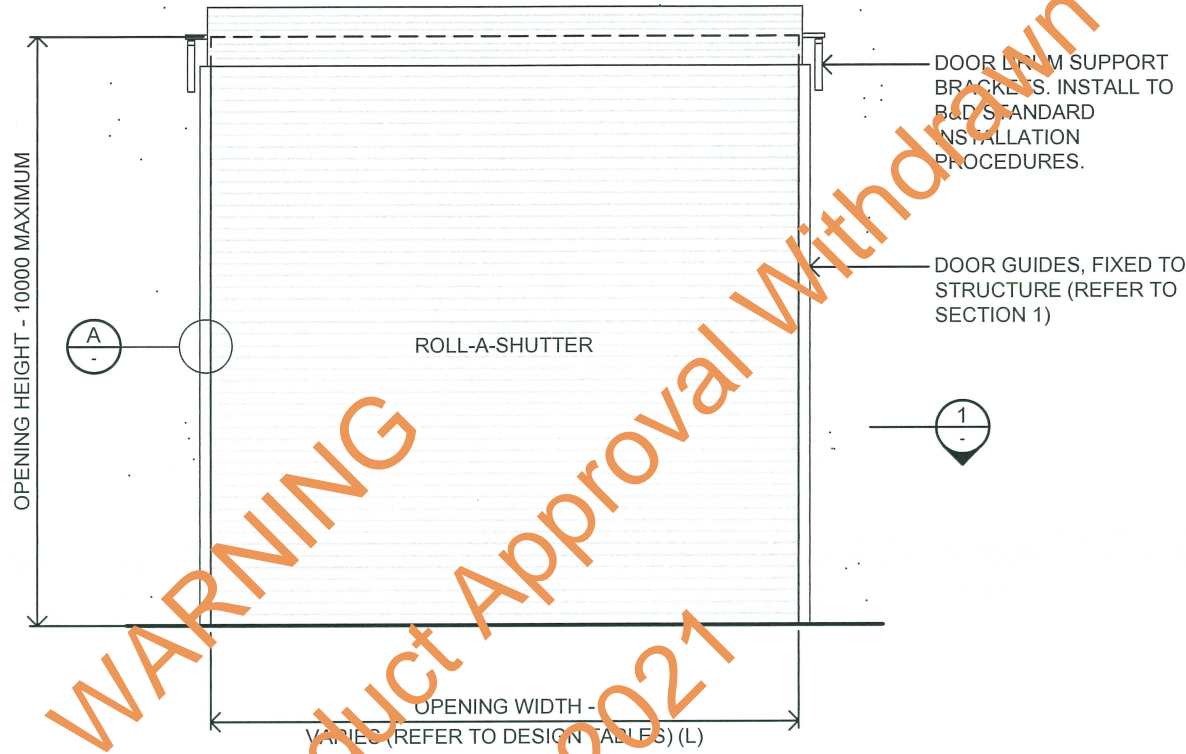
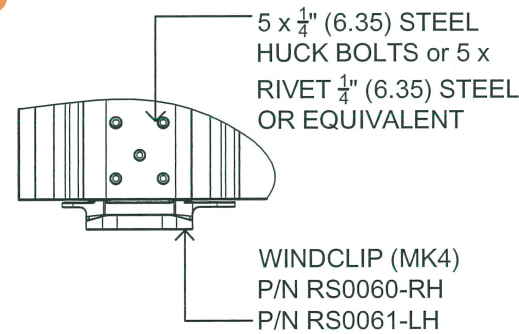


IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENTS P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA.

