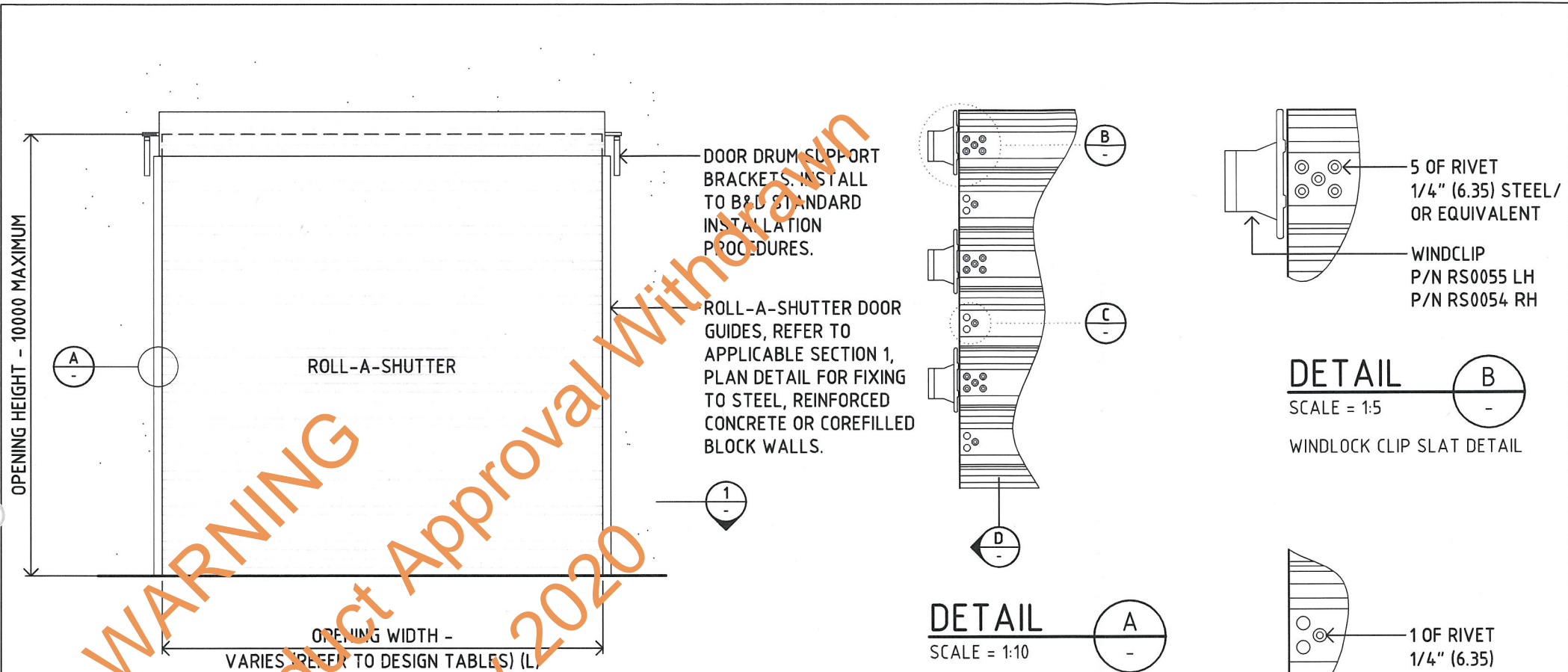


IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.



**ROLL-A-SHUTTER DOOR ELEVATION - TYPICAL**

SCALE 1:50

**DETAIL A CURTAIN PART ELEVATION**

SCALE = 1:10

**DETAIL B WINDLOCK CLIP SLAT DETAIL**

SCALE = 1:5

**DETAIL C UNCLIPPED SLAT DETAIL**

SCALE = 1:5

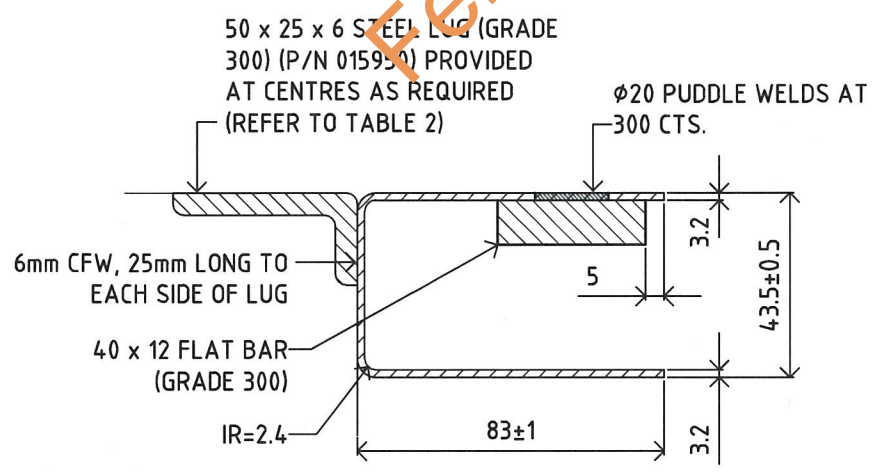
**Product Name**  
B&D ROLL-A-SHUTTER

**Product Description**  
WINDLOCKED ROLLER SHUTTERS

**Manufacturer's Name**  
B&D AUSTRALIA PTY LTD  
34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

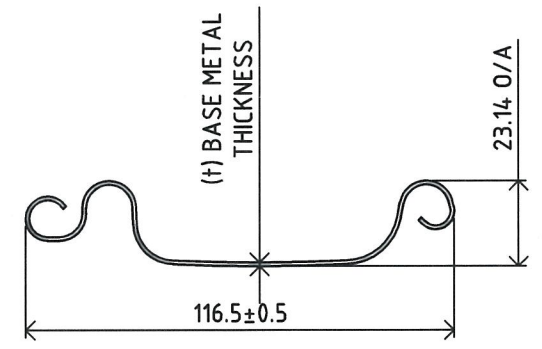
- Design Criteria**
- (REFER ALSO TO NOTES COVERING BASIS OF DRAWINGS & LIMITATIONS)
  - REGION C
  - TERRAIN CATEGORY 2 AND 2.5
  - DOOR HEIGHT 10m MAX.
  - BUILDING IMPORTANCE = LEVEL 2
  - REGION WINDSPEED VR = 69.3m/s
  - DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
  - AS/NZS 1170.2:2011 STRUCTURAL DESIGN ACTIONS PART 2: WIND ACTIONS.
  - AS/NZS 4505:2012 GARAGE DOORS & OTHER LARGE ACCESS DOORS.
  - AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS - PART 0: GENERAL PRINCIPLES.
  - AS 4100:1998 STEEL STRUCTURES
  - AS 3700-2001 MASONRY STRUCTURES
  - AS/NZS 4600: 2005 COLD FORMED STRUCTURES
  - AS/NZS 1170.1:2002 STRUCTURAL DESIGN ACTIONS - PART 1: PERMANENT, IMPOSED AND OTHER ACTIONS
  - AS 3600:2009 CONCRETE STRUCTURES

- Limitations**
- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
  - CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT ( $f_{uc}$ ) = 15 MPa (MIN.).
  - CORE FILLING OF BLOCKWALL ( $f'c$ ) = 15 MPa (MIN.).
  - COEFFICIENTS OF FRICTION ( $\mu$ ) BETWEEN ALL STEEL SURFACES HAS BEEN ASSUMED TO BE NO LESS THAN 0.3.
  - THE STRUCTURE TO WHICH THE DOOR IS ATTACHED SHALL BE DESIGNED AND CERTIFIED INDEPENDENTLY AS REQUIRED BY A SUITABLY QUALIFIED ENGINEER.
  - ALTERNATIVE DESIGN PARAMETERS TO WHAT ARE SPECIFIED ON THESE DRAWINGS ALONG WITH ALTERNATIVE SITE SPECIFIC LOCAL PRESSURE FACTORS MAY BE ADOPTED PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
  - THE BUILDING DESIGN ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADING DOES NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATING PROVIDED IN TABLE 1 AND FIGURES 1 & 5 FOR ANY GIVEN SPAN.
  - DOORS MAY BE POSITIONED AT ANY LOCATION ALONG THE BUILDING ENVELOPE INCLUDING ALL LOCAL PRESSURE ZONES (ie. CORNERS OF BUILDINGS), PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5.



