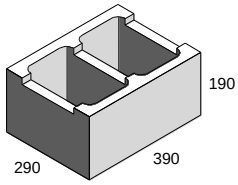
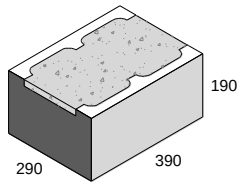
20.01	Dense weight	No		103.0	**90**	Deemed to satisfy AS 3700
20.01	Dense weight	Yes		190.0	**240**	Deemed to satisfy AS 3700
20.121	Dense weight	No		103.0	**90**	Deemed to satisfy AS 3700
20.121	Dense weight	Yes		195.0	**240**	Deemed to satisfy AS 3700
20.48	Betta Block	Yes		190.0	**240**	Deemed to satisfy AS 3700
30.42	Betta Block	No		137.1	**180**	Deemed to satisfy AS 3700
30.42	Betta Block	Yes		290.0	**240**	Deemed to satisfy AS 3700

Table 7 – Fire Insulation FRL performance

Fire Integrity Performance - Non-load Bearing Betta Block Walls

The fire tests undertaken on the Betta Block products showed that for integrity the fire resistance is 241 minutes based on a slenderness of 25, which takes into account the overall thickness of the units and the support conditions of the test. Based on this result, the following charts have been prepared to show the maximum spans of Baines Masonry Betta Block non-load bearing walls for various support conditions for 240 minutes integrity FRL.

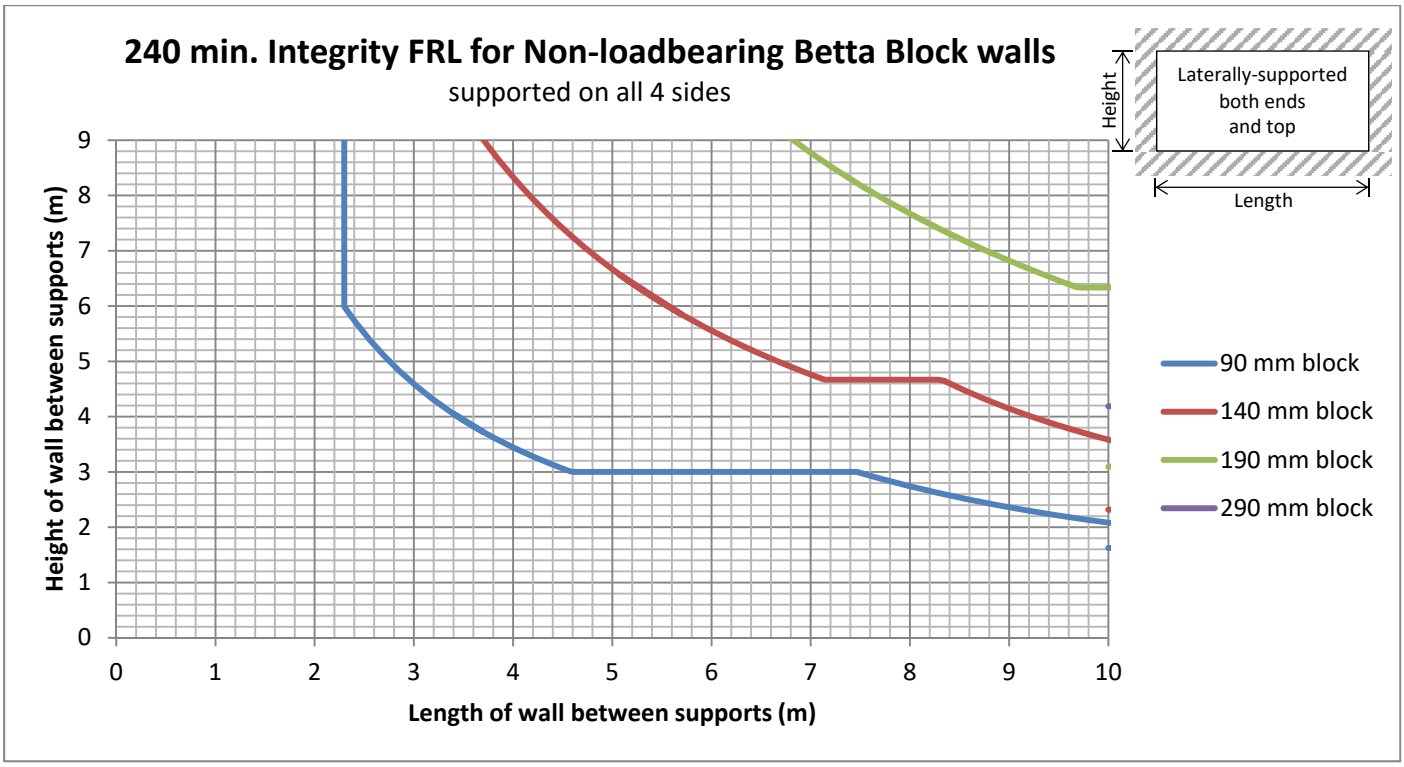


Chart 1 – Betta Block 240 min. Integrity FRL for walls supported on all sides

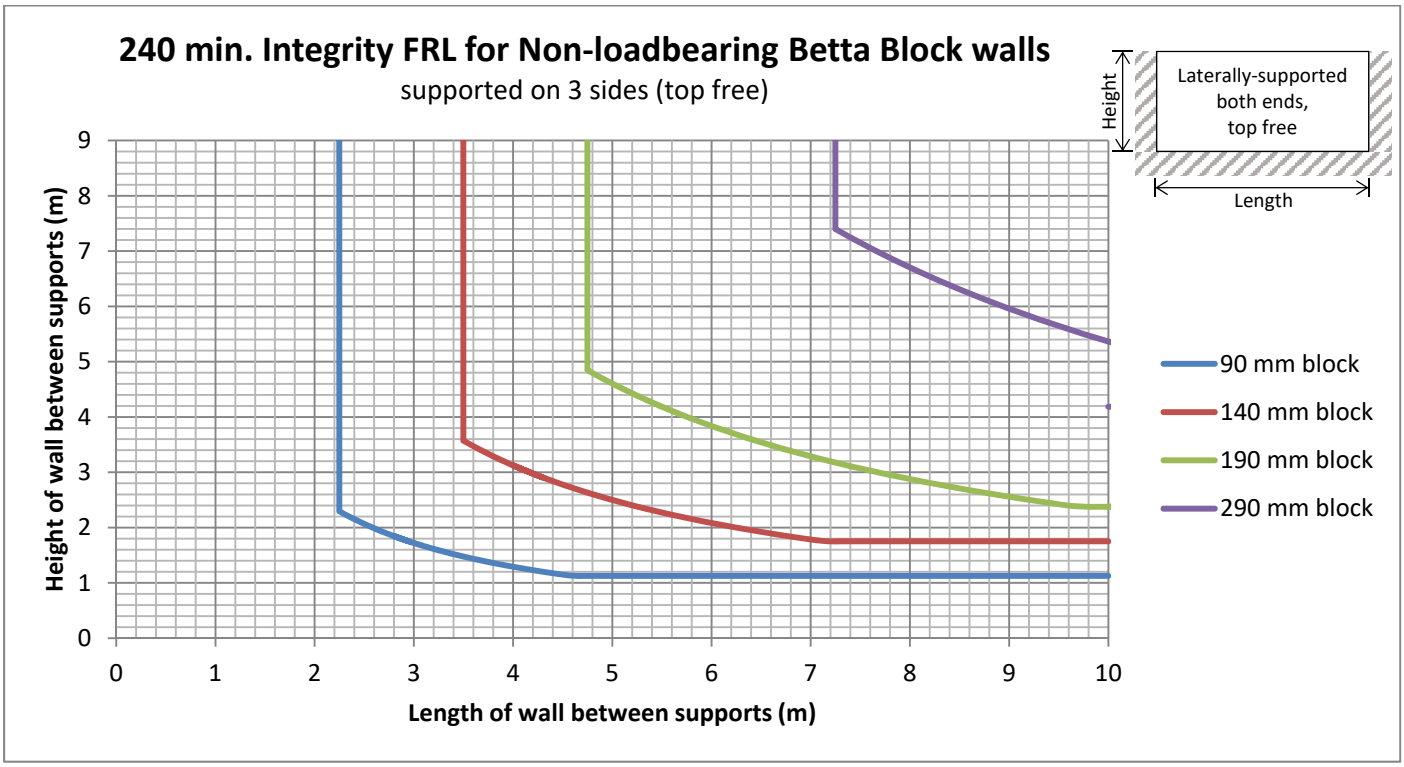


Chart 2 – Betta Block 240 min. Integrity FRL for walls supported on 3 sides (top free)

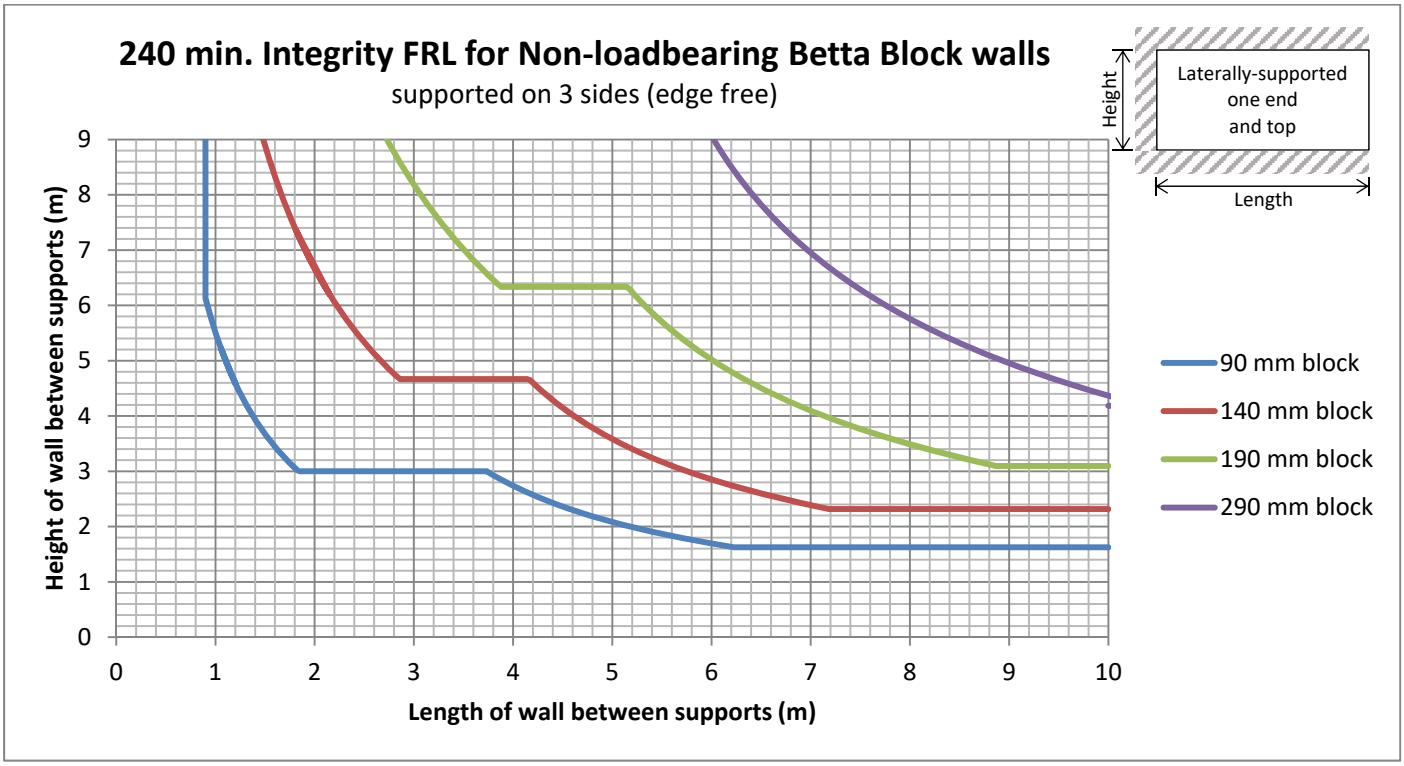


Chart 3 – Betta Block 240 min. Integrity FRL for walls support on 3 sides (edge free)