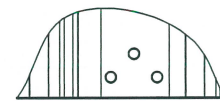


ROLL-A-SHUTTER DOOR ELEVATION TYPICAL
SCALE 1:50



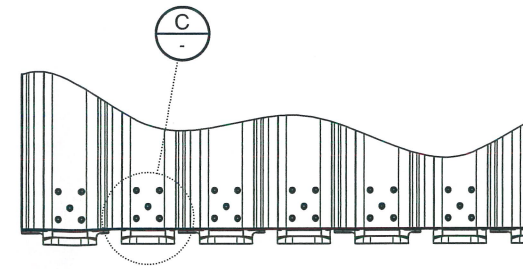
DETAIL A
SCALE = 1:5

RIGHT/LEFT HANDED WINDLOCK CLIP TO SLAT DETAIL

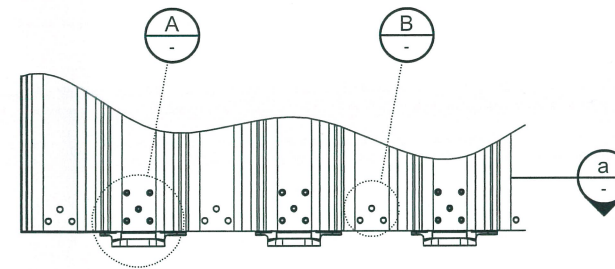


DETAIL B
SCALE = 1:5

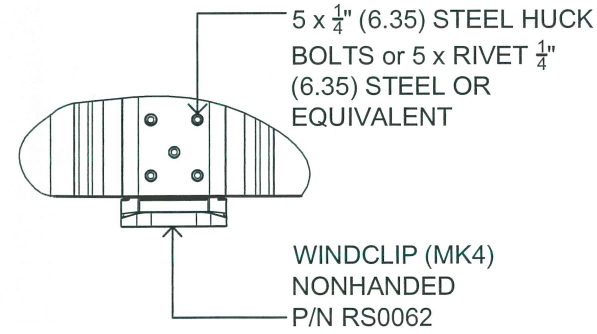
UNCLIPPED SLAT DETAIL (WINDCLIPS AT EVERY SECOND SLAT)



CURTAIN WITH CLIPS - PART PLAN
(CLIPS AT EVERY SLAT)
(SCALE 1:10)



CURTAIN WITH CLIPS - PART PLAN
(CLIPS AT EVERY SECOND SLAT)
(SCALE 1:10)



DETAIL C
SCALE = 1:5

NONHANDED WINDLOCK CLIP TO SLAT DETAILS

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 & 2 ON DRAWINGS 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
 - RAMSET SPECIFERS RESOURCE BOOK

- 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 (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 STRUCTURAL 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 PRESSURES FOR ANY GIVEN SPAN DO NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 2 ON DRAWINGS S05 AND S06.
 - THE BUILDING DESIGN STRUCTURAL ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADINGS DO NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATINGS PROVIDED IN TABLE 1 AND FIGURES 1 & 2 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 PRESSURES FOR ANY GIVEN SPAN DO NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 2.
 - THE STRUCTURAL ENGINEER IS TO DESIGN ADDITIONAL STEEL SUPPORTS AT DOOR OPENING ENDS FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT. REFER ALSO TO NOTATION BELOW TABLE 2 ON DRAWING S05.

Accepted for Inclusion

DTCM ref: M/434/01 DRAWING No. S01-Rev.1

Chairman's Signature:

Chairman's Name: STEVEN J. EARLICH

Date of Approval: 24 Aug 2016 Expiry Date: 23 Aug 2021

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No.'s TS914, TS1001 & TS978 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE TESTING CONDUCTED ON THE 9th APRIL 2013, 2nd MAY 2013, 6th MAY 2013 & 16th OCTOBER 2014.
- 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: 22/06/2016
Signature:

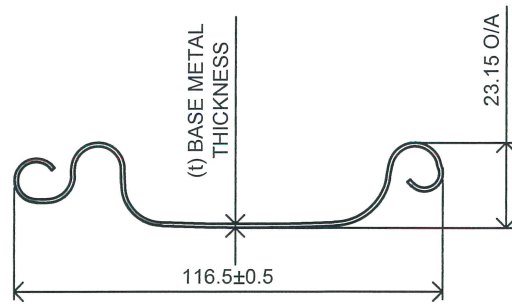
**registered as a structural engineer in Australia

**Certifying Engineers Certification

Name: ASSET SERVICES PTY LTD
NT Registration Number: 152941ES
Date: 22/06/2016
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.