**CHANNEL GUIDE DETAIL**

SCALE 1:2



**SECTION D SLAT PROFILE**

SCALE = 1:2

**CURTAIN SLAT TYPES MATERIAL SPECIFICATIONS AND BASE METAL THICKNESSES (t)**

CURTAIN TYPE	MATERIAL SPECIFICATION	BASE METAL THICKNESS (t)
4/100	G550	0.42mm
6/100	G300	0.60mm
8/100	G300	0.75mm
10/100	G300	0.95mm
12/100	G300	1.15mm

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No. TS914 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE EXPERIMENTS CONDUCTED ON THE 9th APRIL, 2nd & 6th MAY 2013.
- PRINCIPLES OF MECHANICS.
- ALL DOOR COMPONENTS TO BE IN ACCORDANCE WITH STANDARD B&D ROLL-A-SHUTTER MANUFACTURING.
- DOOR INSTALLATION TO BE IN ACCORDANCE WITH STANDARD ROLL-A-SHUTTER INSTALLATION GUIDELINES.

**\*\*Design Engineers Certification**

Name: JAMES ELLIS  
 Registration Number: 47429ES  
 Date: 03/02/2015  
 Signature: [Signature]

\*\*registered as a structural engineer in Australia

**\*\*Certifying Engineers Certification**

HEINER STRUCTURAL ENGINEERING  
 Name: CONSULTANTS PTY LTD  
 NT Registration Number: 52229ES  
 Date: 03/02/2015  
 Signature: [Signature]

\*\*registered as a structural engineer in Northern Territory

**Accepted for Inclusion**

DTCM ref: M/427/01 DRAWING No. S01

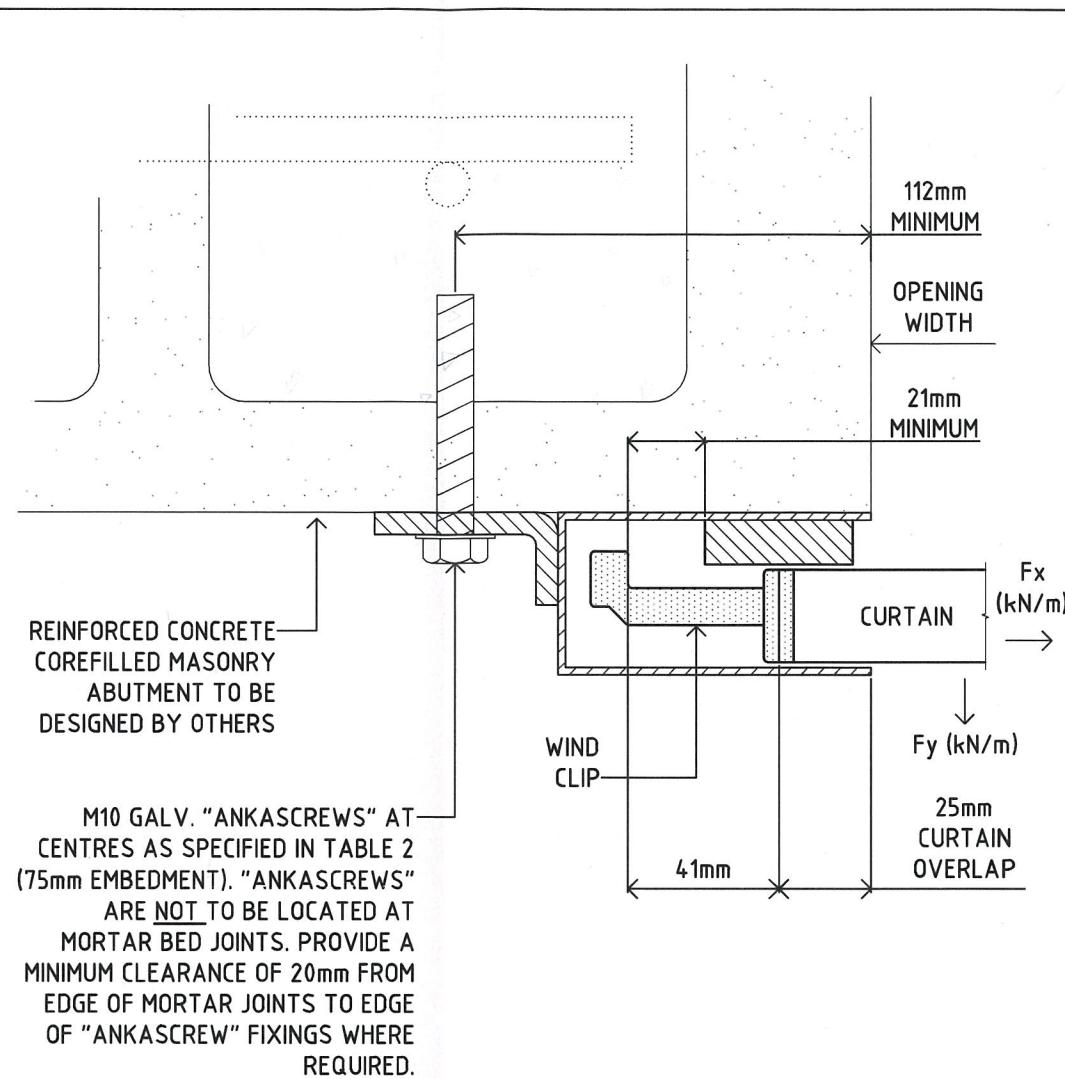
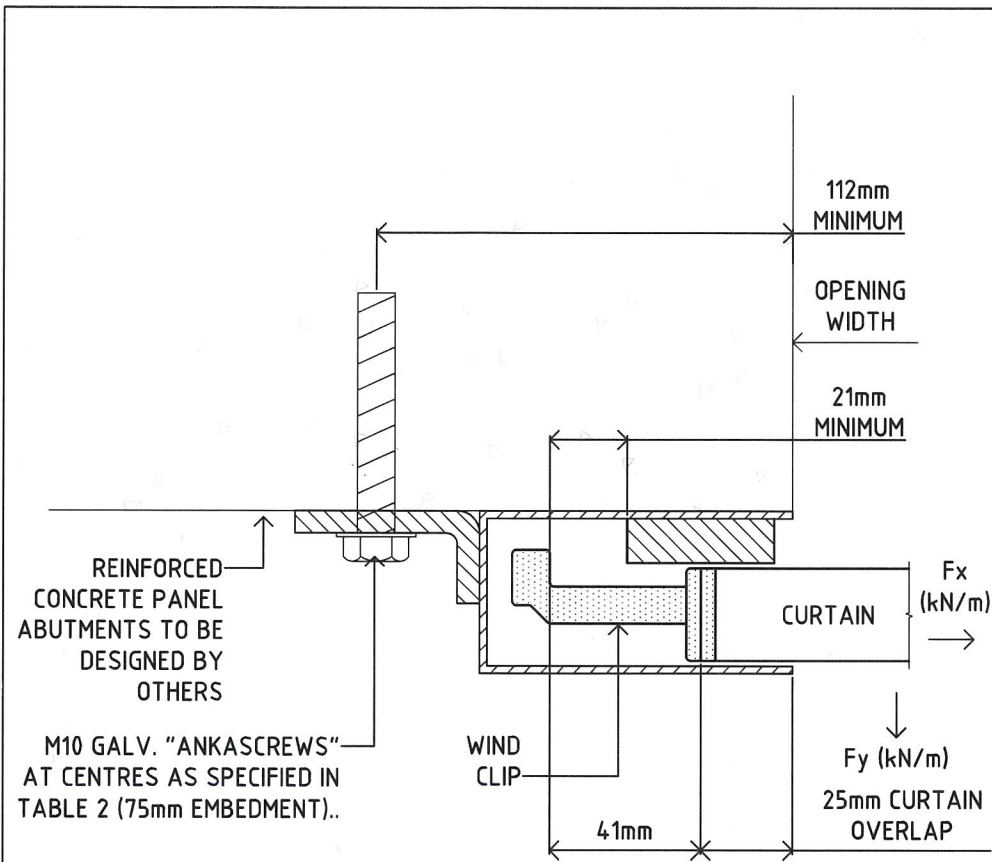
**Chairman's Signature:** [Signature]