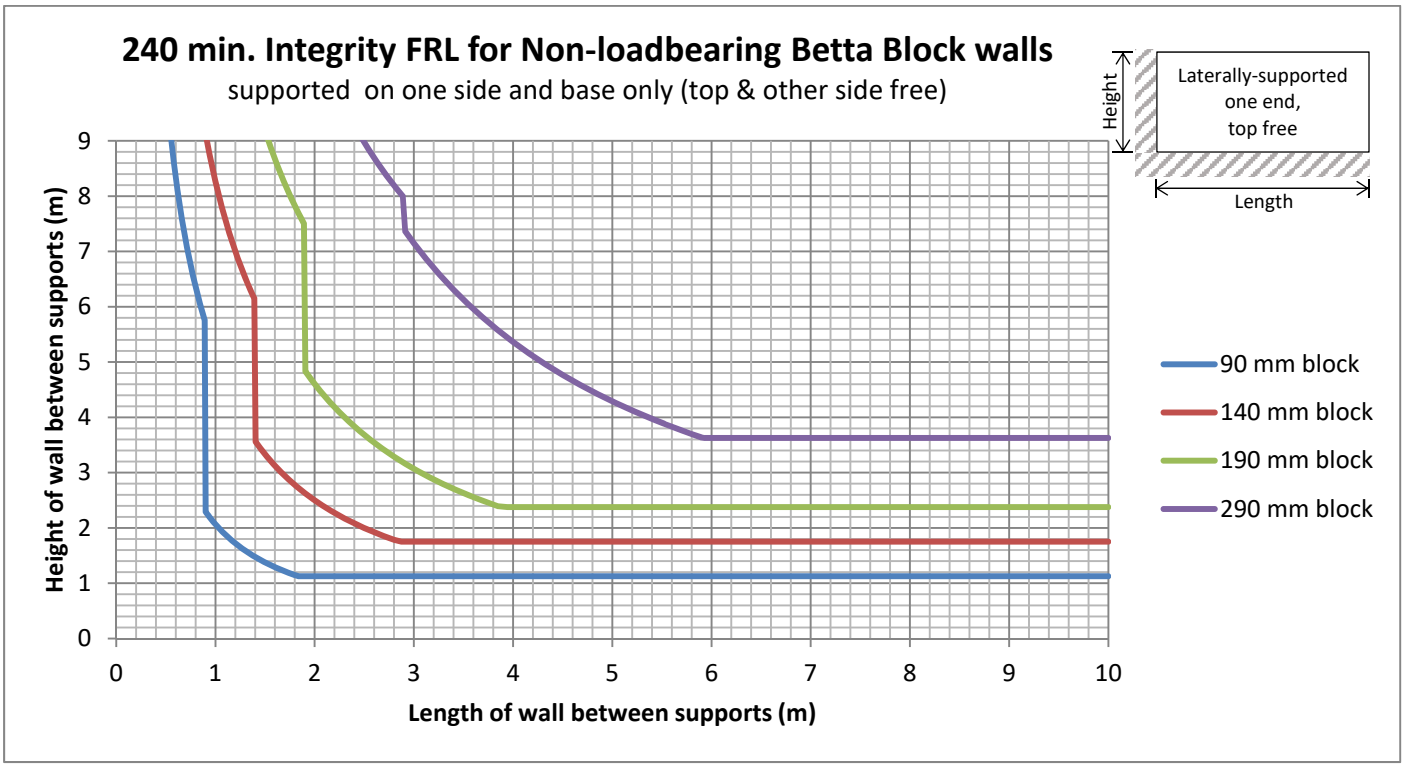


Chart 4 – Betta Block 240 min. Integrity FRL for walls supported on side and base only (top & other side free)

Fire Integrity Performance - Non-load Bearing Dense Weight Walls

The following charts have been calculated using the tabulated value method of AS 3700-2011 to show the maximum spans of Baines Masonry Dense Weight non-load bearing walls for various fire integrity FRL's and support conditions.

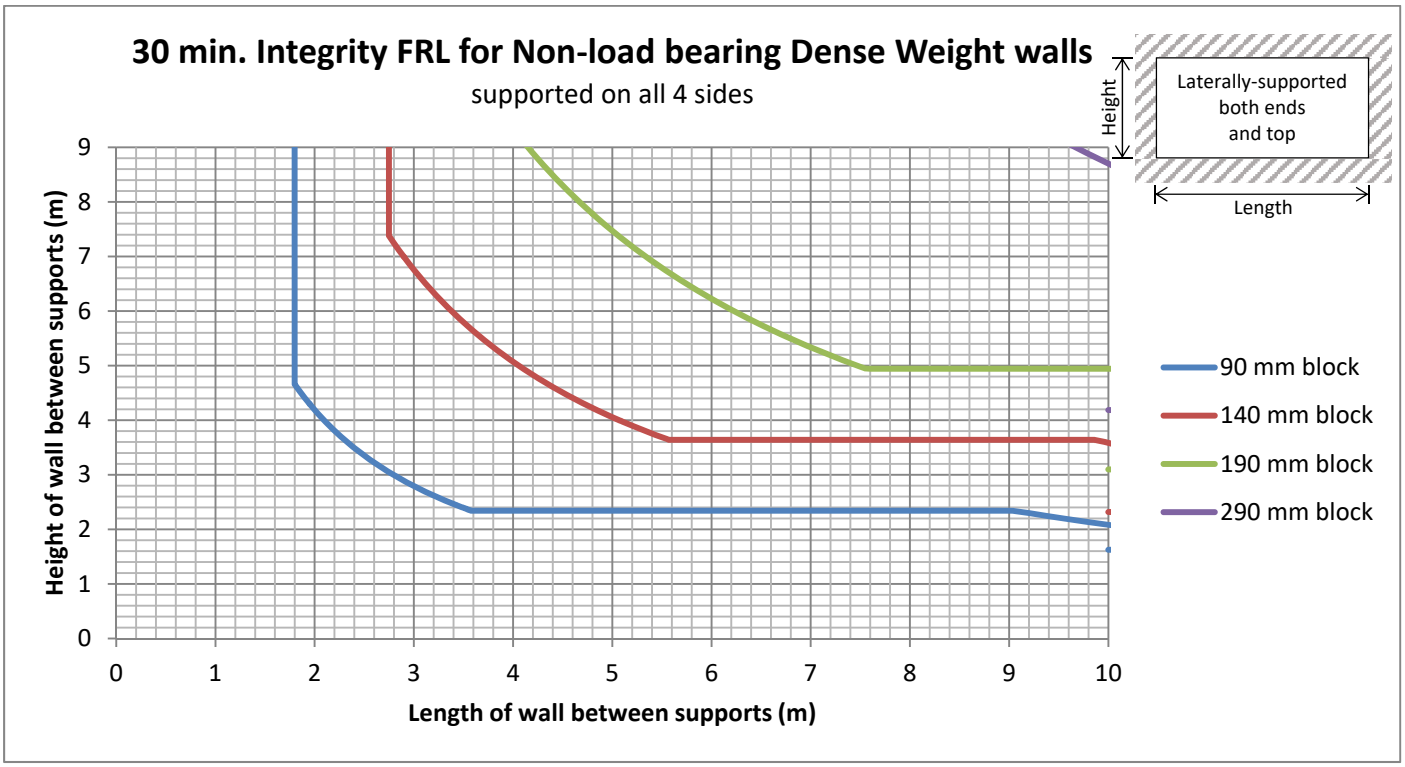


Chart 5 – Dense Weight 30 min. Integrity FRL for walls supported on all sides

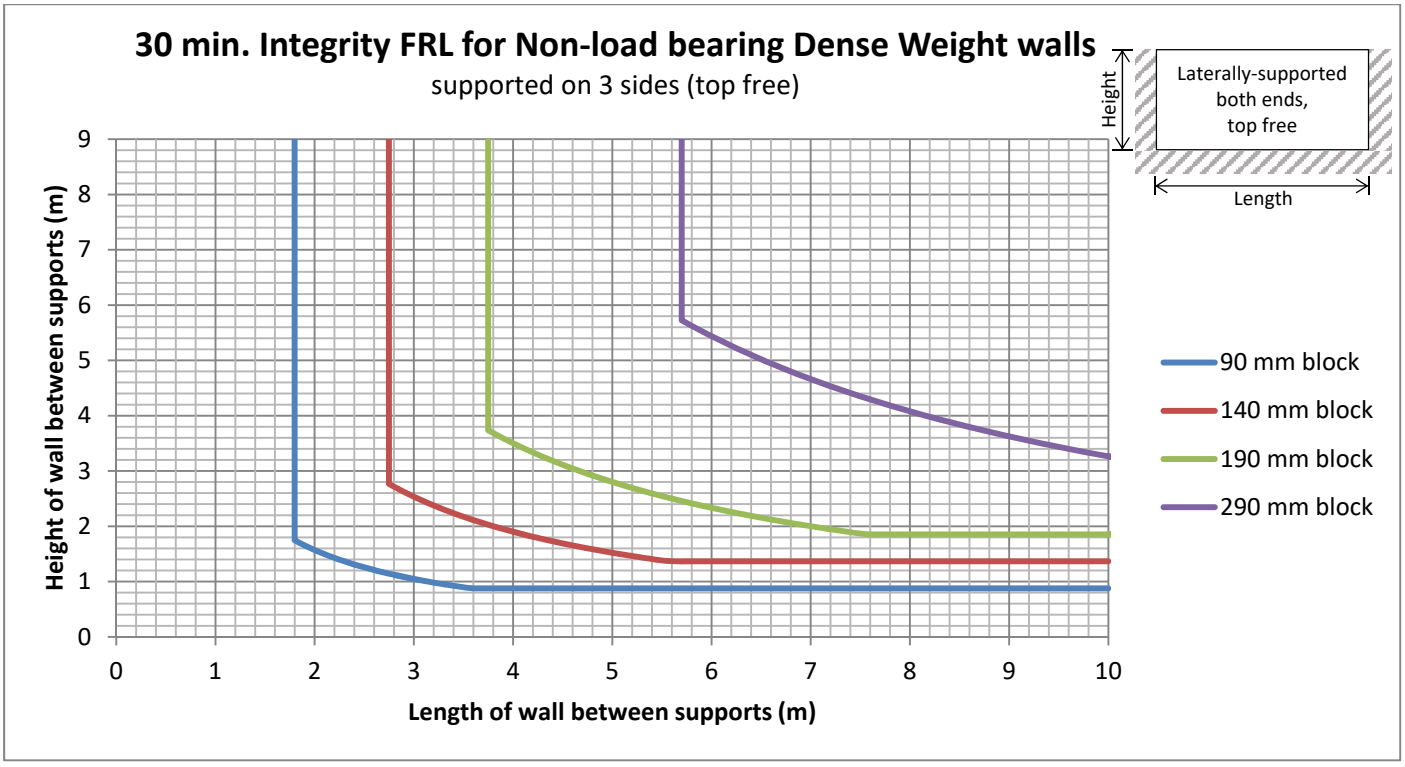


Chart 6 – Dense Weight 30 min. Integrity FRL for walls supported on 3 sides (top free)

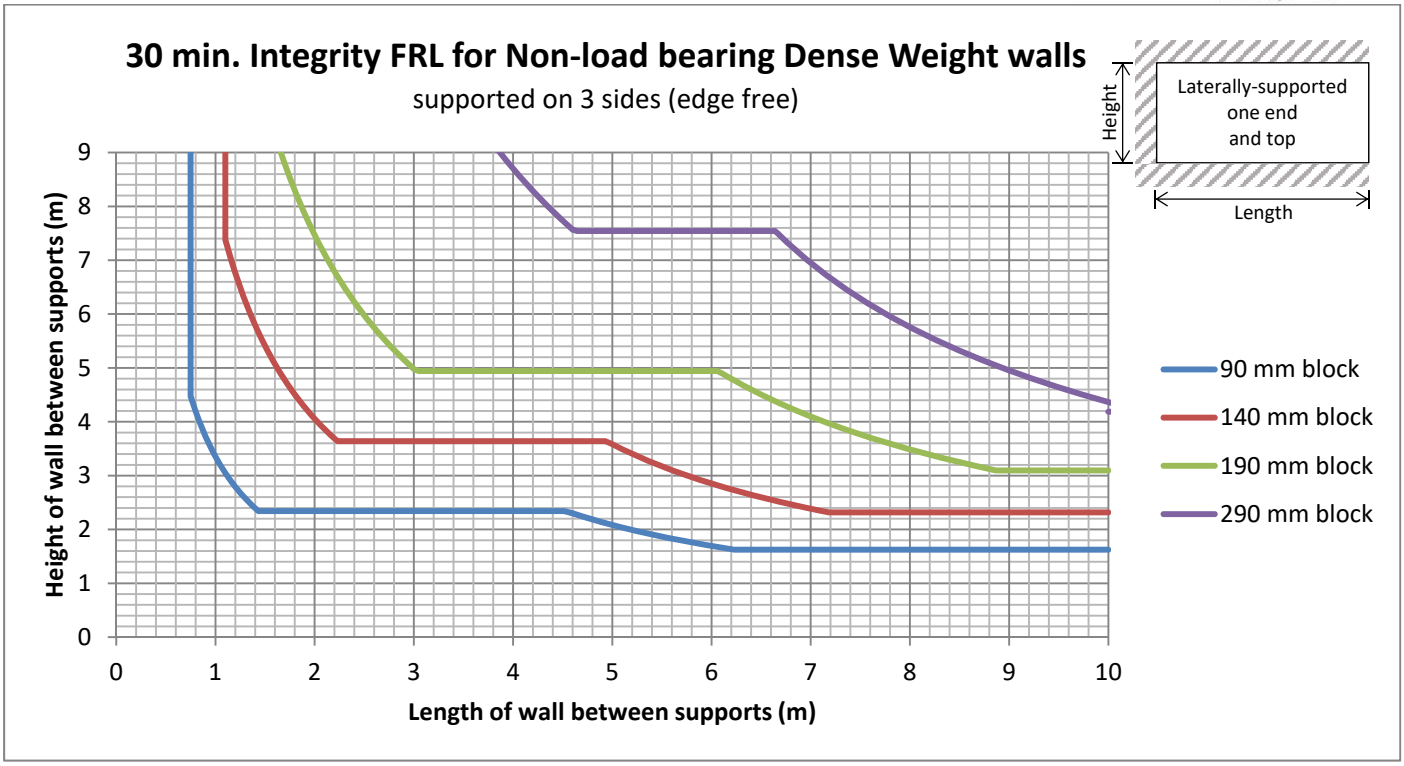


Chart 7 – Dense Weight 30 min. Integrity FRL for walls support on 3 sides (edge free)