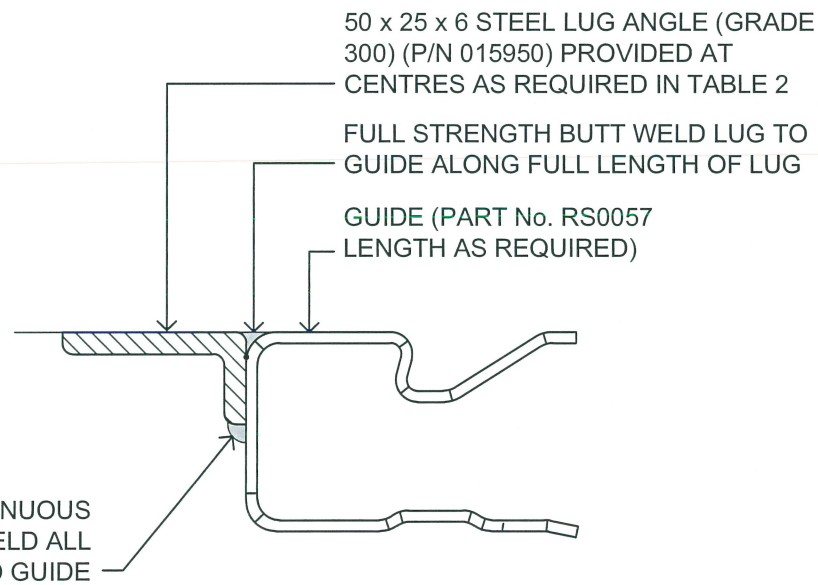


SECTION a TYPICAL SLAT PROFILE
SCALE = 1:2

CURTAIN SLAT TYPES
4/100, 6/100, 8/100, 10/100 & 12/100

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

CURTAIN TYPE	MATERIAL SPECIFICATION	BASE METAL THICKNESS (t)
4/100	ZINCALUME STEEL G550	0.42mm
6/100	GALVABOND STEEL G2	0.60mm
8/100	GALVABOND STEEL G2	0.75mm
10/100	GALVABOND STEEL G2	0.95mm
12/100	GALVABOND STEEL G2	1.15mm



LUG WELDED TO CHANNEL GUIDE FOR WHEN TYPE 1 FIXING DETAIL IS REQUIRED

SCALE 1:2

Product Name
B&D ROLL-A-SHUTTER

Product Description
WINDLOCKED ROLLER SHUTTERS

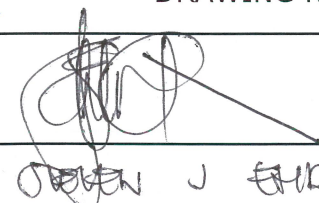
Manufacturer's Name
B&D AUSTRALIA PTY LTD
34-36 MARIGOLD STREET, REVESBY NSW 2212 PH: 136 263

- 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
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 - 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
 - RAMSET SPECIFIERS RESOURCE BOOK

- 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 (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 STRUCTURAL 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 PRESSURES FOR ANY GIVEN SPAN DO NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 2 ON DRAWINGS S05 AND S06.
 - THE BUILDING DESIGN STRUCTURAL ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADINGS DO NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATINGS PROVIDED IN TABLE 1 AND FIGURES 1 & 2 FOR ANY GIVEN SPAN.
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 - THE STRUCTURAL ENGINEER IS TO DESIGN ADDITIONAL STEEL SUPPORTS AT DOOR OPENING ENDS FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT. REFER ALSO TO NOTATION BELOW TABLE 2 ON DRAWING S05.

Accepted for Inclusion

DTCM ref: M/434/02 DRAWING No. S02-Rev.1

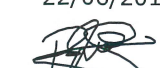
Chairman's Signature: 
Chairman's Name: STEVEN J THURLIP

Date of Approval: 24 Aug 2016 **Expiry Date:** 23 Aug 2021

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No.'s TS914, TS1001 & TS978 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE TESTING CONDUCTED ON THE 9th APRIL 2013, 2nd MAY 2013, 6th MAY 2013 & 16th OCTOBER 2014.
- 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: 22/06/2016
Signature: 