**Chairman's Name:** STEVEN J BURKICH

**Date of Approval:** 12/02/2015 **Expiry Date:** 12/02/2020



IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.



### FIXING TO CONCRETE PANELS

SECTION 1 PLAN  
SCALE = 1:2

TYPE 1 FIXING - CHANNEL GUIDE WITH LUGS SUPPORTED ONTO REINFORCED CONCRETE PANELS

NOTE: FIXINGS INTO REINFORCED CONCRETE PANEL ABUTMENTS HAVE BEEN DESIGNED USING THE RAMSET-SPECIFIERS RESOURCE BOOK.

### FIXING TO BLOCKWORK

SECTION 1 PLAN  
SCALE = 1:2

TYPE 1 FIXING - CHANNEL GUIDE WITH LUGS SUPPORTED ONTO REINFORCED CONCRETE COREFILLED MASONRY UNITS

NOTE: FIXINGS INTO REINFORCED CONCRETE COREFILLED BLOCK WALL ABUTMENTS HAVE BEEN DESIGNED USING THE RAMSET-SPECIFIERS RESOURCE BOOK.

**Product Name**  
B&D ROLL-A-SHUTTER

**Product Description**  
WINDLOCKED ROLLER SHUTTERS

**Manufacturer's Name**  
B&D AUSTRALIA PTY LTD  
34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

- Design Criteria**
- (REFER ALSO TO NOTES COVERING BASIS OF DRAWINGS & LIMITATIONS)
  - REGION C
  - TERRAIN CATEGORY 2 AND 2.5
  - DOOR HEIGHT 10m MAX.
  - BUILDING IMPORTANCE = LEVEL 2
  - REGION WINDSPEED VR = 69.3m/s
  - DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
  - AS/NZS 1170.2:2011 STRUCTURAL DESIGN ACTIONS PART 2: WIND ACTIONS.
  - AS/NZS 4505:2012 GARAGE DOORS & OTHER LARGE ACCESS DOORS.
  - AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS - PART 0: GENERAL PRINCIPLES.
  - AS 4100:1998 STEEL STRUCTURES
  - AS 3700-2001 MASONRY STRUCTURES
  - AS/NZS 4600: 2005 COLD FORMED STRUCTURES
  - AS/NZS 1170.1:2002 STRUCTURAL DESIGN ACTIONS - PART 1: PERMANENT, IMPOSED AND OTHER ACTIONS
  - AS 3600:2009 CONCRETE STRUCTURES

- Limitations**
- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
  - CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT ( $f_{uc}$ ) = 15 MPa (MIN.).
  - CORE FILLING OF BLOCKWALL ( $f'_c$ ) = 15 MPa (MIN.).
  - COEFFICIENTS OF FRICTION ( $\mu$ ) BETWEEN ALL STEEL SURFACES HAS BEEN ASSUMED TO BE NO LESS THAN 0.3.
  - THE STRUCTURE TO WHICH THE DOOR IS ATTACHED SHALL BE DESIGNED AND CERTIFIED INDEPENDENTLY AS REQUIRED BY A SUITABLY QUALIFIED ENGINEER.
  - ALTERNATIVE DESIGN PARAMETERS TO WHAT ARE SPECIFIED ON THESE DRAWINGS ALONG WITH ALTERNATIVE SITE SPECIFIC LOCAL PRESSURE FACTORS MAY BE ADOPTED PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
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**Accepted for Inclusion**  
DTCM ref: M/427/02 DRAWING No. S02

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No. TS914 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE EXPERIMENTS CONDUCTED ON THE 9th APRIL, 2nd & 6th MAY 2013.
- PRINCIPLES OF MECHANICS.
- ALL DOOR COMPONENTS TO BE IN ACCORDANCE WITH STANDARD B&D ROLL-A-SHUTTER MANUFACTURING.
- DOOR INSTALLATION TO BE IN ACCORDANCE WITH STANDARD ROLL-A-SHUTTER INSTALLATION GUIDELINES.

**\*\*Design Engineers Certification**  
Name: JAMES ELLIS  
Registration Number: 47429ES  
Date: 03/02/2015  
Signature: [Signature]

**\*\*Certifying Engineers Certification**  
HEINER STRUCTURAL ENGINEERING  
Name: CONSULTANTS PTY LTD  
NT Registration Number: 52229ES  
Date: 03/02/2015  
Signature: [Signature]

**Chairman's Signature:** [Signature]  
**Chairman's Name:** STEVEN J BURKICH  
**Date of Approval:** 12/02/2015 **Expiry Date:** 12/02/2020

\*\*registered as a structural engineer in Australia      \*\*registered as a structural engineer in Northern Territory



IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.

**Product Name**  
B&D ROLL-A-SHUTTER

**Product Description**  
WINDLOCKED ROLLER SHUTTERS

**Manufacturer's Name**  
B&D AUSTRALIA PTY LTD  
34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

**Design Criteria**

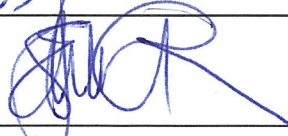
- (REFER ALSO TO NOTES COVERING BASIS OF DRAWINGS & LIMITATIONS)
- REGION C
- TERRAIN CATEGORY 2 AND 2.5
- DOOR HEIGHT 10m MAX.
- BUILDING IMPORTANCE = LEVEL 2
- REGION WINDSPEED VR = 69.3m/s
- DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
- AS/NZS 1170.2:2011 STRUCTURAL DESIGN ACTIONS PART 2: WIND ACTIONS.
- AS/NZS 4505:2012 GARAGE DOORS & OTHER LARGE ACCESS DOORS.
- AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS - PART 0: GENERAL PRINCIPLES.
- AS 4100:1998 STEEL STRUCTURES
- AS 3700-2001 MASONRY STRUCTURES
- AS/NZS 4600: 2005 COLD FORMED STRUCTURES
- AS/NZS 1170.1:2002 STRUCTURAL DESIGN ACTIONS - PART 1: PERMANENT, IMPOSED AND OTHER ACTIONS
- AS 3600:2009 CONCRETE STRUCTURES