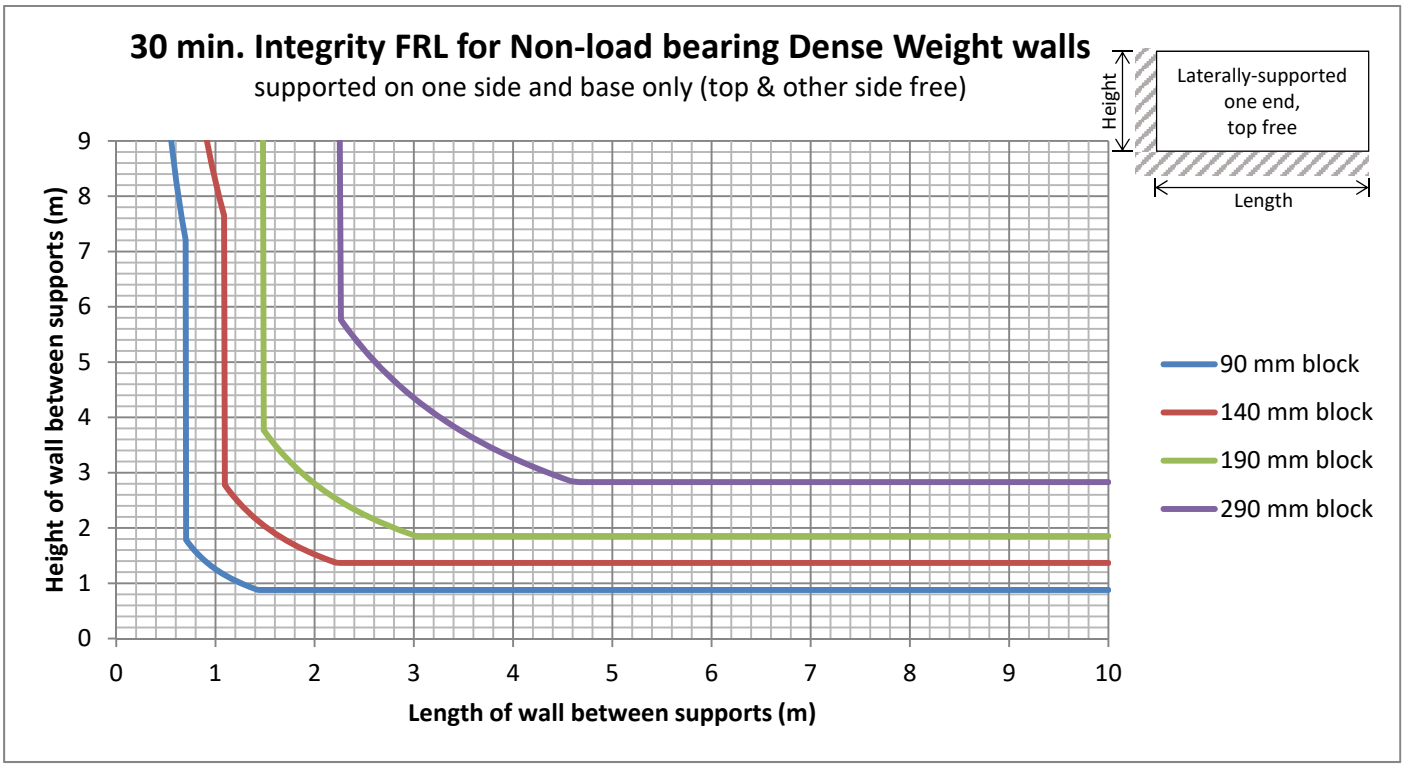


Chart 8 – Dense Weight 30 min. Integrity FRL for walls supported on side and base only (top & other side free)

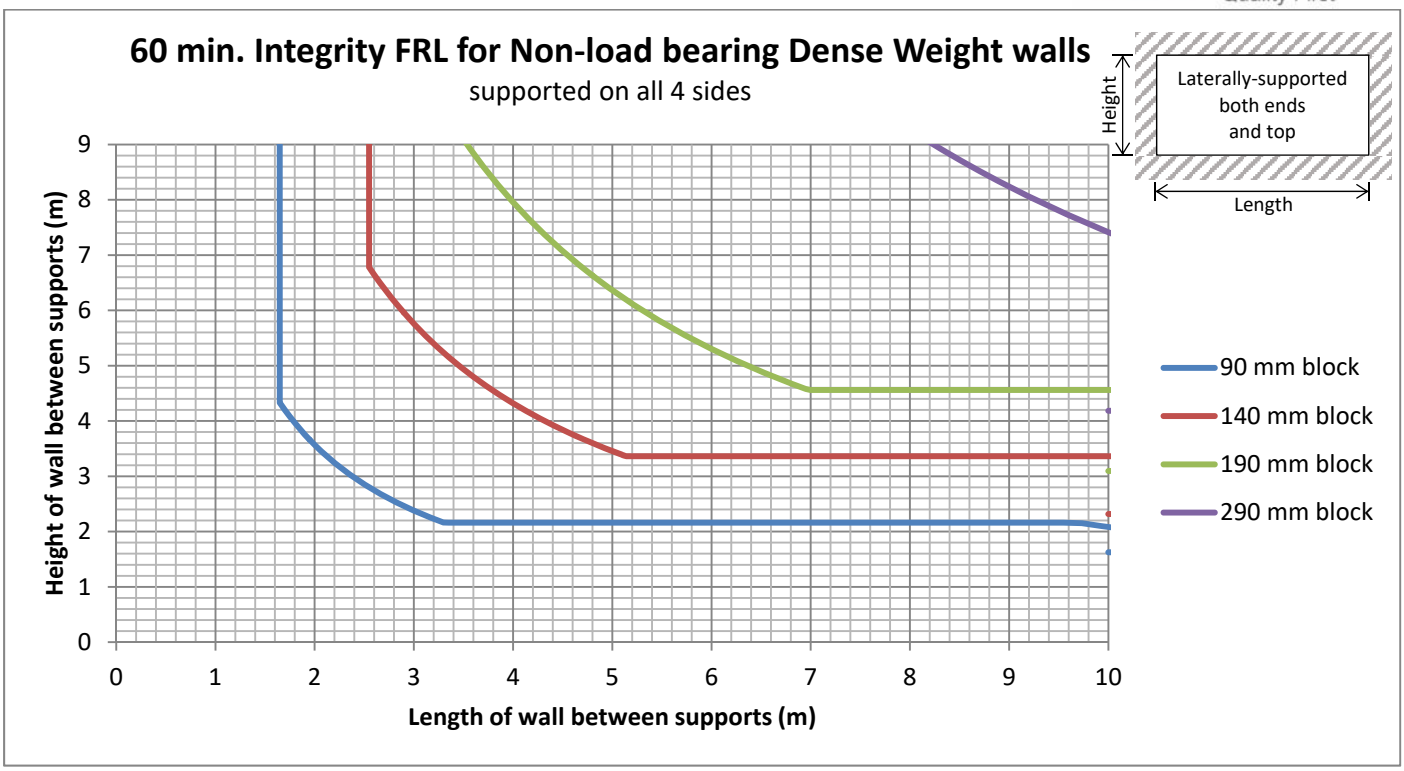


Chart 9 – Dense Weight 60 min. Integrity FRL for walls supported on all sides

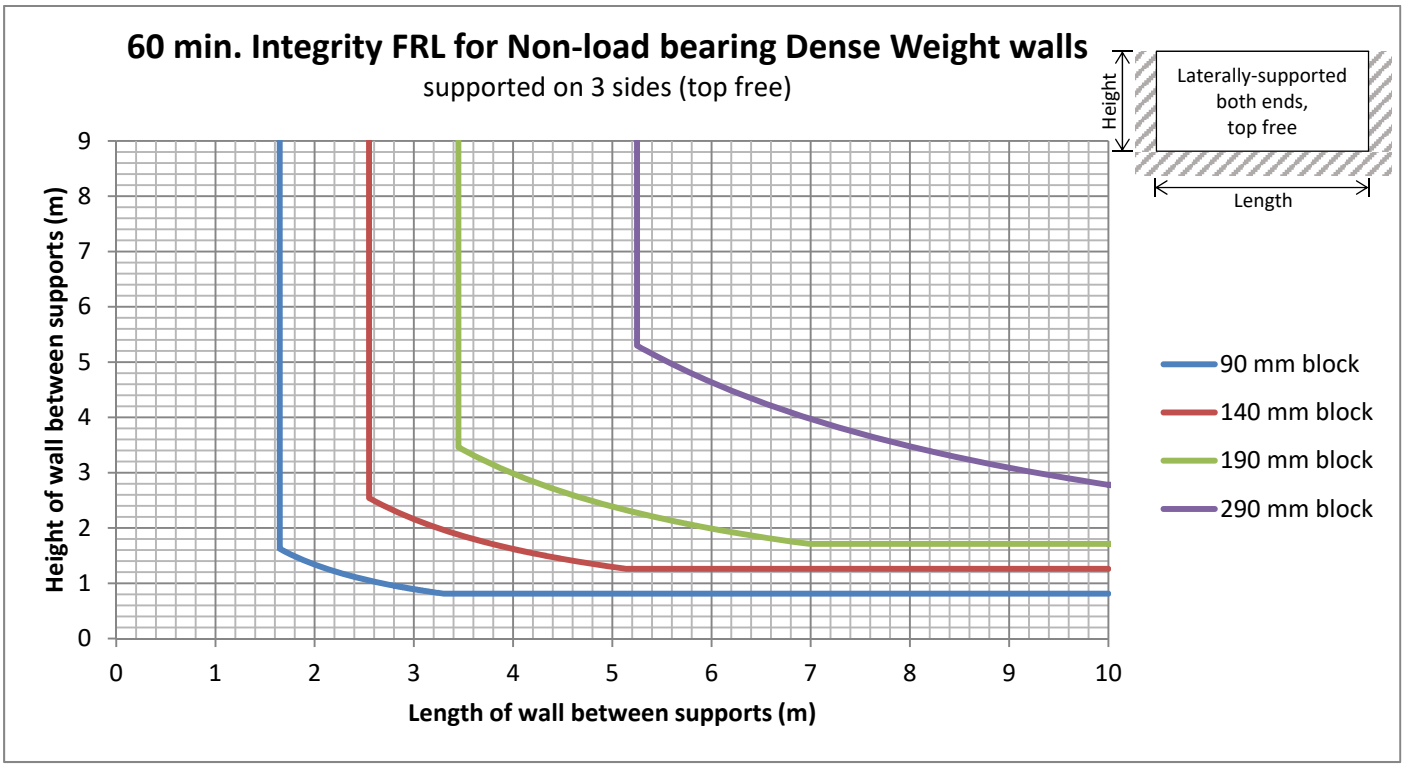


Chart 10 – Dense Weight 60 min. Integrity FRL for walls supported on 3 sides (top free)

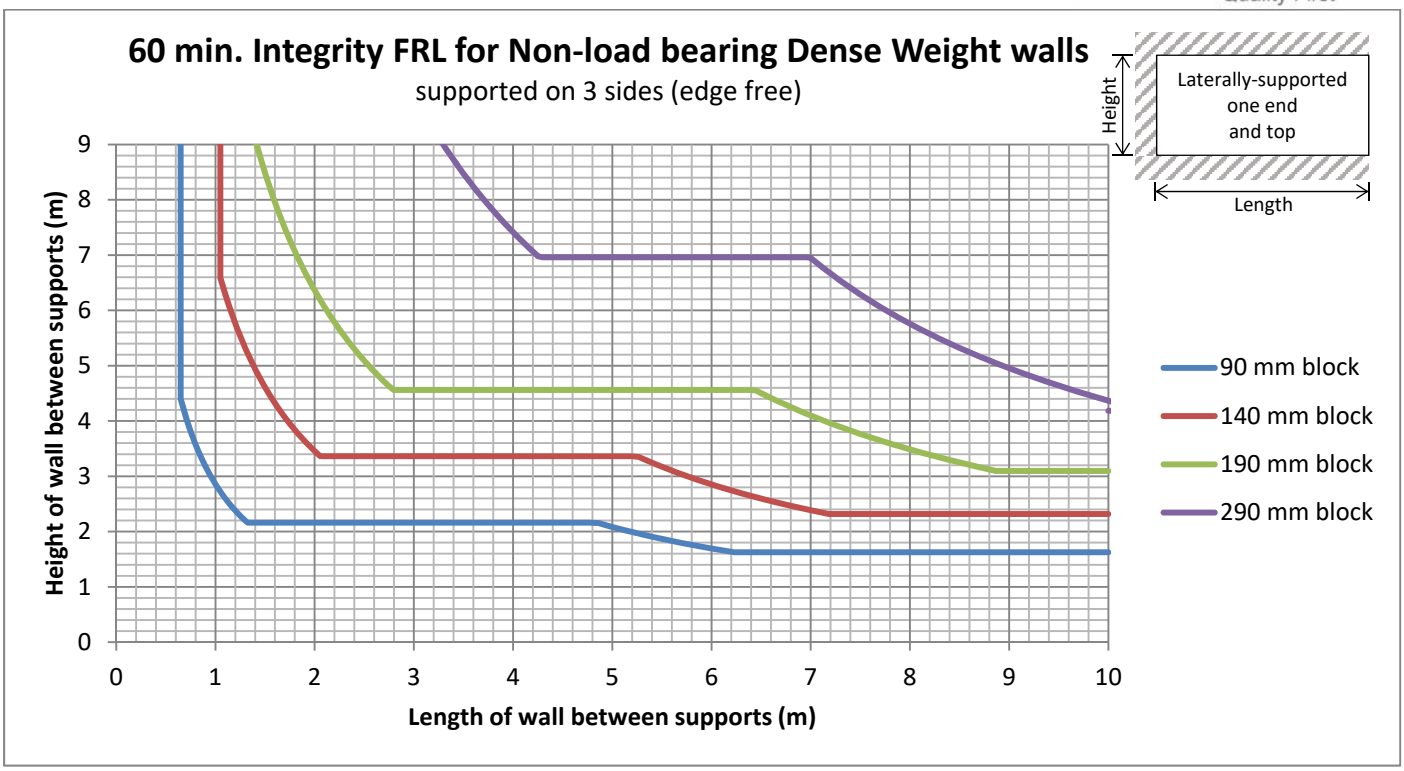


Chart 11 – Dense Weight 60 min. Integrity FRL for walls support on 3 sides (edge free)