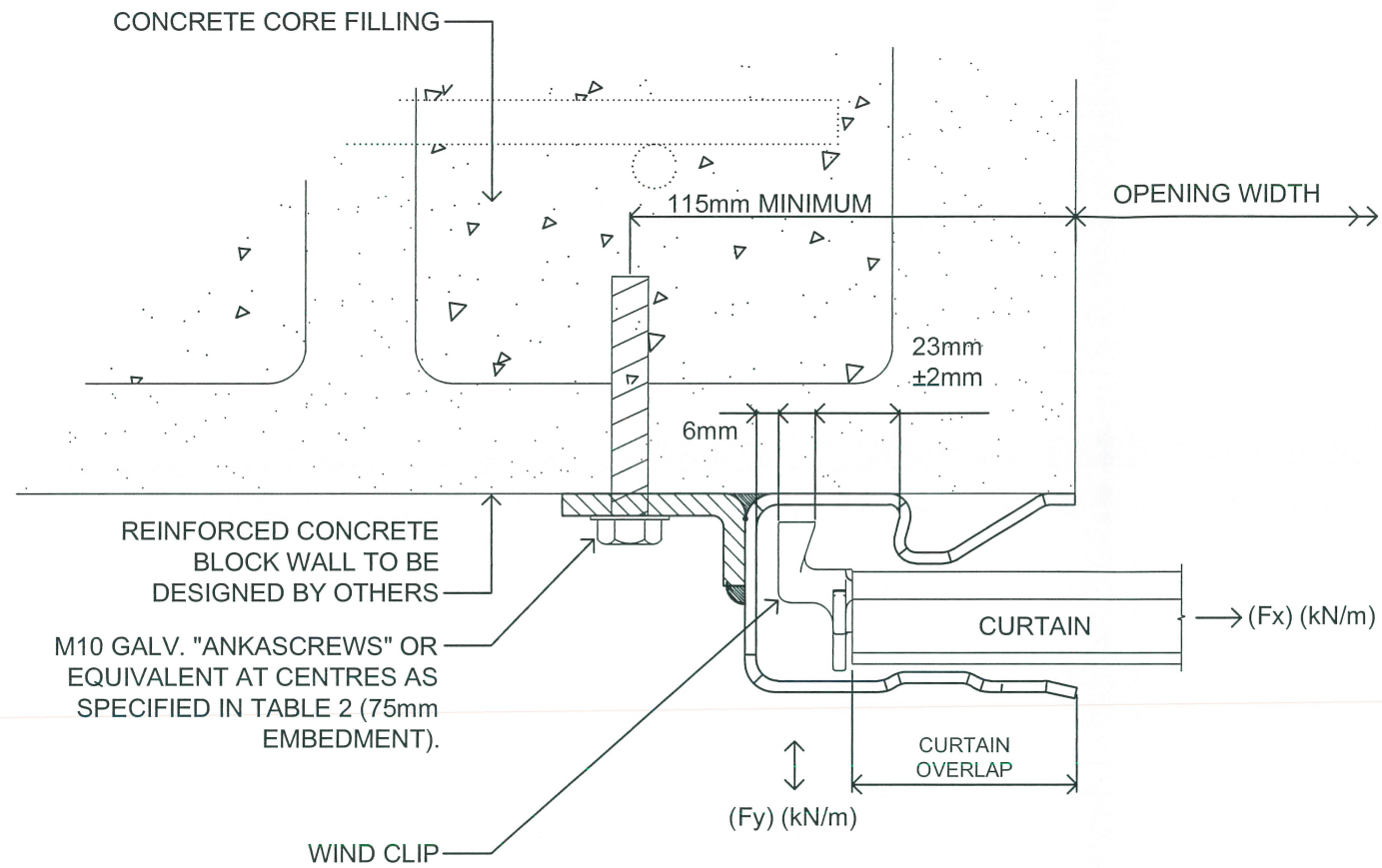
**registered as a structural engineer in Australia

****Certifying Engineers Certification**

Name: ASSET SERVICES PTY LTD
NT Registration Number: 152941ES
Date: 22/06/2016
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.



SECTION 1 PLAN
SCALE = 1:2

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

NOTE: SAME DETAIL IS TO BE ADOPTED WHEN CHANNEL
GUIDE WITH LUGS ARE SUPPORTED ONTO REINFORCED
CONCRETE PANELS.

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 $V_R = 69.3\text{m/s}$
- DOORS ARE RATED UP TO AN ULTIMATE DESIGN WIND PRESSURE FOR A GIVEN MAXIMUM ALLOWABLE OPENING WIDTH AS NOMINATED IN TABLE 1 & FIGURES 1 & 2 ON DRAWINGS 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
- RAMSET SPECIFERS RESOURCE BOOK

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 (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 STRUCTURAL ENGINEER.
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- THE STRUCTURAL ENGINEER IS TO DESIGN ADDITIONAL STEEL SUPPORTS AT DOOR OPENING ENDS FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT. REFER ALSO TO NOTATION BELOW TABLE 2 ON DRAWING S05.