**Limitations**

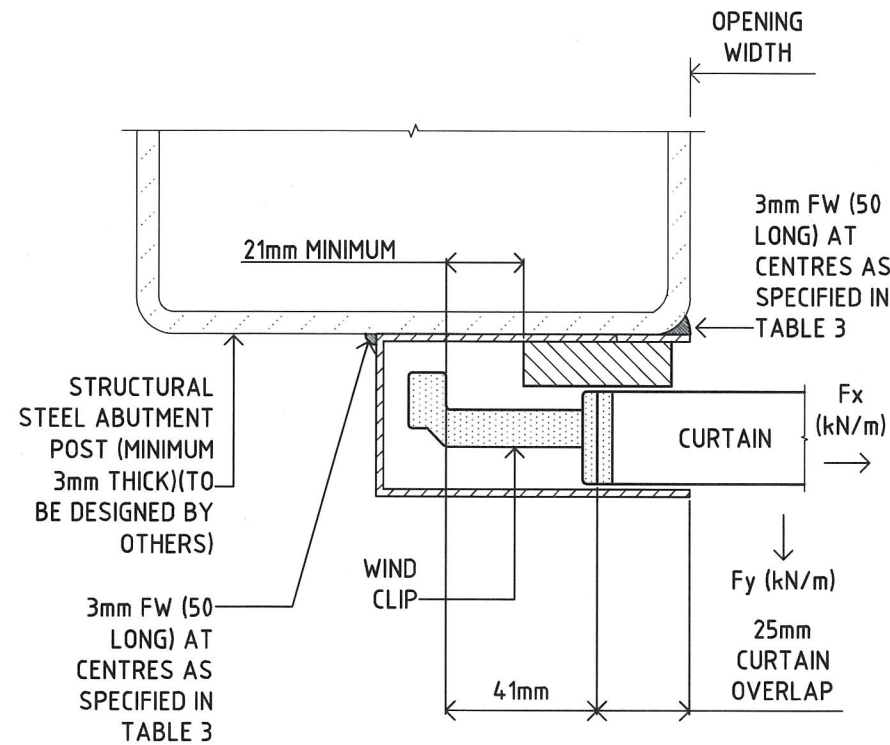
- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
- CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT ( $f_{uc}$ ) = 15 MPa (MIN.).
- CORE FILLING OF BLOCKWALL ( $f_c$ ) = 15 MPa (MIN.).
- COEFFICIENTS OF FRICTION ( $\mu$ ) BETWEEN ALL STEEL SURFACES HAS BEEN ASSUMED TO BE NO LESS THAN 0.3.
- THE STRUCTURE TO WHICH THE DOOR IS ATTACHED SHALL BE DESIGNED AND CERTIFIED INDEPENDENTLY AS REQUIRED BY A SUITABLY QUALIFIED ENGINEER.
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- DOORS MAY BE POSITIONED AT ANY LOCATION ALONG THE BUILDING ENVELOPE INCLUDING ALL LOCAL PRESSURE ZONES (ie. CORNERS OF BUILDINGS), PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5.

**Accepted for Inclusion**

DTCM ref: M1427/03 DRAWING No. S03

**Chairman's Signature:**   
**Chairman's Name:** STEVEN J. FURLICH

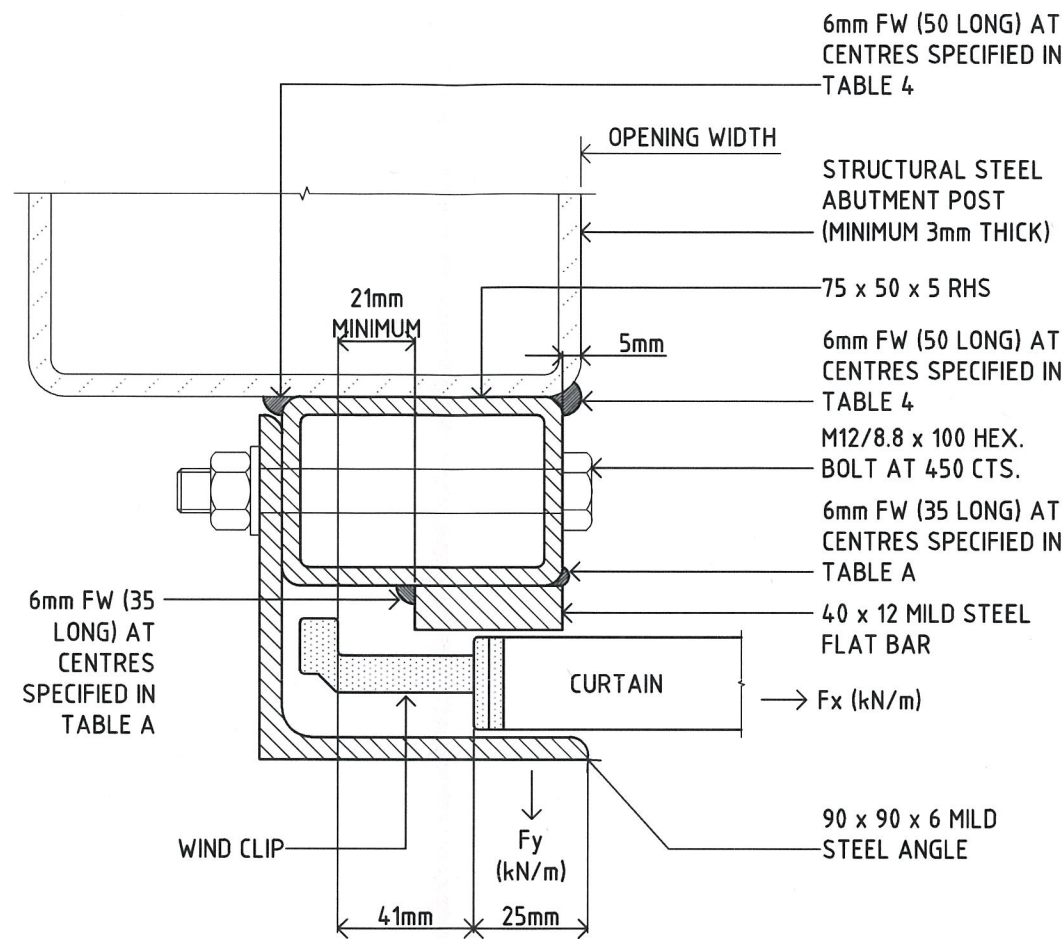
**Date of Approval:** 12/02/2015 **Expiry Date:** 12/2/2020



**FIXING TO MILD STEEL MULLION**

SECTION 1 PLAN  
SCALE = 1:2

TYPE 2 FIXING - CHANNEL GUIDE WITHOUT LUGS WELDED TO STRUCTURAL STEEL ABUTMENT



**FIXING TO MILD STEEL MULLION**


SECTION 1 PLAN  
SCALE = 1:2

TYPE 3 FIXING - FABRICATED GUIDE WELDED TO STRUCTURAL STEEL ABUTMENT

Notes covering basis of DTC (Relevant test reports etc)


- REPORT No. TS914 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE EXPERIMENTS CONDUCTED ON THE 9th APRIL, 2nd & 6th MAY 2013.
- PRINCIPLES OF MECHANICS.
- ALL DOOR COMPONENTS TO BE IN ACCORDANCE WITH STANDARD B&D ROLL-A-SHUTTER MANUFACTURING.
- DOOR INSTALLATION TO BE IN ACCORDANCE WITH STANDARD ROLL-A-SHUTTER INSTALLATION GUIDELINES.