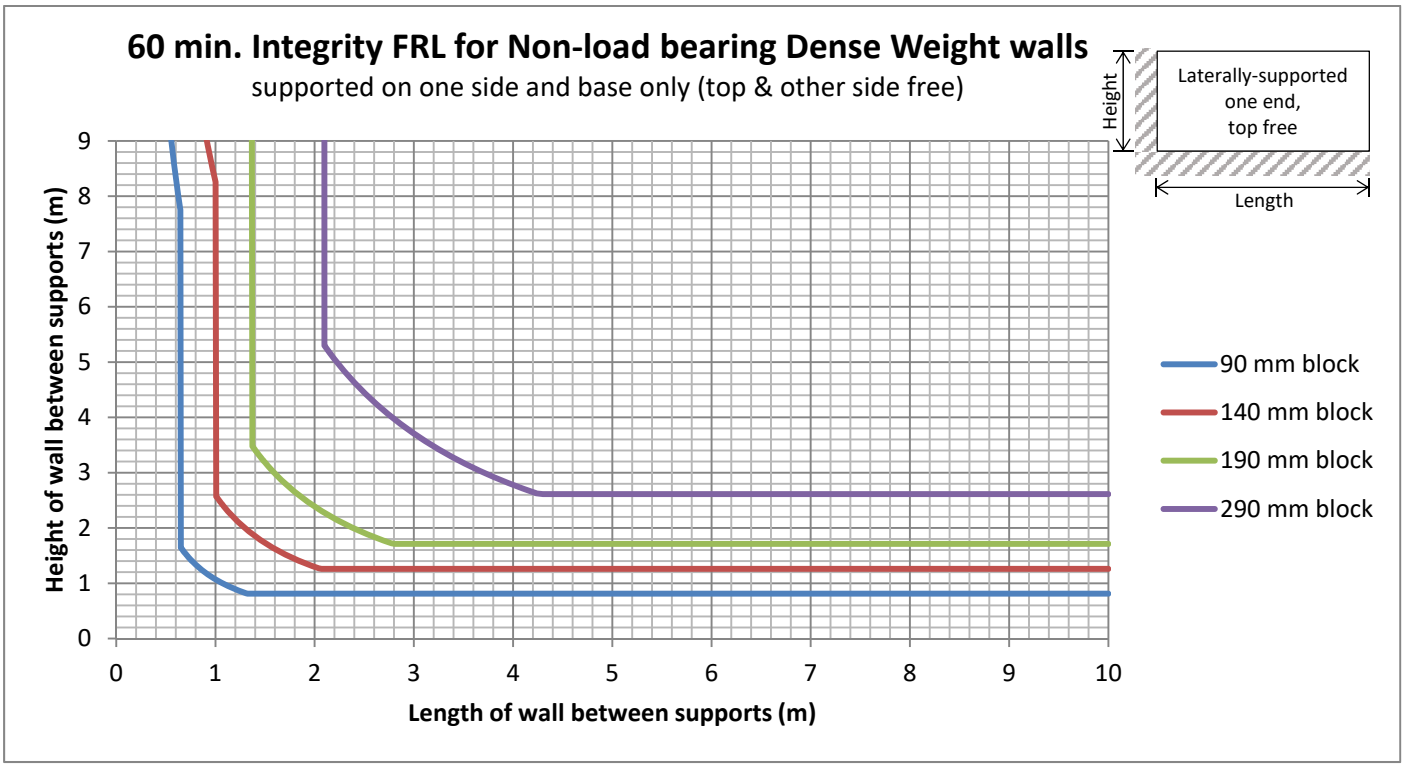


Chart 12 – Dense Weight 60 min. Integrity FRL for walls supported on side and base only (top & other side free)

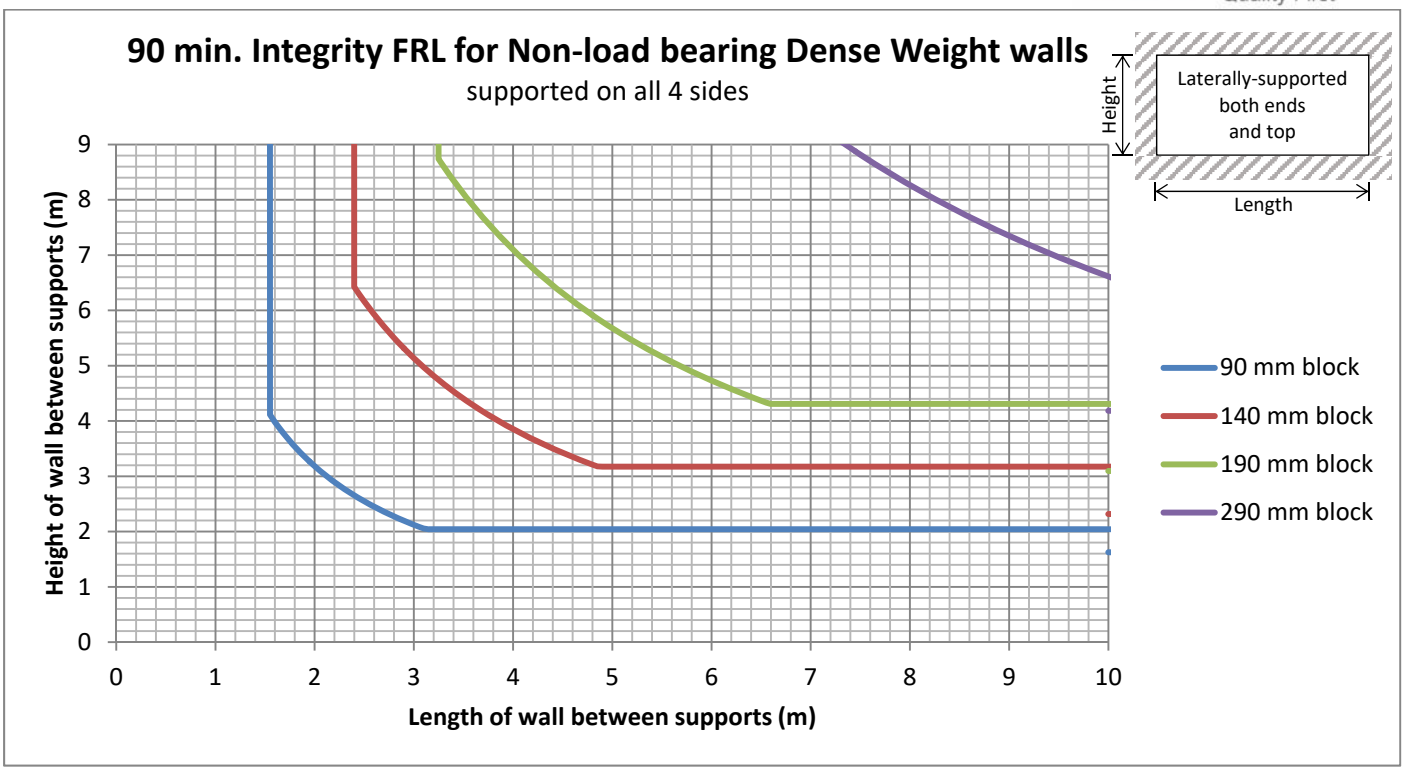


Chart 13 – Dense Weight 90 min. Integrity FRL for walls supported on all sides

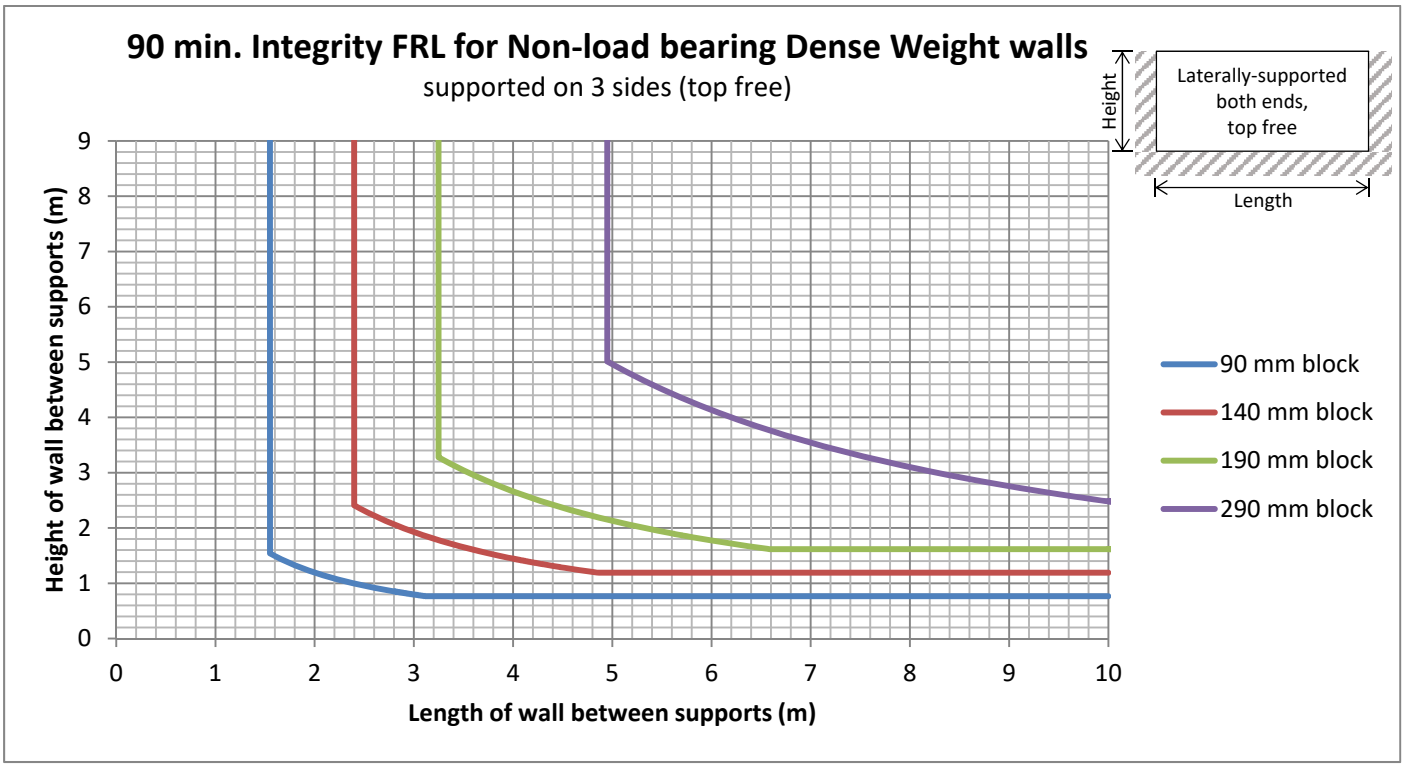


Chart 14 – Dense Weight 90 min. Integrity FRL for walls supported on 3 sides (top free)

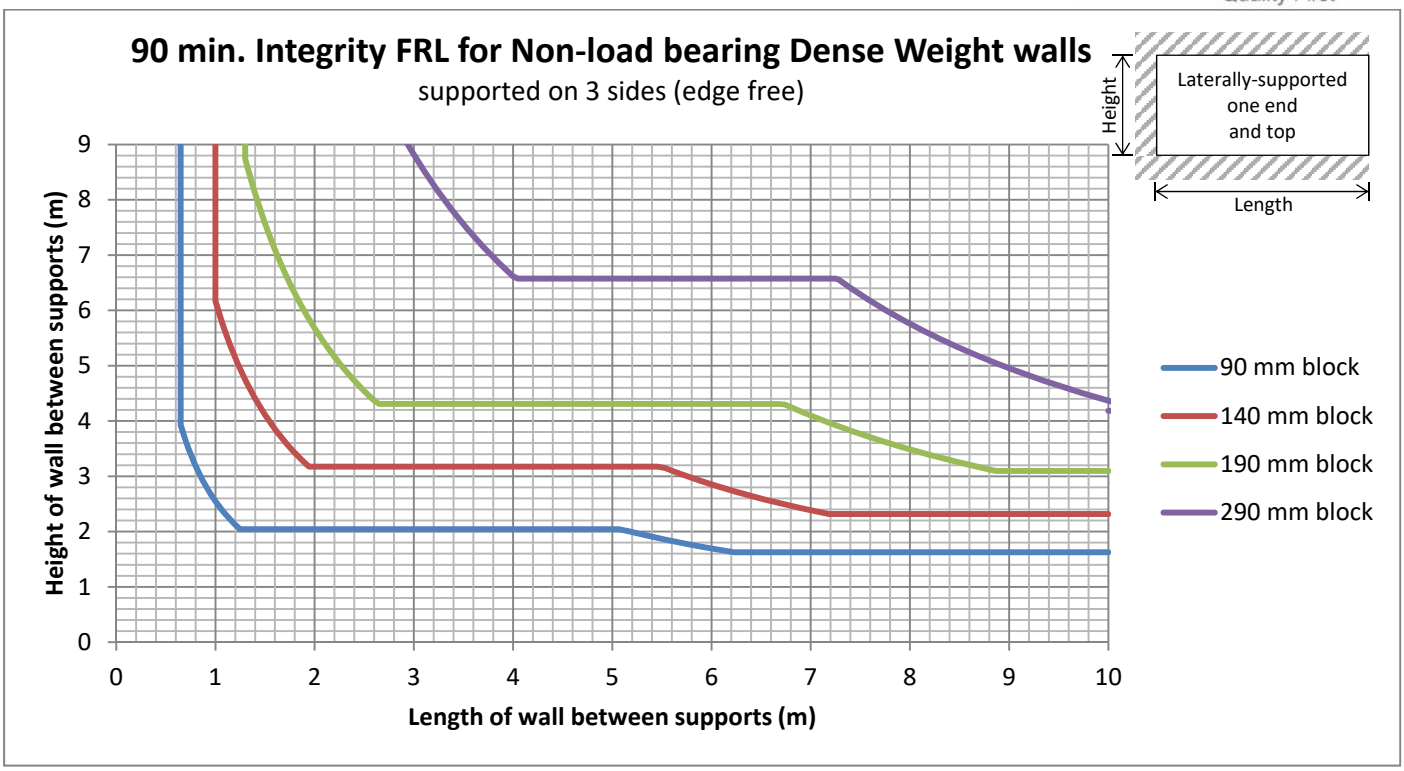


Chart 15 – Dense Weight 90 min. Integrity FRL for walls support on 3 sides (edge free)