Accepted for Inclusion

DTCM ref: *M/434/03* DRAWING No. S03-Rev.1

Chairman's Signature:

Chairman's Name:

STEVEN J EURLIGH

Date of Approval: *24 Aug 2016* Expiry Date: *23 Aug 2021*

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No.'s TS914, TS1001 & TS978 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE TESTING CONDUCTED ON THE 9th APRIL 2013, 2nd MAY 2013, 6th MAY 2013 & 16th OCTOBER 2014.
- 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: 22/06/2016
Signature:

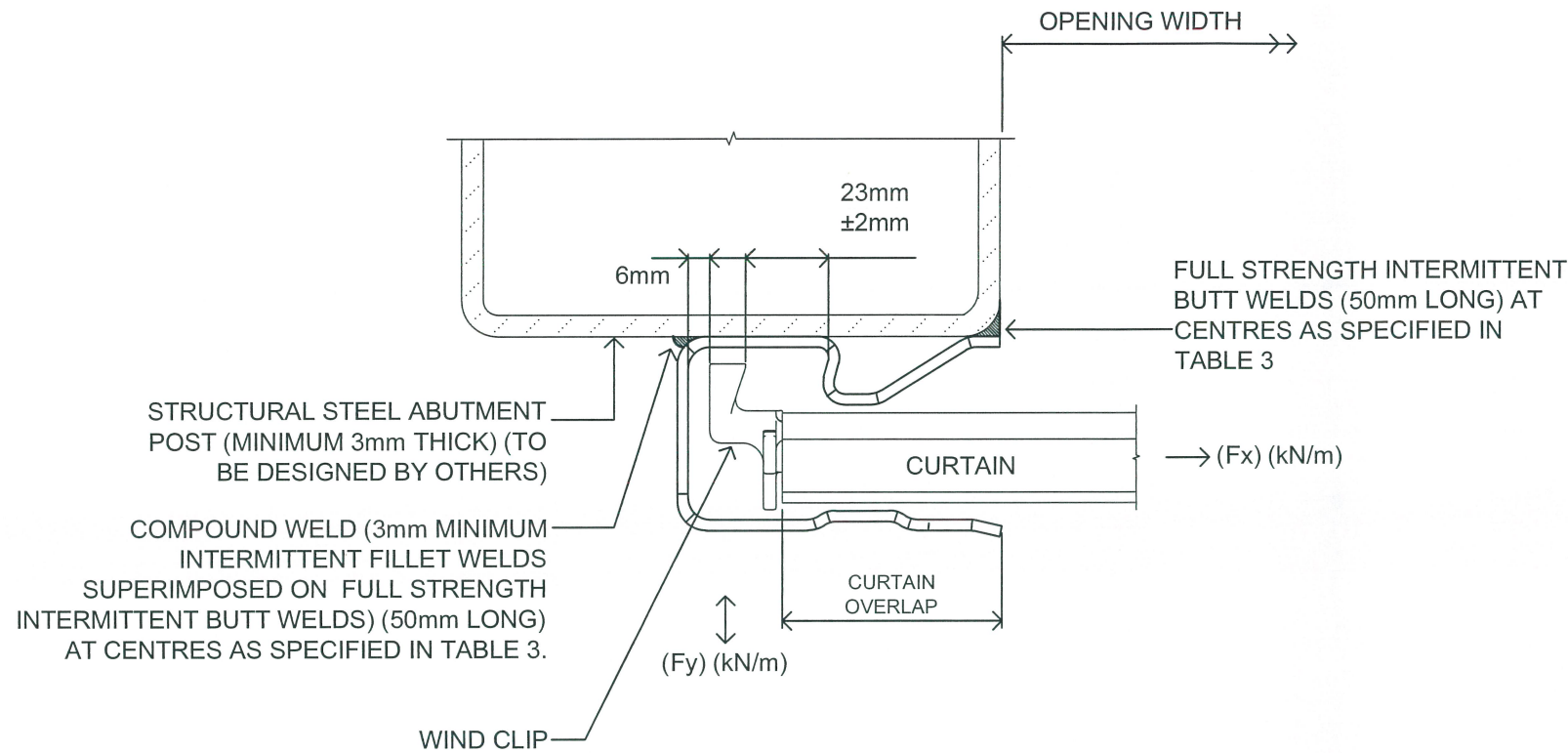
**registered as a structural engineer in Australia

****Certifying Engineers Certification**

Name: ASSET SERVICES PTY LTD
NT Registration Number: 152941ES
Date: 22/06/2016
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.