**\*\*Design Engineers Certification**

Name: JAMES ELLIS  
Registration Number: 47429ES  
Date: 03/02/2015  
Signature: 

\*\*registered as a structural engineer in Australia

**\*\*Certifying Engineers Certification**

HEINER STRUCTURAL ENGINEERING  
Name: CONSULTANTS PTY LTD  
NT Registration Number: 52229ES  
Date: 03/02/2015  
Signature: 

\*\*registered as a structural engineer in Northern Territory



IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.

TABLE 1 – REFERENCE GUIDE ON MAXIMUM ALLOWABLE OPENING WIDTHS FOR A GIVEN ULTIMATE DESIGN WIND PRESSURE (DOOR HEIGHTS UP TO 10m HIGH)

WIND CLASSIFICATION AND ULTIMATE DESIGN WIND PRESSURES			MAXIMUM ALLOWABLE OPENING WIDTHS									
			4/100 SLAT		6/100 SLAT		8/100 SLAT		10/100 SLAT		12/100 SLAT	
REGION	TERRAIN CATEGORY	ULTIMATE DESIGN WIND PRESSURE	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT
C	2	3.68 kPa	5.40m	2.95m	5.45m	2.95m	6.55m	2.95m	8.00m	2.95m	8.40m	2.95m
	2.5	3.08 kPa	6.05m	3.30m	6.10m	3.30m	7.40m	3.30m	9.00m	3.30m	9.40m	3.30m

TABLE 2 – FASTENING SPECIFICATIONS FOR TYPE 1 FIXING INTO REINFORCED BLOCKWORK OR REINFORCED CONCRETE ABUTMENTS

ABUTMENT TYPE	CURTAIN TYPE	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT
15 MPa REINFORCED BLOCK WALL	4/100	M10 ANKASCREWS AT 200 CTS.	M10 ANKASCREWS AT 500 CTS.
	6/100	M10 ANKASCREWS AT 200 CTS.	M10 ANKASCREWS AT 500 CTS.
	8/100	M10 ANKASCREWS AT 125 CTS.	M10 ANKASCREWS AT 500 CTS.
	10/100	M10 ANKASCREWS AT 80 CTS.	M10 ANKASCREWS AT 500 CTS.
	12/100	M10 ANKASCREWS AT 80 CTS.	M10 ANKASCREWS AT 500 CTS.
20 MPa CONCRETE WALL	4/100	M10 ANKASCREWS AT 225 CTS.	M10 ANKASCREWS AT 500 CTS.
	6/100	M10 ANKASCREWS AT 225 CTS.	M10 ANKASCREWS AT 500 CTS.
	8/100	M10 ANKASCREWS AT 150 CTS.	M10 ANKASCREWS AT 500 CTS.
	10/100	M10 ANKASCREWS AT 90 CTS.	M10 ANKASCREWS AT 500 CTS.
25 MPa CONCRETE WALL	4/100	M10 ANKASCREWS AT 275 CTS.	M10 ANKASCREWS AT 500 CTS.
	6/100	M10 ANKASCREWS AT 275 CTS.	M10 ANKASCREWS AT 500 CTS.
	8/100	M10 ANKASCREWS AT 175 CTS.	M10 ANKASCREWS AT 500 CTS.
	10/100	M10 ANKASCREWS AT 100 CTS.	M10 ANKASCREWS AT 500 CTS.
	12/100	M10 ANKASCREWS AT 100 CTS.	M10 ANKASCREWS AT 500 CTS.
32 MPa CONCRETE WALL	4/100	M10 ANKASCREWS AT 300 CTS.	M10 ANKASCREWS AT 500 CTS.
	6/100	M10 ANKASCREWS AT 300 CTS.	M10 ANKASCREWS AT 500 CTS.
	8/100	M10 ANKASCREWS AT 200 CTS.	M10 ANKASCREWS AT 500 CTS.
	10/100	M10 ANKASCREWS AT 125 CTS.	M10 ANKASCREWS AT 500 CTS.
	12/100	M10 ANKASCREWS AT 125 CTS.	M10 ANKASCREWS AT 500 CTS.

TABLE A – FASTENING OF MILD STEEL FLAT BAR TO FABRICATED GUIDE (TYPE 3 FIXING)

CURTAIN TYPE	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT
4/100	6mm FW AT 400 CTS.	6mm FW AT 600 CTS.
6/100	6mm FW AT 400 CTS.	6mm FW AT 600 CTS.
8/100	6mm FW AT 300 CTS.	6mm FW AT 600 CTS.
10/100	6mm FW AT 250 CTS.	6mm FW AT 600 CTS.
12/100	6mm FW AT 250 CTS.	6mm FW AT 600 CTS.

TABLE 3 – FASTENING SPECIFICATIONS FOR TYPE 2 FIXING ONTO STRUCTURAL STEEL ABUTMENTS

ABUTMENT TYPE	CURTAIN TYPE	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT
STEEL	4/100	3mm FW AT 500 CTS.	3mm FW AT 800 CTS.
	6/100	3mm FW AT 500 CTS.	3mm FW AT 800 CTS.
	8/100	3mm FW AT 400 CTS.	3mm FW AT 800 CTS.
	10/100	3mm FW AT 300 CTS.	3mm FW AT 800 CTS.
	12/100	3mm FW AT 300 CTS.	3mm FW AT 800 CTS.

TABLE 4 – FASTENING SPECIFICATIONS FOR RHS FIXING ONTO STRUCTURAL STEEL ABUTMENTS (TYPE 3)

ABUTMENT TYPE	CURTAIN TYPE	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT
STEEL	4/100	6mm FW AT 600 CTS.	6mm FW AT 1200 CTS.
	6/100	6mm FW AT 600 CTS.	6mm FW AT 1200 CTS.
	8/100	6mm FW AT 450 CTS.	6mm FW AT 1200 CTS.
	10/100	6mm FW AT 300 CTS.	6mm FW AT 1200 CTS.
	12/100	6mm FW AT 300 CTS.	6mm FW AT 1200 CTS.

TABLE 5 – MAXIMUM ULTIMATE DESIGN CATENARY FORCE (F<sub>x</sub>) PER METRE HEIGHT BASED ON MAXIMUM ALLOWABLE OPENING WIDTHS

CURTAIN TYPE	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS EVERY 4th SLAT
4/100	45.76 KN/m	18.3 KN/m
6/100	46.58 KN/m	18.3 KN/m
8/100	61.48 KN/m	18.3 KN/m
10/100	82.335 KN/m	18.3 KN/m
12/100	88.83 KN/m	18.3 KN/m

NOTE: THE MAXIMUM ULTIMATE DESIGN CATENARY FORCES HAVE BEEN DERIVED USING THE MAXIMUM ALLOWABLE WIND PRESSURE FOR A GIVEN SPAN (REFER TO TABLE 1)

NOTE 1:  $F_y = \frac{W}{L}$   
 WHERE F<sub>y</sub> = MAXIMUM OUT OF PLANE ULTIMATE DESIGN ABUTMENT FORCE (PER METRE HEIGHT)  
 W = ULTIMATE DESIGN WIND PRESSURE (kPa)  
 L = OPENING WIDTH (SPAN) (m)