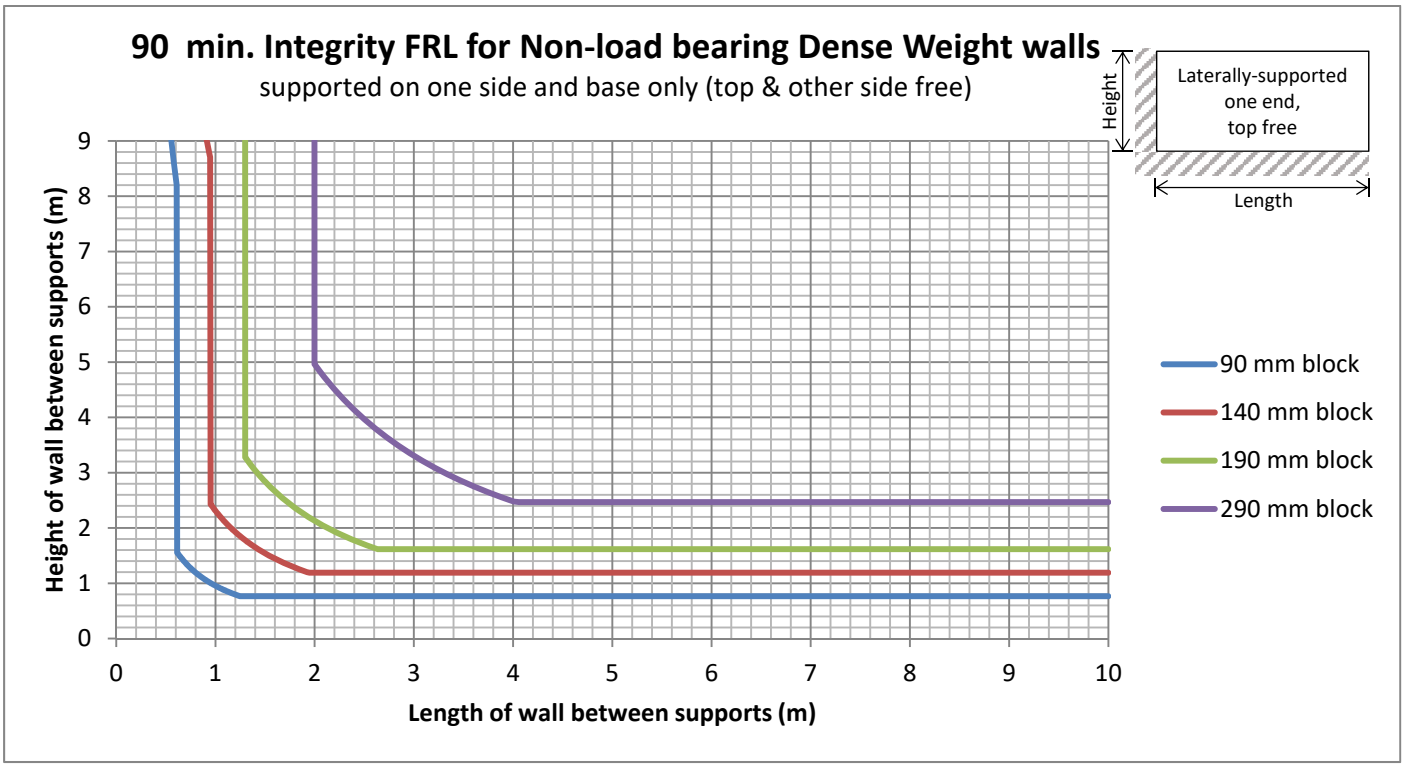


Chart 16 – Dense Weight 90 min. Integrity FRL for walls supported on side and base only (top & other side free)

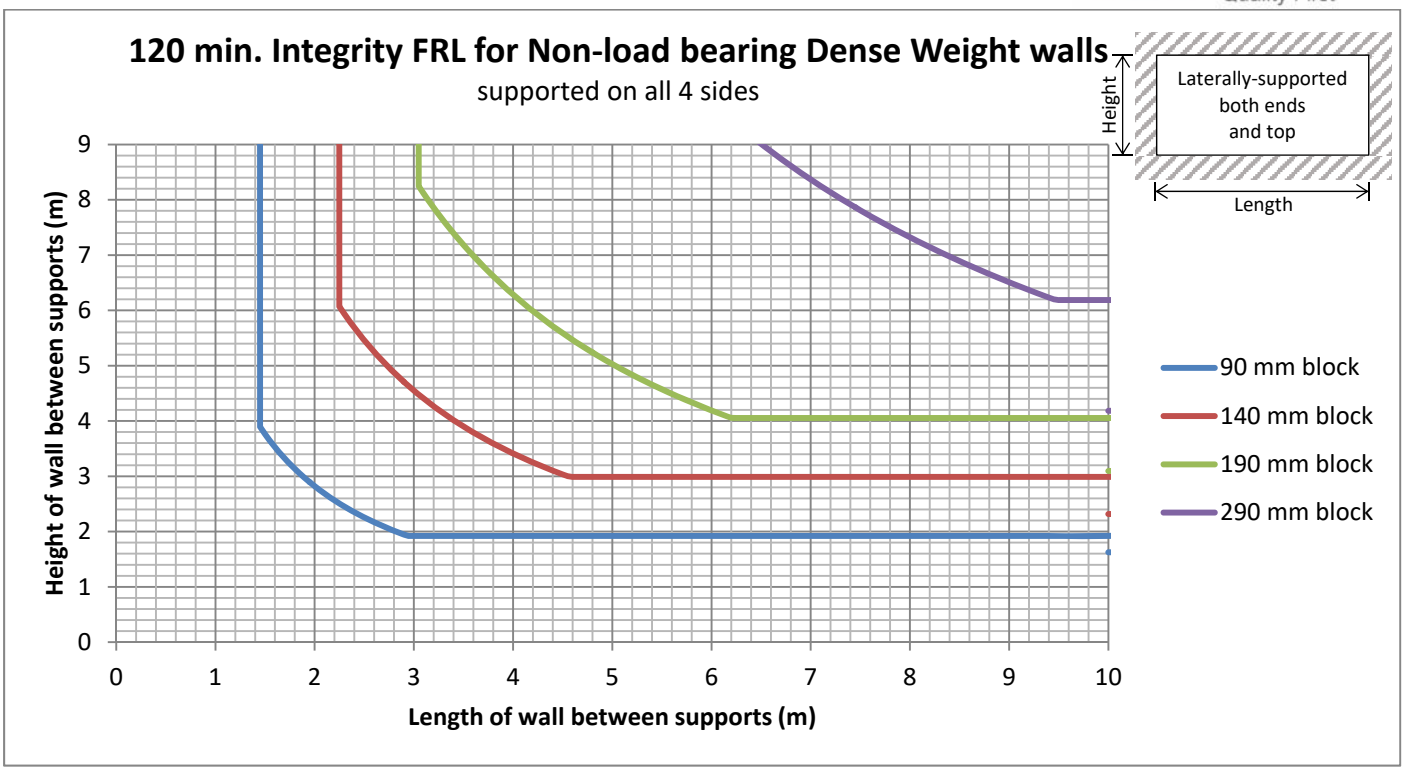


Chart 17 – Dense Weight 120 min. Integrity FRL for walls supported on all sides

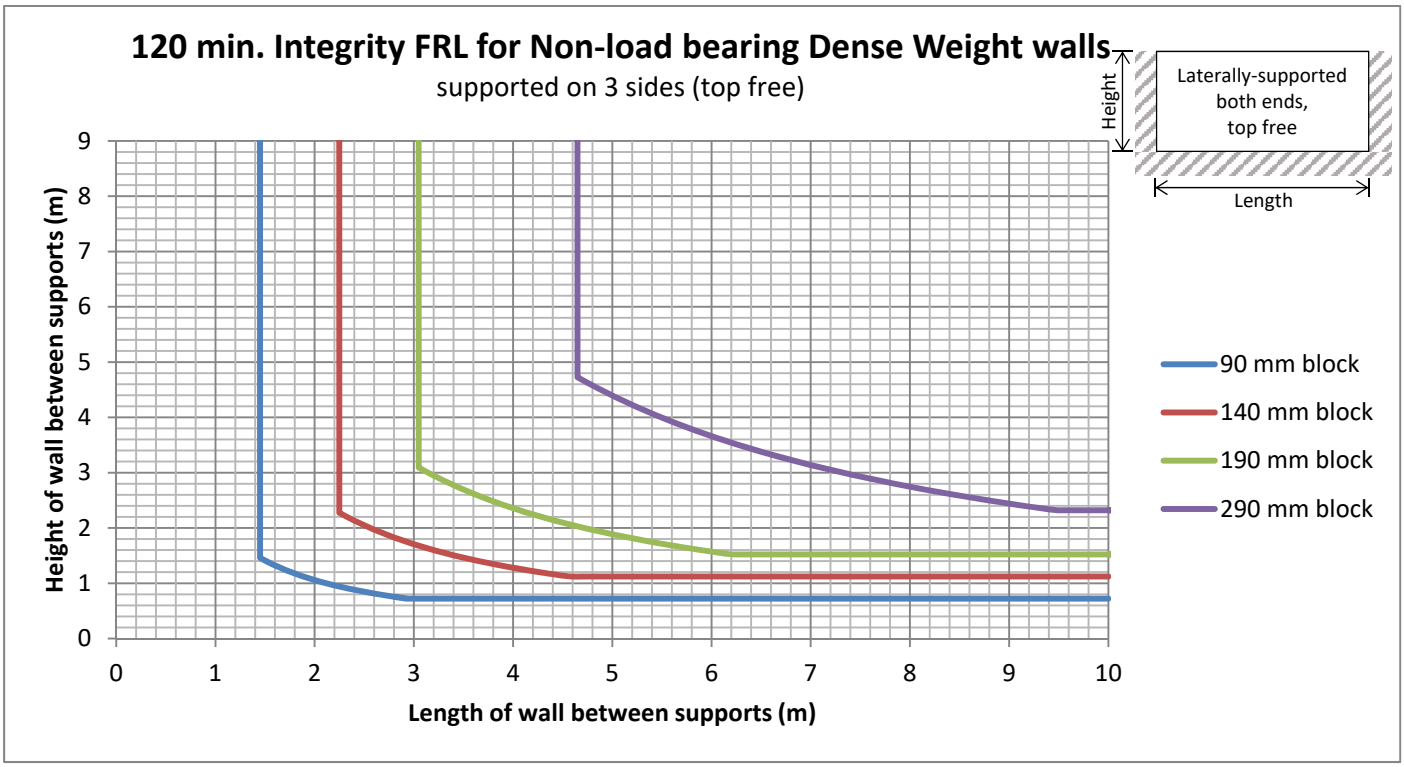


Chart 18 – Dense Weight 120 min. Integrity FRL for walls supported on 3 sides (top free)

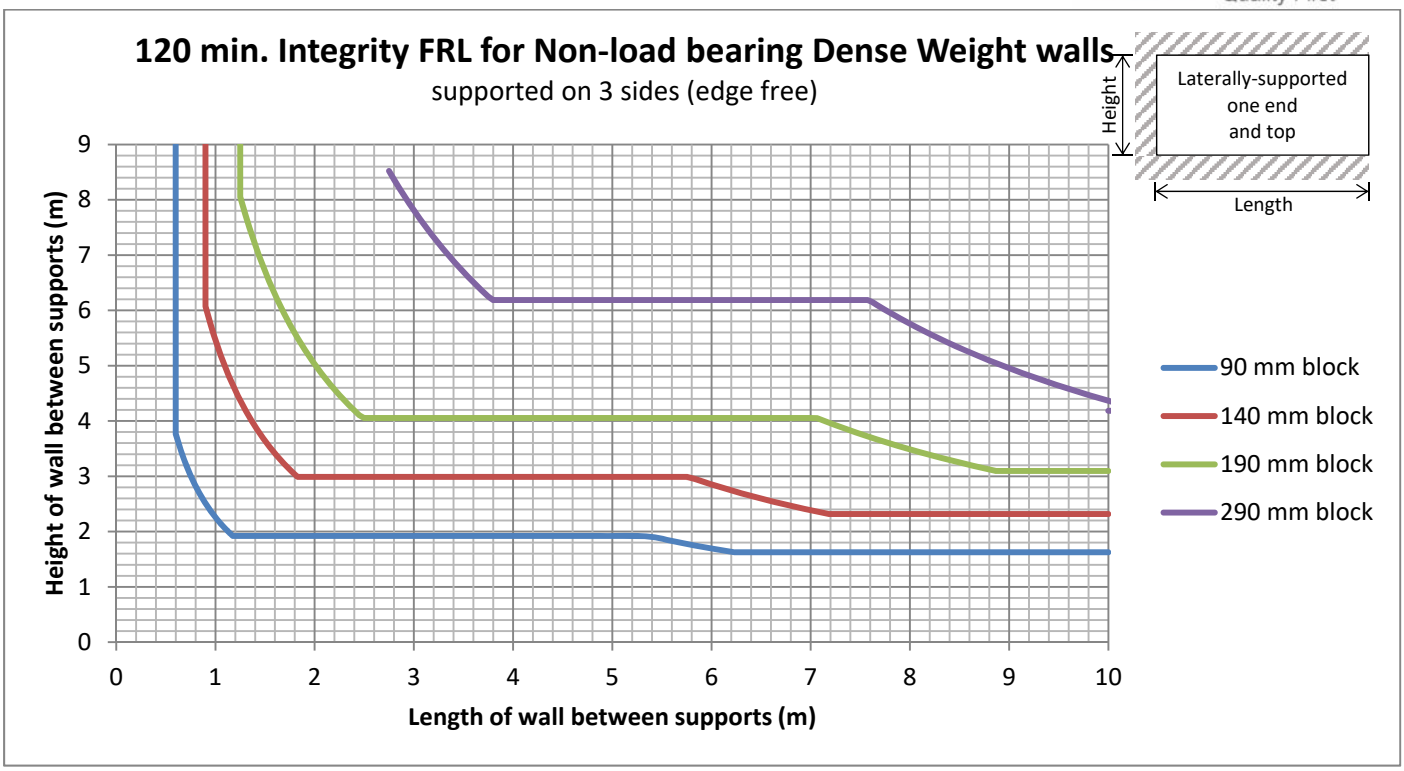


Chart 19 – Dense Weight 120 min. Integrity FRL for walls support on 3 sides (edge free)