SECTION 1 PLAN
SCALE = 1:2

TYPE 2 FIXING - CHANNEL GUIDE WELDED TO STRUCTURAL STEEL ABUTMENT

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 & 2 ON DRAWINGS 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
 - RAMSET SPECIFIERS RESOURCE BOOK

- 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 (μ) BETWEEN ALL STEEL SURFACES HAS BEEN ASSUMED TO BE NO LESS THAN 0.3.
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 - THE STRUCTURAL ENGINEER IS TO DESIGN ADDITIONAL STEEL SUPPORTS AT DOOR OPENING ENDS FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT. REFER ALSO TO NOTATION BELOW TABLE 2 ON DRAWING S05.

Accepted for Inclusion

DTCM ref: M/434/04 DRAWING No. S04-Rev.1

Chairman's Signature:

Chairman's Name: STEVEN J. EHRLICH

Date of Approval: 24 Aug 2016 **Expiry Date:** 23 Aug 2021

- Notes covering basis of DTC (Relevant test reports etc)
- REPORT No.'s TS914, TS1001 & TS978 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
 - IN-HOUSE TESTING CONDUCTED ON THE 9th APRIL 2013, 2nd MAY 2013, 6th MAY 2013 & 16th OCTOBER 2014.
 - 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: 22/06/2016
Signature:

**registered as a structural engineer in Australia

****Certifying Engineers Certification**

Name: ASSET SERVICES PTY LTD
NT Registration Number: 152941ES
Date: 22/06/2016
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 - MAXIMUM ALLOWABLE OPENING WIDTHS (L) FOR A GIVEN WIND PRESSURE

MAXIMUM ALLOWABLE OPENING WIDTHS FOR DOOR HEIGHTS UP TO 10m												
REGION	TERRAIN CATEGORY	ULTIMATE DESIGN WIND PRESSURE	4/100 SLAT		6/100 SLAT		8/100 SLAT		10/100 SLAT		12/100 SLAT	
			WINDCLIPS AT EVERY SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS AT EVERY SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS AT EVERY SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS AT EVERY SLAT	WINDCLIPS EVERY 2nd SLAT	WINDCLIPS AT EVERY SLAT	WINDCLIPS EVERY 2nd SLAT
C	2	3.66 KPa	8.5m	5.4m	8.7m	5.45m	10.6m	6.65m	10.6m	6.65m	10.6m	6.65m
	2.5	3.07 KPa	9.6m	6.0m	9.8m	6.1m	11.9m	7.5m	11.9m	7.5m	11.9m	7.5m

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

FASTENING SPECIFICATIONS FOR FIXING INTO REINFORCED BLOCKWORK OR REINFORCED CONCRETE ABUTMENTS - TYPE 1		
ABUTMENT TYPE	CURTAIN TYPE	WINDCLIPS AT EVERY 2nd SLAT
15 MPa REINFORCED BLOCK WALL	4/100	M10 ANKASCREWS AT 200 CTS.
	6/100	M10 ANKASCREWS AT 180 CTS.
	8/100	M10 ANKASCREWS AT 125 CTS.
	10/100	M10 ANKASCREWS AT 125 CTS.
	12/100	M10 ANKASCREWS AT 125 CTS.
20 MPa CONCRETE WALL	4/100	M10 ANKASCREWS AT 250 CTS.
	6/100	M10 ANKASCREWS AT 225 CTS.
	8/100	M10 ANKASCREWS AT 150 CTS.
	10/100	M10 ANKASCREWS AT 150 CTS.
25 MPa CONCRETE WALL	4/100	M10 ANKASCREWS AT 275 CTS.
	6/100	M10 ANKASCREWS AT 250 CTS.
	8/100	M10 ANKASCREWS AT 175 CTS.
	10/100	M10 ANKASCREWS AT 175 CTS.
32 MPa CONCRETE WALL	4/100	M10 ANKASCREWS AT 300 CTS.
	6/100	M10 ANKASCREWS AT 275 CTS.
	8/100	M10 ANKASCREWS AT 200 CTS.
	10/100	M10 ANKASCREWS AT 200 CTS.