Product Name

B&D ROLL-A-SHUTTER

Product Description

WINDLOCKED ROLLER SHUTTERS

Manufacturer's Name

B&D AUSTRALIA PTY LTD

34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

Design Criteria

- (REFER ALSO TO NOTES COVERING BASIS OF DRAWINGS & LIMITATIONS)
- REGION C
- TERRAIN CATEGORY 2 AND 2.5
- DOOR HEIGHT 10m MAX.
- BUILDING IMPORTANCE = LEVEL 2
- REGION WINDSPEED VR = 69.3m/s
- DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
- AS/NZS 1170.2:2011 STRUCTURAL DESIGN ACTIONS PART 2: WIND ACTIONS.
- AS/NZS 4505:2012 GARAGE DOORS & OTHER LARGE ACCESS DOORS.
- AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS - PART 0: GENERAL PRINCIPLES.
- AS 4100:1998 STEEL STRUCTURES
- AS 3700-2001 MASONRY STRUCTURES
- AS/NZS 4600: 2005 COLD FORMED STRUCTURES
- AS/NZS 1170.1:2002 STRUCTURAL DESIGN ACTIONS - PART 1: PERMANENT, IMPOSED AND OTHER ACTIONS
- AS 3600:2009 CONCRETE STRUCTURES

Limitations

- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
- CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT (F<sub>uc</sub>) = 15 MPa (MIN.).
- CORE FILLING OF BLOCKWALL (F<sub>c</sub>) = 15 MPa (MIN.).
- COEFFICIENTS OF FRICTION (μ) BETWEEN ALL STEEL SURFACES HAS BEEN ASSUMED TO BE NO LESS THAN 0.3.
- THE STRUCTURE TO WHICH THE DOOR IS ATTACHED SHALL BE DESIGNED AND CERTIFIED INDEPENDENTLY AS REQUIRED BY A SUITABLY QUALIFIED ENGINEER.
- ALTERNATIVE DESIGN PARAMETERS TO WHAT ARE SPECIFIED ON THESE DRAWINGS ALONG WITH ALTERNATIVE SITE SPECIFIC LOCAL PRESSURE FACTORS MAY BE ADOPTED PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
- THE BUILDING DESIGN ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADING DOES NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATING PROVIDED IN TABLE 1 AND FIGURES 1 & 5 FOR ANY GIVEN SPAN.
- DOORS MAY BE POSITIONED AT ANY LOCATION ALONG THE BUILDING ENVELOPE INCLUDING ALL LOCAL PRESSURE ZONES (ie. CORNERS OF BUILDINGS), PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5.

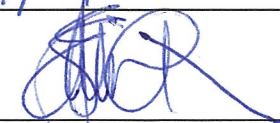
Accepted for Inclusion

DTCM ref:

M/427/04

DRAWING No. S04

Chairman's Signature:



Chairman's Name:

STEVEN J BURLICH

Date of Approval:


12/02/2015

Expiry Date: 12/02/2020

Notes covering basis of DTC (Relevant test reports etc)


- REPORT No. TS914 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
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- PRINCIPLES OF MECHANICS.
- ALL DOOR COMPONENTS TO BE IN ACCORDANCE WITH STANDARD B&D ROLL-A-SHUTTER MANUFACTURING.
- DOOR INSTALLATION TO BE IN ACCORDANCE WITH STANDARD ROLL-A-SHUTTER INSTALLATION GUIDELINES.

\*\*Design Engineers Certification

Name: JAMES ELLIS  
 Registration Number: 47429ES  
 Date: 03/02/2015  
 Signature: 

\*\*registered as a structural engineer in Australia

\*\*Certifying Engineers Certification

HEINER STRUCTURAL ENGINEERING  
 Name: CONSULTANTS PTY LTD  
 NT Registration Number: 52229ES  
 Date: 03/02/2015  
 Signature: 

\*\*registered as a structural engineer in Northern Territory



IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.

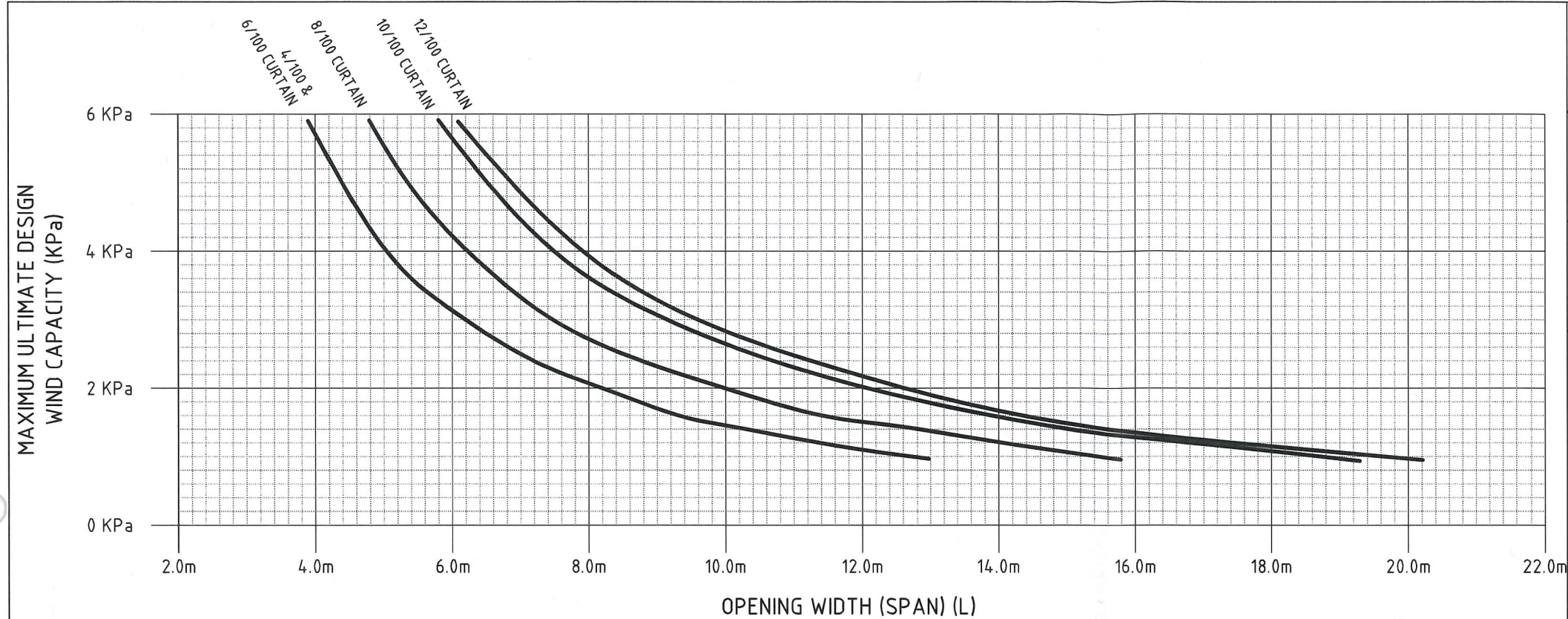


FIGURE 1: ULTIMATE DESIGN WIND CAPACITY FOR A GIVEN SPAN (CLIPS AT EVERY 2nd SLAT)