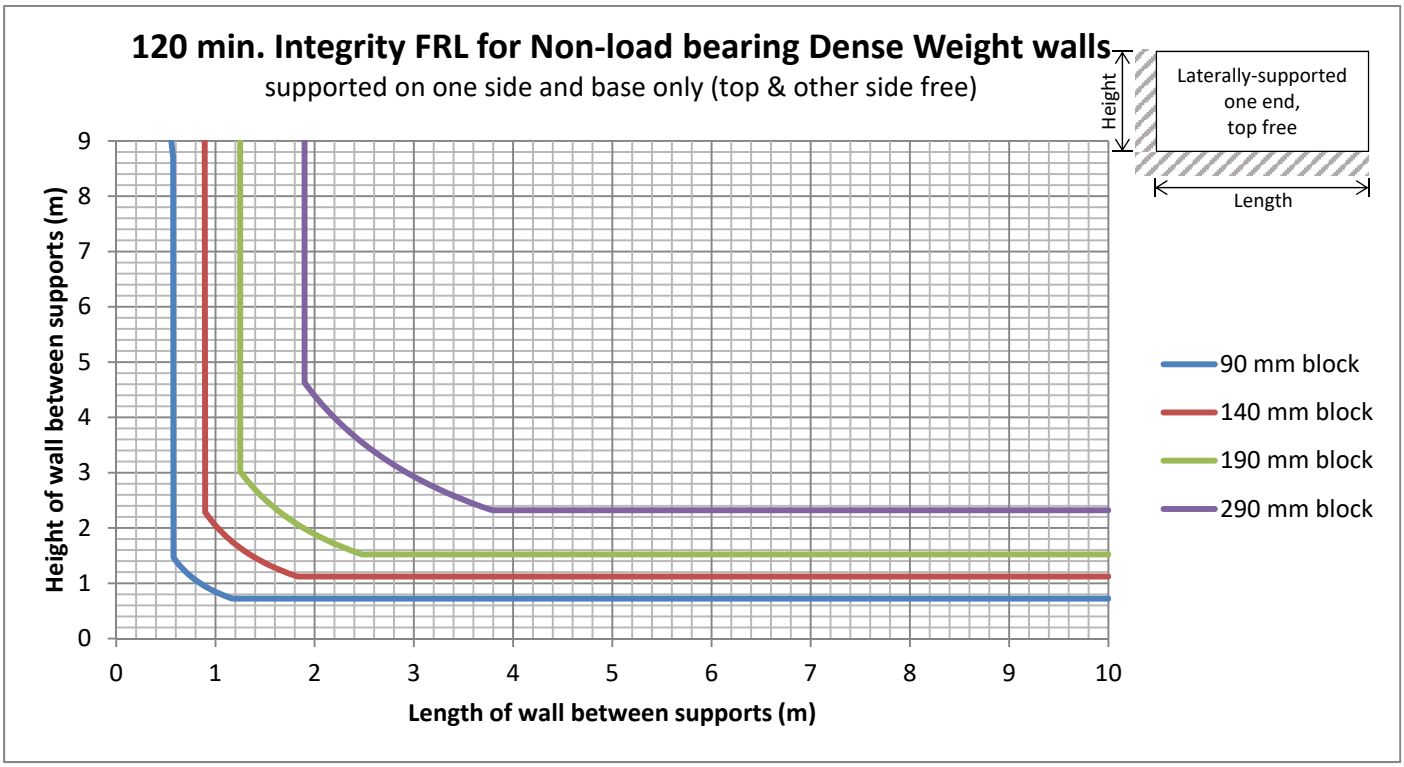


Chart 20 – Dense Weight 120 min. Integrity FRL for walls supported on side and base only (top & other side free)

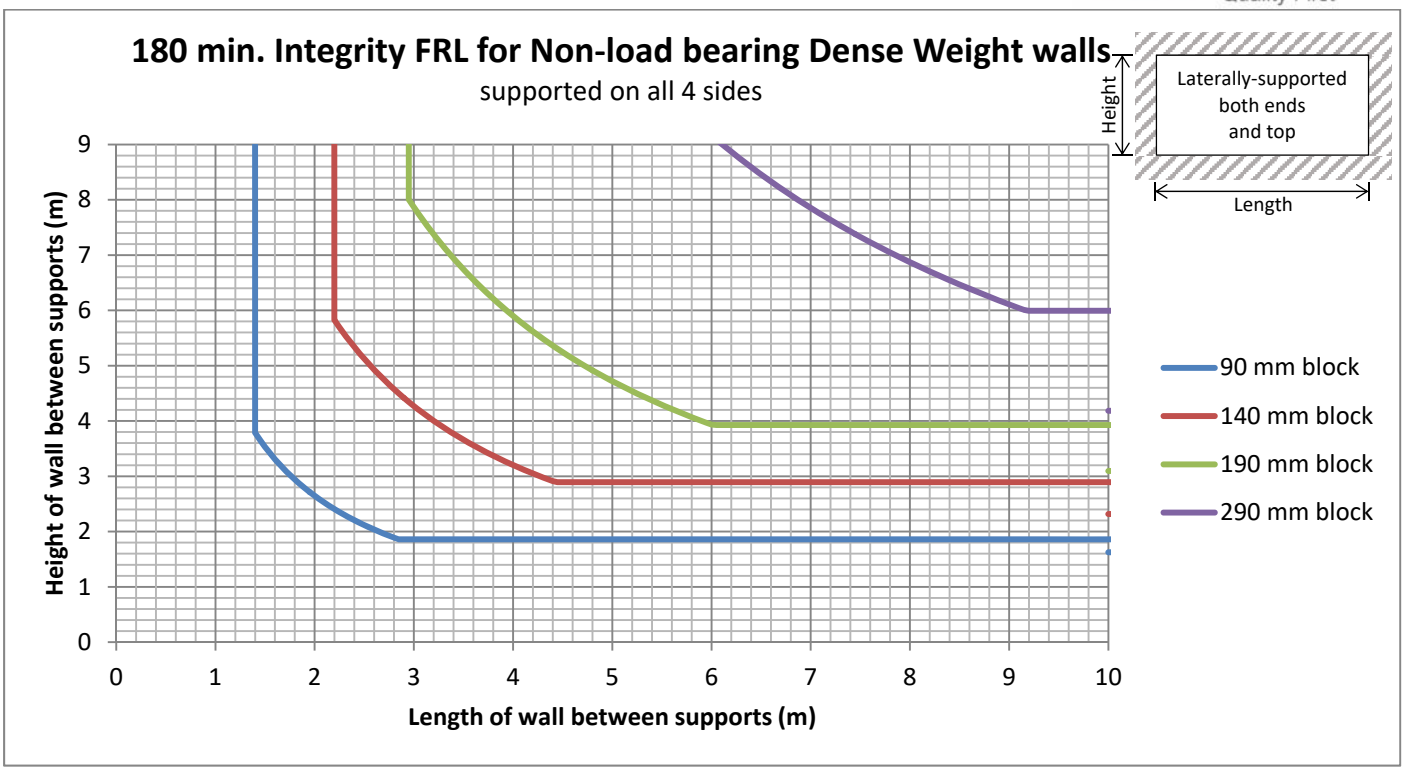


Chart 21 – Dense Weight 180 min. Integrity FRL for walls supported on all sides

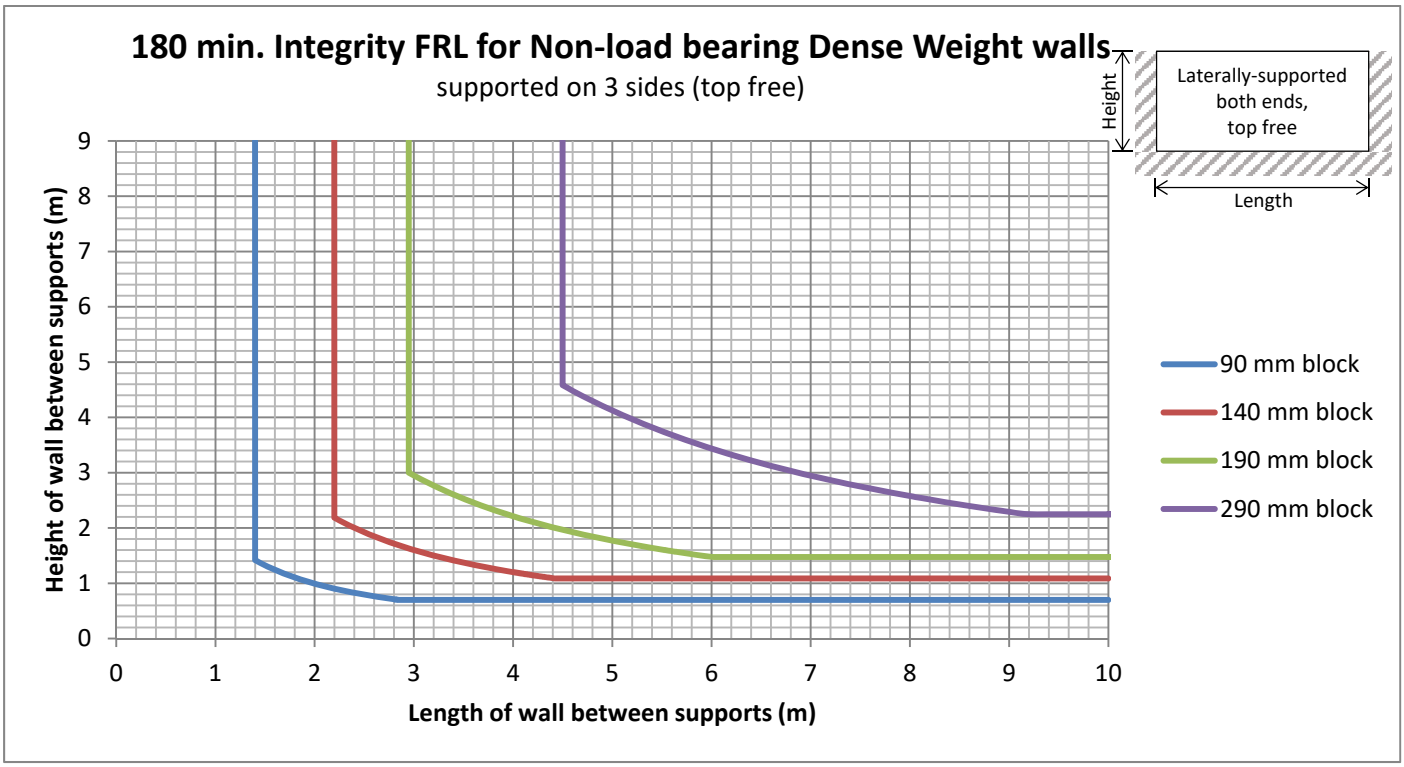


Chart 22 – Dense Weight 1800 min. Integrity FRL for walls supported on 3 sides (top free)

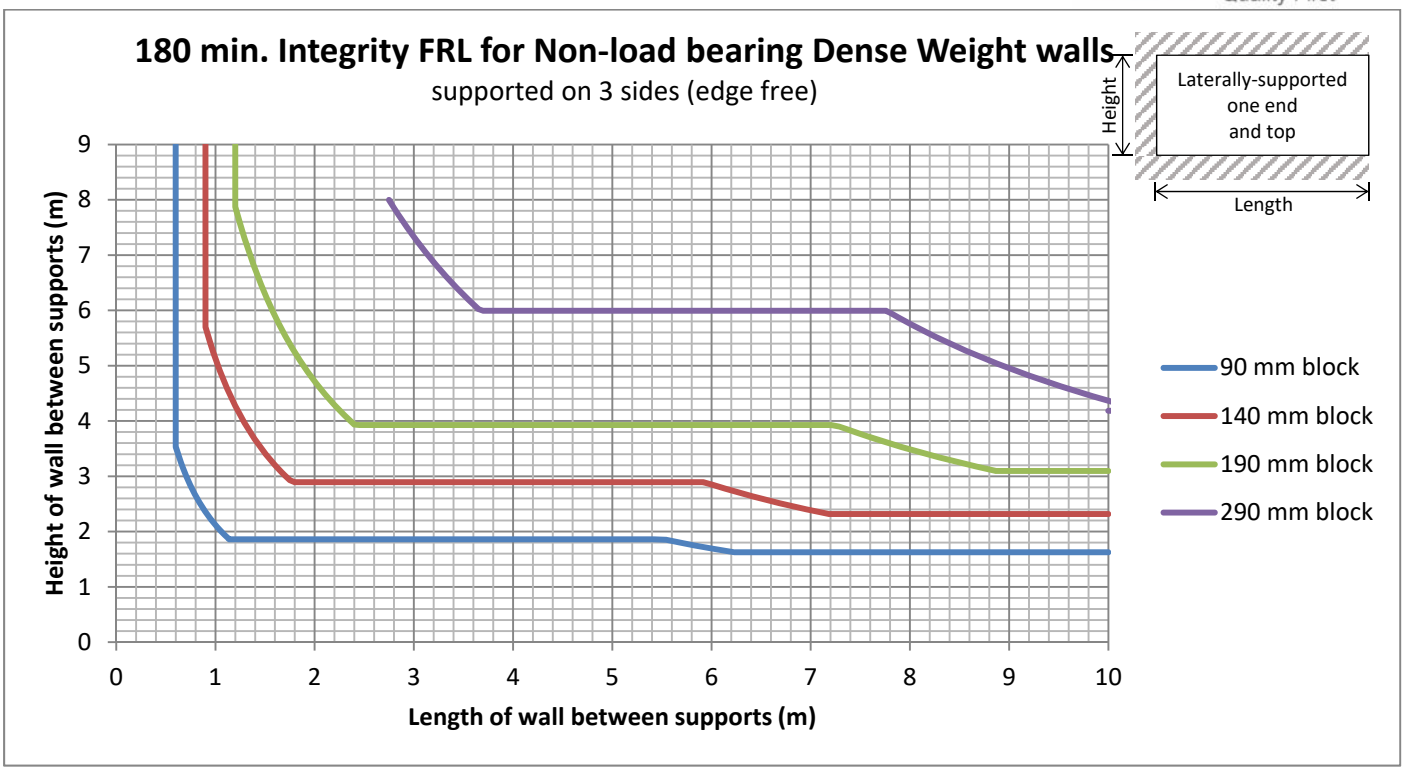


Chart 23 – Dense Weight 180 min. Integrity FRL for walls support on 3 sides (edge free)