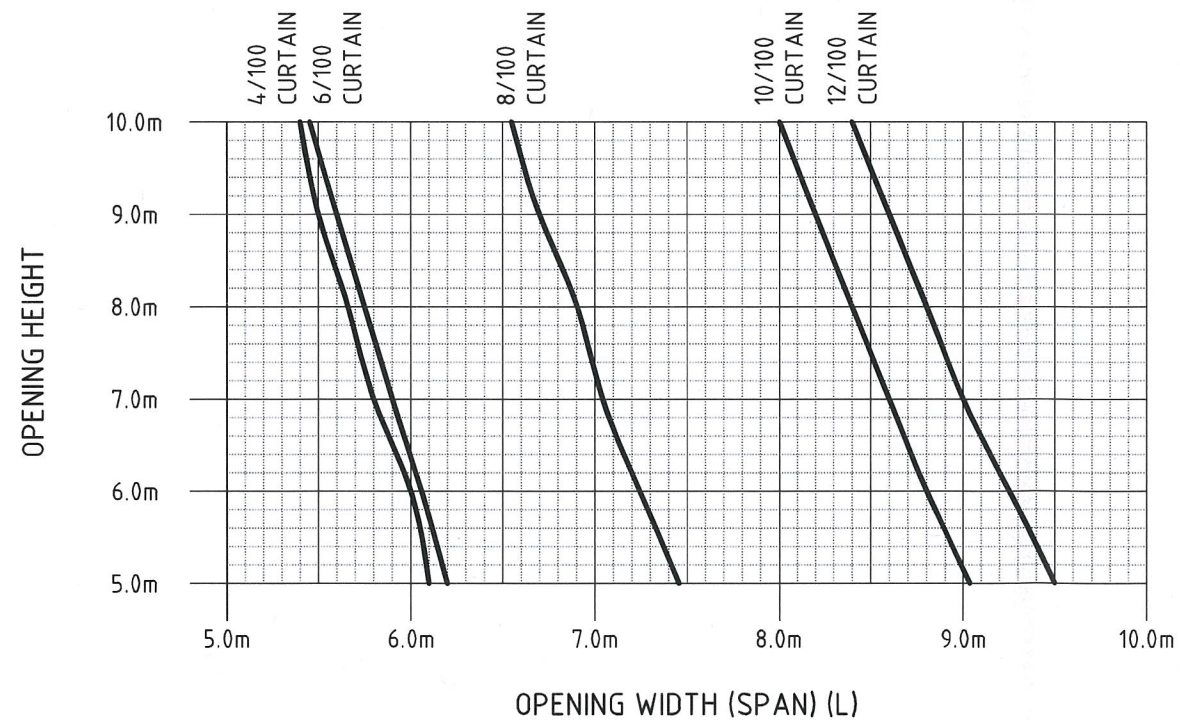


FIGURE 2: ALLOWABLE SPAN OF A SHUTTER FOR A GIVEN HEIGHT EXPOSED TO REGION C TC2 WINDS (MAX. 3.68 kPa) (CLIPS AT EVERY 2nd SLAT)

**Product Name**

**B&D ROLL-A-SHUTTER**

**Product Description**

**WINDLOCKED ROLLER SHUTTERS**

**Manufacturer's Name**

**B&D AUSTRALIA PTY LTD**

34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

**Design Criteria**

- (REFER ALSO TO NOTES COVERING BASIS OF DRAWINGS & LIMITATIONS)
- REGION C
- TERRAIN CATEGORY 2 AND 2.5
- DOOR HEIGHT 10m MAX.
- BUILDING IMPORTANCE = LEVEL 2
- REGION WINDSPEED VR = 69.3m/s
- DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
- AS/NZS 1170.2:2011 STRUCTURAL DESIGN ACTIONS PART 2: WIND ACTIONS.
- AS/NZS 4505:2012 GARAGE DOORS & OTHER LARGE ACCESS DOORS.
- AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS - PART 0: GENERAL PRINCIPLES.
- AS 4100:1998 STEEL STRUCTURES
- AS 3700-2001 MASONRY STRUCTURES
- AS/NZS 4600: 2005 COLD FORMED STRUCTURES
- AS/NZS 1170.1:2002 STRUCTURAL DESIGN ACTIONS - PART 1: PERMANENT, IMPOSED AND OTHER ACTIONS
- AS 3600:2009 CONCRETE STRUCTURES

**Limitations**

- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
- CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT ( $f_{uc}$ ) = 15 MPa (MIN.).
- CORE FILLING OF BLOCKWALL ( $f'_c$ ) = 15 MPa (MIN.).
- COEFFICIENTS OF FRICTION ( $\mu$ ) BETWEEN ALL STEEL SURFACES HAS BEEN ASSUMED TO BE NO LESS THAN 0.3.
- THE STRUCTURE TO WHICH THE DOOR IS ATTACHED SHALL BE DESIGNED AND CERTIFIED INDEPENDENTLY AS REQUIRED BY A SUITABLY QUALIFIED ENGINEER.
- ALTERNATIVE DESIGN PARAMETERS TO WHAT ARE SPECIFIED ON THESE DRAWINGS ALONG WITH ALTERNATIVE SITE SPECIFIC LOCAL PRESSURE FACTORS MAY BE ADOPTED PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
- THE BUILDING DESIGN ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADING DOES NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATING PROVIDED IN TABLE 1 AND FIGURES 1 & 5 FOR ANY GIVEN SPAN.
- DOORS MAY BE POSITIONED AT ANY LOCATION ALONG THE BUILDING ENVELOPE INCLUDING ALL LOCAL PRESSURE ZONES (ie. CORNERS OF BUILDINGS), PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5.

**Accepted for Inclusion**

DTCM ref: M/427/05 DRAWING No. S05

Chairman's Signature:

Chairman's Name:

STEVEN JEHRLICH

Date of Approval: 12/02/2015 Expiry Date: 12/02/2020

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No. TS914 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
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- DOOR INSTALLATION TO BE IN ACCORDANCE WITH STANDARD ROLL-A-SHUTTER INSTALLATION GUIDELINES.

**\*\*Design Engineers Certification**

Name: JAMES ELLIS  
 Registration Number: 47429ES  
 Date: 03/02/2015  
 Signature:

\*\*registered as a structural engineer in Australia

**\*\*Certifying Engineers Certification**

HEINER STRUCTURAL ENGINEERING  
 Name: CONSULTANTS PTY LTD  
 NT Registration Number: 52229ES  
 Date: 03/02/2015  
 Signature:

\*\*registered as a structural engineer in Northern Territory



IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.

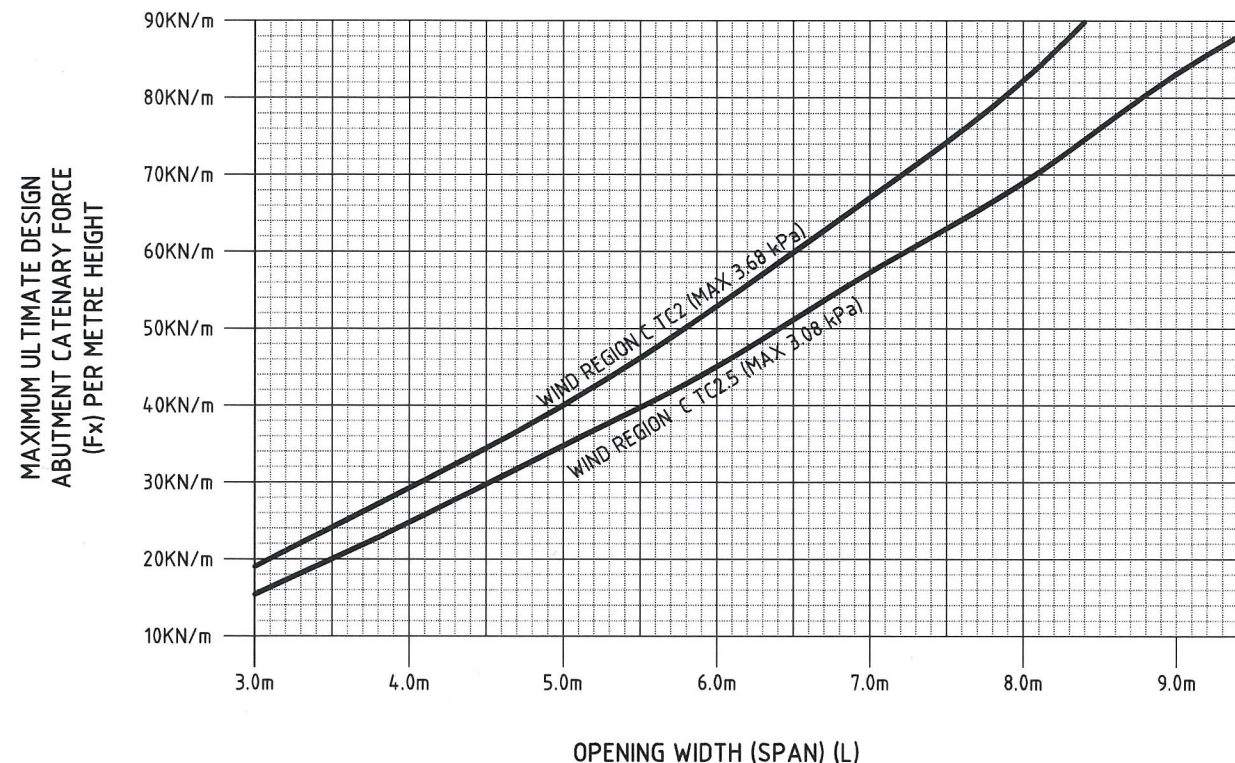


FIGURE 3: ULTIMATE DESIGN CATENARY FORCE FOR A GIVEN SPAN, WIND CATEGORY AND TERRAIN CATEGORY

NOTE 1:  $F_y = \frac{WL}{2}$   
 WHERE  $F_y$  = MAXIMUM OUT OF PLANE ULTIMATE DESIGN ABUTMENT FORCE (PER METRE HEIGHT)  
 $W$  = ULTIMATE DESIGN WIND PRESSURE (kPa)  
 $L$  = OPENING WIDTH (SPAN) (m)

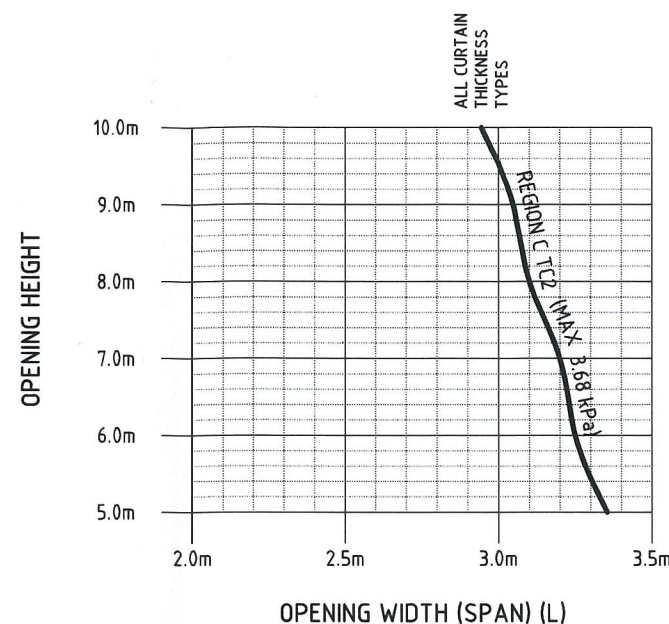


FIGURE 4: ALLOWABLE SPAN OF A SHUTTER FOR A GIVEN HEIGHT EXPOSED TO REGION C, TC2 WINDS (MAX. 3.68 kPa) (CLIPS AT EVERY 4th SLAT)

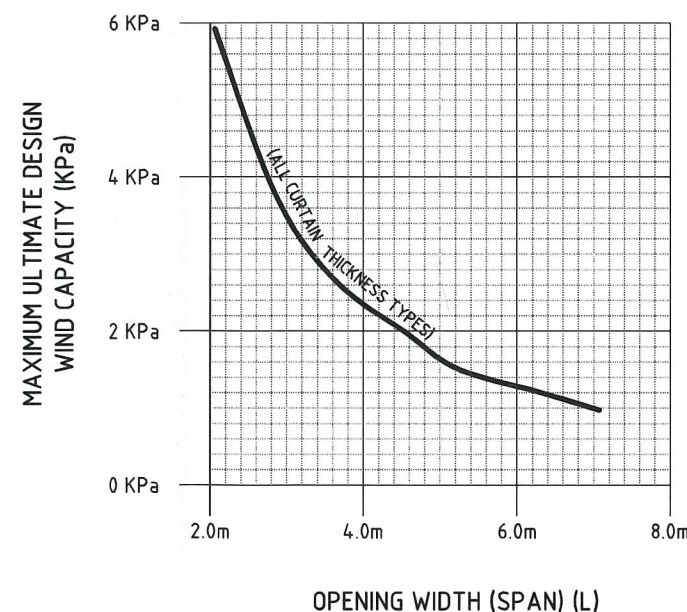


FIGURE 5: ULTIMATE DESIGN WIND CAPACITY FOR A GIVEN SPAN (CLIPS AT EVERY 4th SLAT)

**Product Name**  
 B&D ROLL-A-SHUTTER

**Product Description**  
 WINDLOCKED ROLLER SHUTTERS

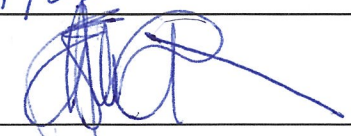
**Manufacturer's Name**  
 B&D AUSTRALIA PTY LTD  
 34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

- Design Criteria**
- (REFER ALSO TO NOTES COVERING BASIS OF DRAWINGS & LIMITATIONS)
  - REGION C
  - TERRAIN CATEGORY 2 AND 2.5
  - DOOR HEIGHT 10m MAX.
  - BUILDING IMPORTANCE = LEVEL 2
  - REGION WINDSPEED VR = 69.3m/s
  - DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 5 ON DRAWINGS S04, S05 AND S06.
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  - AS/NZS 4505:2012 GARAGE DOORS & OTHER LARGE ACCESS DOORS.
  - AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS - PART 0:GENERAL PRINCIPLES.
  - AS 4100:1998 STEEL STRUCTURES
  - AS 3700-2001 MASONRY STRUCTURES
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- Limitations**
- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
  - CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT ( $f_{uc}$ ) = 15 MPa (MIN.).
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  - THE BUILDING DESIGN ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADING DOES NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATING PROVIDED IN TABLE 1 AND FIGURES 1 & 5 FOR ANY GIVEN SPAN.
  - DOORS MAY BE POSITIONED AT ANY LOCATION ALONG THE BUILDING ENVELOPE INCLUDING ALL LOCAL PRESSURE ZONES (ie. CORNERS OF BUILDINGS), PROVIDED THE CALCULATED ULTIMATE DESIGN WIND PRESSURE FOR ANY GIVEN SPAN DOES NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 5.

**Accepted for Inclusion**


DTCM ref: M/427/06 DRAWING No. S06

**Chairman's Signature:**   
**Chairman's Name:** STEVEN J. EHRLICH  
**Date of Approval:** 12/02/2015 **Expiry Date:** 12/02/2020

Notes covering basis of DTC (Relevant test reports etc)


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**\*\*Design Engineers Certification**

Name: JAMES ELLIS  
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 Date: 03/02/2015  
 Signature: 

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