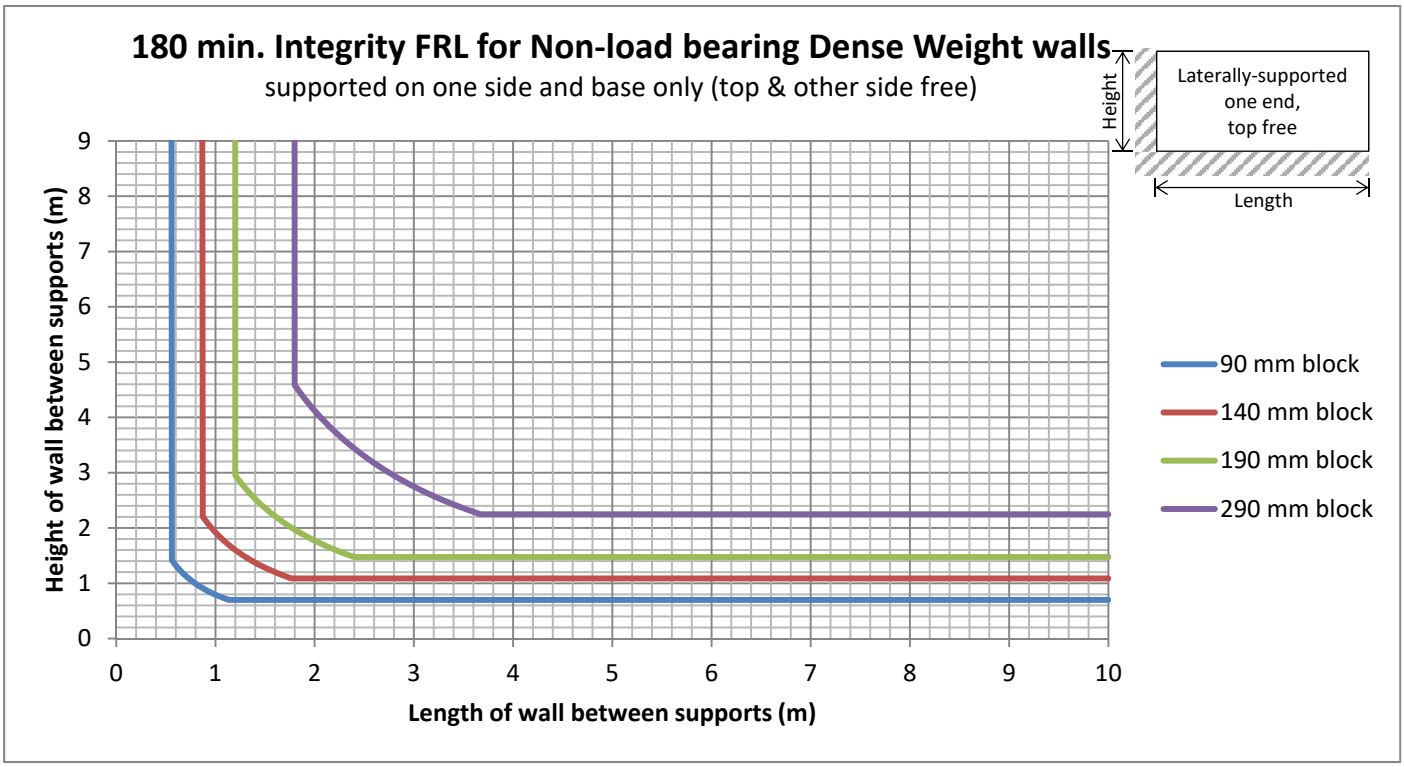


Chart 24 – Dense Weight 180 min. Integrity FRL for walls supported on side and base only (top & other side free)

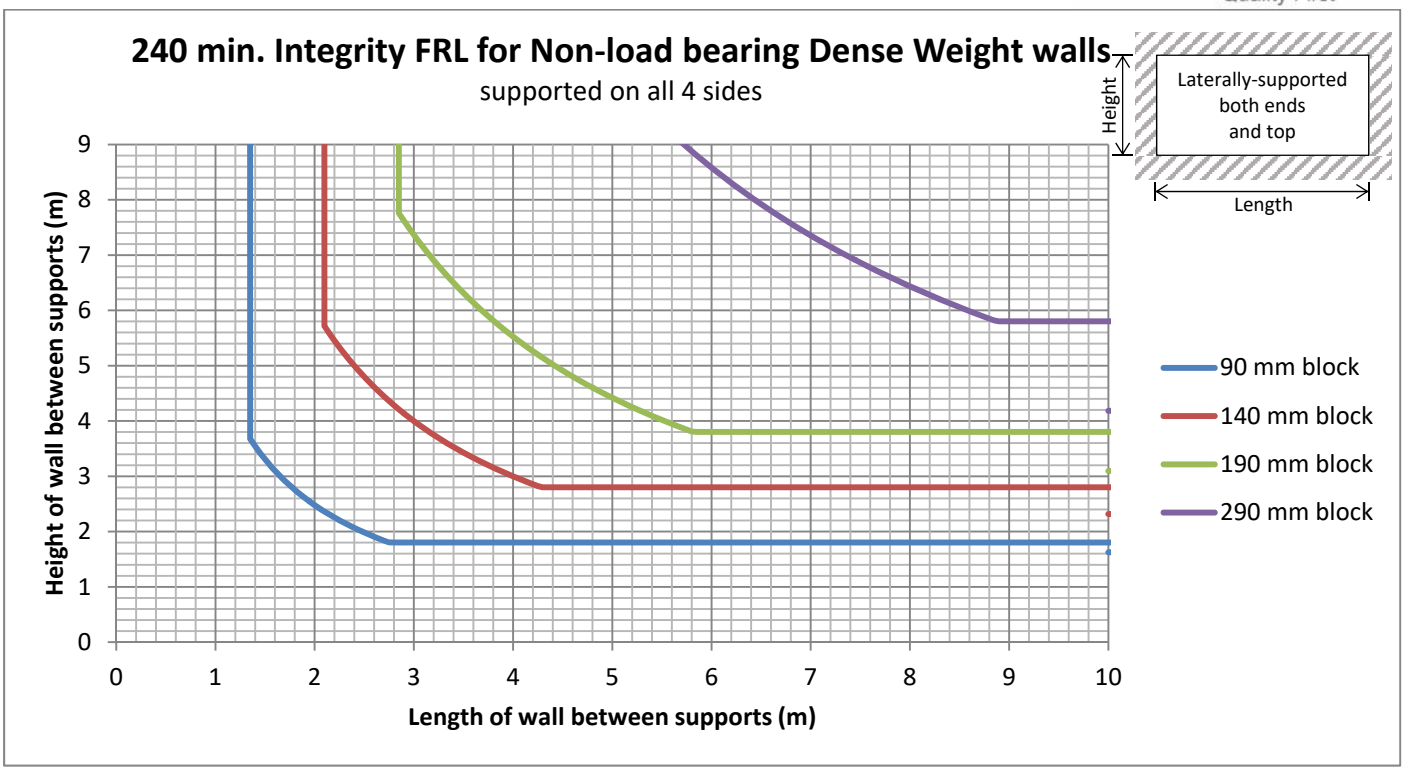


Chart 25 – Dense Weight 240 min. Integrity FRL for walls supported on all sides

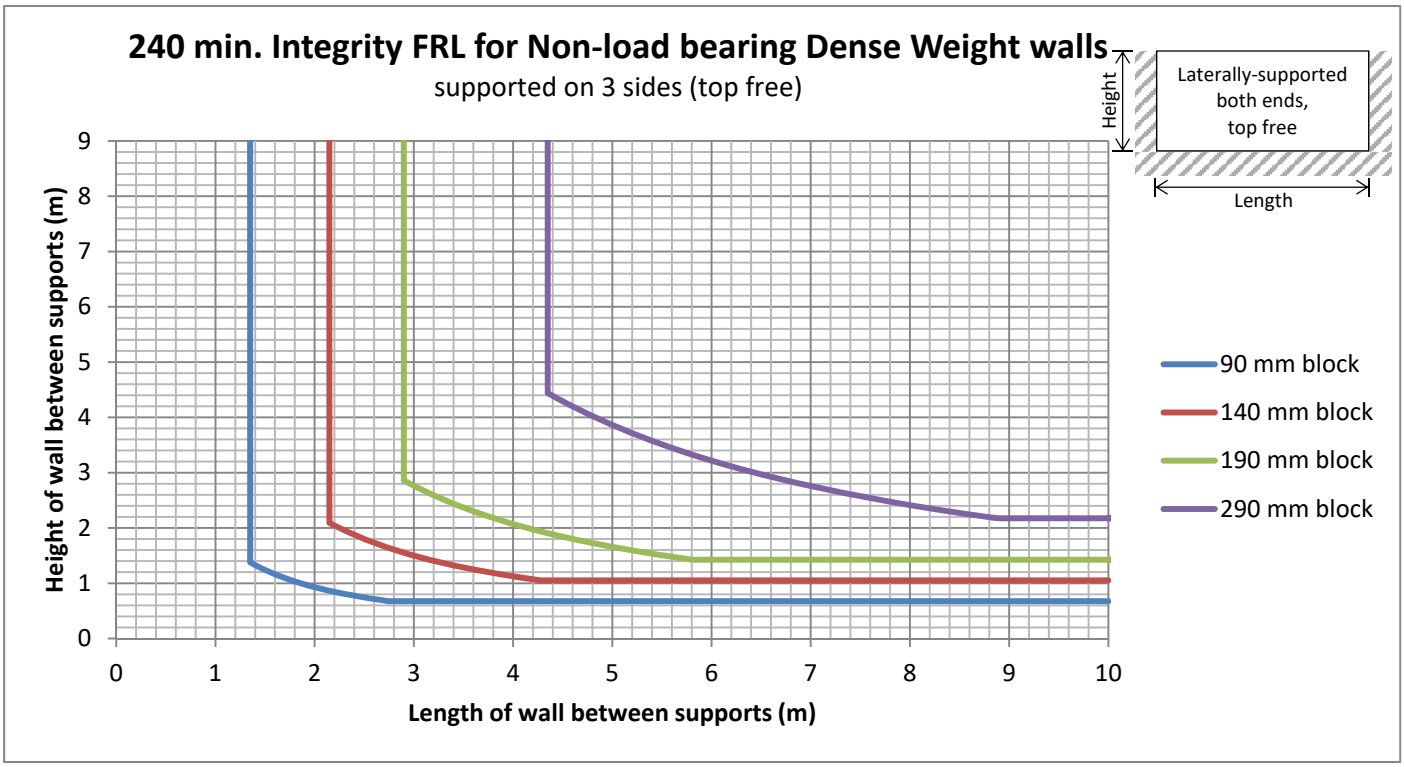


Chart 26 – Dense Weight 240 min. Integrity FRL for walls supported on 3 sides (top free)

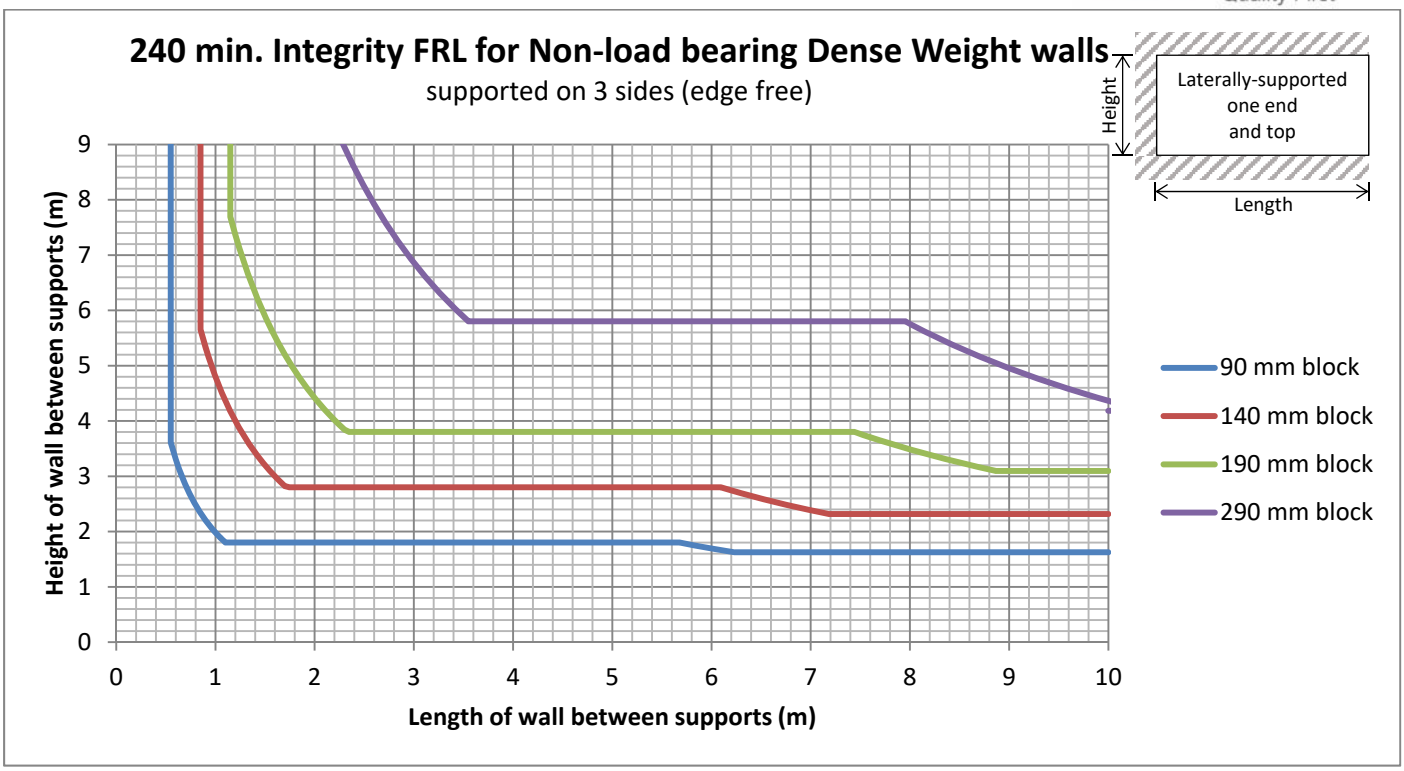


Chart 27 – Dense Weight 240 min. Integrity FRL for walls support on 3 sides (edge free)

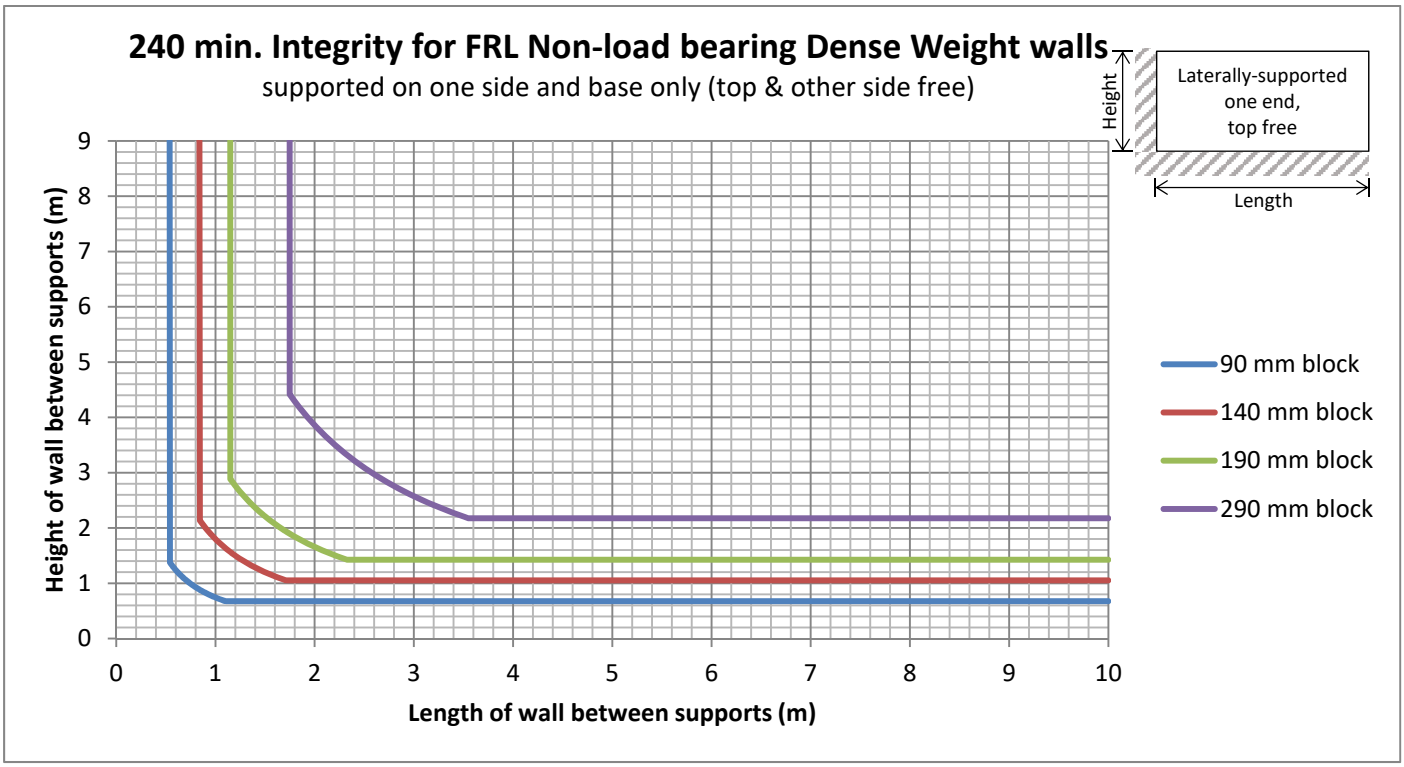


Chart 28 – Dense Weight 240 min. Integrity FRL for walls supported on side and base only (top & other side free)

Fire Structural Adequacy & Integrity Performance – Load Bearing Betta Block & Dense Weight Walls

For structural adequacy and integrity performance of load bearing walls using both Betta Blocks and Dense Weight units, use the charts for *Fire Integrity Performance - Non-load Bearing Dense Weight Walls* (*Chart 5* to *Chart 28*). These charts have been calculated using the tabulated values of AS 3700-2011 and are the exact same charts for structural adequacy and integrity performance of load bearing walls using either Betta Blocks or Dense Weight units. However, it is important to remember that the integrity FRL is governed by the minimum of the insulation and structural adequacy performance.

Typical Head Details

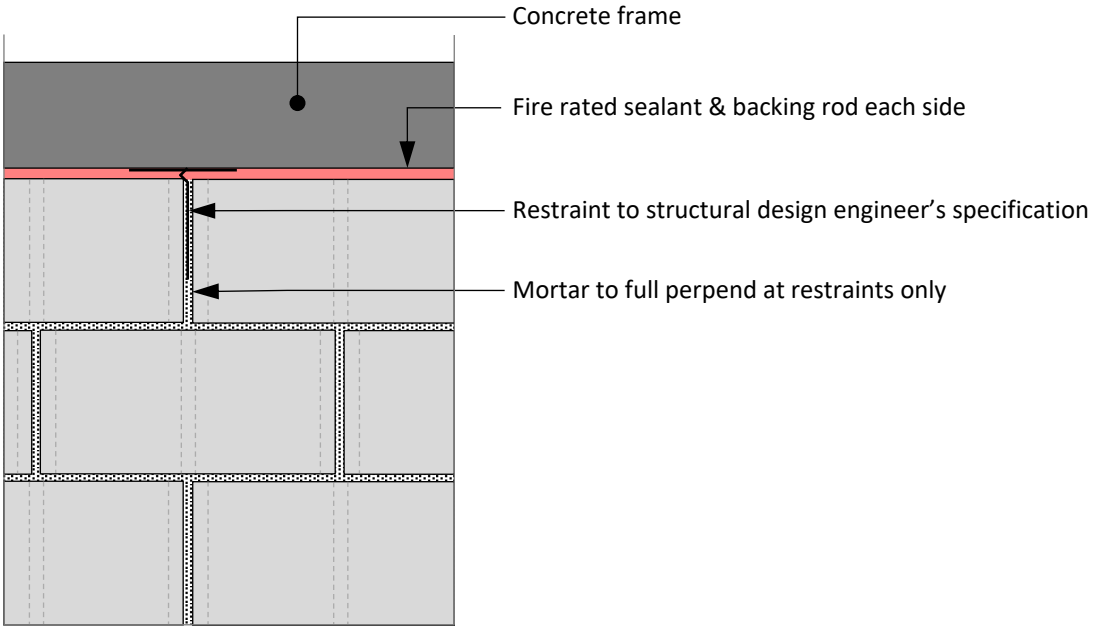


Figure 29 - Typical head detail elevation

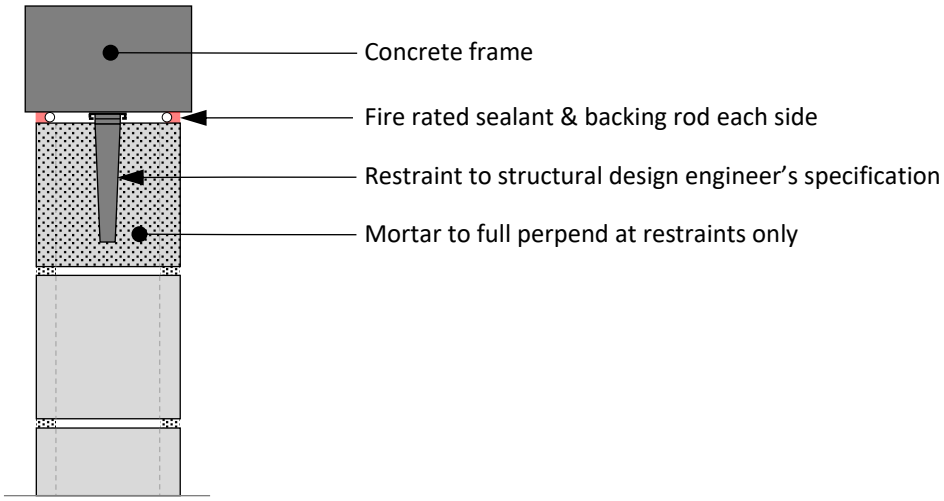


Figure 30 - Typical head detail section

Typical Edge Details

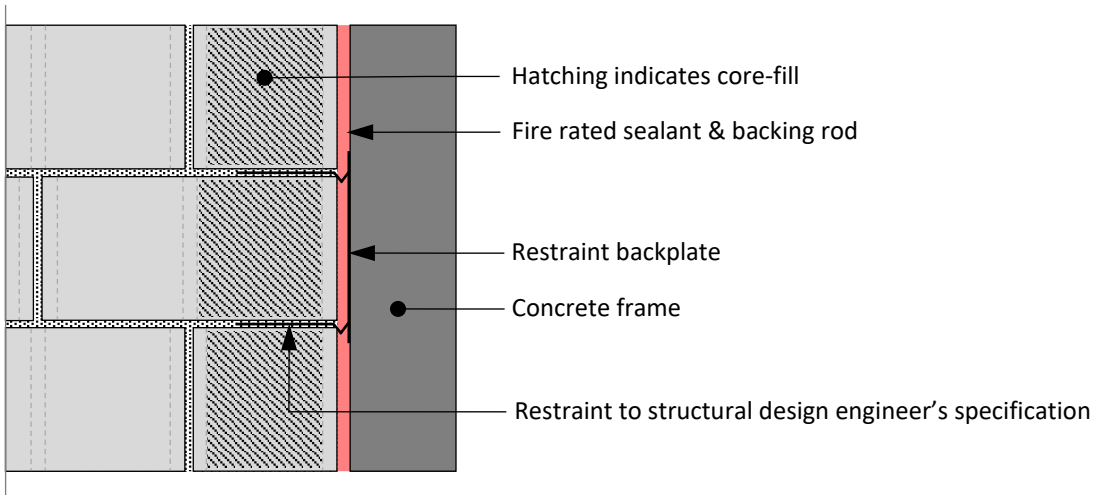


Figure 31 - Typical End of Wall Elevation

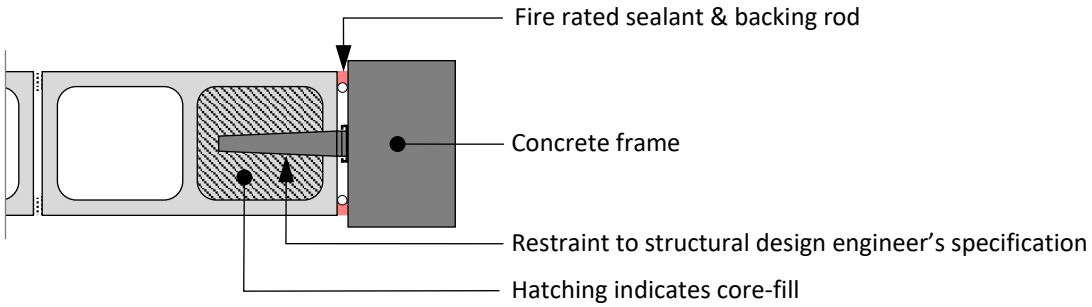


Figure 32 - Typical End of Wall Section

Typical Control Joint Detail

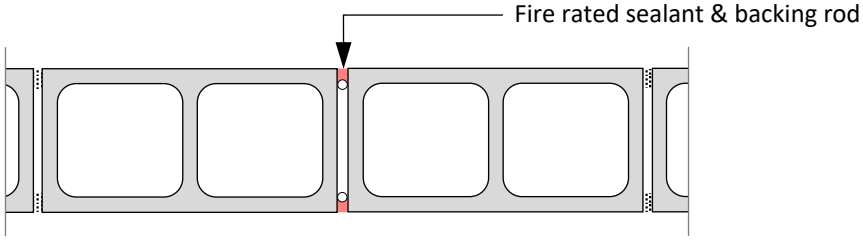


Figure 33 - Typical Control Joint Detail