NOTE: FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT AND WITH GUIDES PROPOSED TO BE SECURED TO REINFORCED BLOCK WORK OR CONCRETE ABUTMENTS, THE BUILDER IS TO CAST IN A STEEL PLATE OR POST ALONG THE ABUTMENT EDGE (DESIGN DETAILS TO BE PROVIDED BY A STRUCTURAL ENGINEER) TO ENABLE THE GUIDE TO BE WELDED TO THE ABUTMENT IN ACCORDANCE WITH TYPE 2 FIXING REQUIREMENTS.

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

FASTENING SPECIFICATION FOR FIXINGS ONTO STRUCTURAL STEEL ABUTMENTS - TYPE 2			
ABUTMENT TYPE	CURTAIN TYPE	WINDCLIPS AT EVERY SLAT	WINDCLIPS AT EVERY 2nd SLAT
STEEL	4/100	WELDED AT 200 CTS.	WELDED AT 400 CTS.
	6/100	WELDED AT 175 CTS.	WELDED AT 350 CTS.
	8/100	WELDED AT 150 CTS.	WELDED AT 300 CTS.
	10/100	WELDED AT 150 CTS.	WELDED AT 300 CTS.
	12/100	WELDED AT 150 CTS.	WELDED AT 300 CTS.

NOTE: FOR WELD TYPE REFER TO SECTION 1 ON DRAWING S04 Rev.1

TABLE 4 - MAXIMUM ULTIMATE DESIGN CATENARY FORCE (F_x) PER METRE HEIGHT BASED ON MAXIMUM ALLOWABLE OPENING WIDTHS

MAXIMUM ULTIMATE DESIGN CATENARY FORCE (F _x) PER METRE HEIGHT		
CURTAIN TYPE	WINDCLIPS AT EVERY SLAT	WINDCLIPS AT EVERY 2nd SLAT
4/100	91.6 KN/m	45.8 KN/m
6/100	93.2 KN/m	46.6 KN/m
8/100	125.8 KN/m	62.9 KN/m
10/100	125.8 KN/m	62.9 KN/m
12/100	125.8 KN/m	62.9 KN/m

NOTE: THE MAXIMUM ULTIMATE DESIGN CATENARY FORCES HAVE BEEN DERIVED USING THE MAXIMUM ALLOWABLE OPENING WIDTHS (L) FOR THE GIVEN WIND PRESSURES IN TABLE 1.

NOTE 1: $F_y = \frac{W \cdot L}{2}$

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)

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 & 2 ON DRAWINGS 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
- RAMSET SPECIFERS RESOURCE BOOK

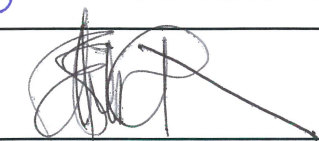
Limitations

- 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 (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 STRUCTURAL 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 PRESSURES FOR ANY GIVEN SPAN DO NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 2 ON DRAWINGS S05 AND S06.
- THE BUILDING DESIGN STRUCTURAL ENGINEER IS TO ENSURE THAT THE SITE SPECIFIC DESIGN WIND LOADINGS DO NOT EXCEED THE ULTIMATE DESIGN WIND PRESSURE RATINGS PROVIDED IN TABLE 1 AND FIGURES 1 & 2 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 PRESSURES FOR ANY GIVEN SPAN DO NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 2.
- THE STRUCTURAL ENGINEER IS TO DESIGN ADDITIONAL STEEL SUPPORTS AT DOOR OPENING ENDS FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT. REFER ALSO TO NOTATION BELOW TABLE 2 ON DRAWING S05.

Accepted for Inclusion

DTCM ref: M/434/05 DRAWING No. S05-Rev.1

Chairman's Signature:



Chairman's Name:


STEVEN J EARLICH

Date of Approval: 24 Aug 2016 Expiry Date: 23 Aug 2021

Notes covering basis of DTC (Relevant test reports etc)

- REPORT No.'s TS914, TS1001 & TS978 (CYCLONE TESTING STATION, SCHOOL OF ENGINEERING AND PHYSICAL SCIENCES, JAMES COOK UNIVERSITY).
- IN-HOUSE TESTING CONDUCTED ON THE 9th APRIL 2013, 2nd MAY 2013, 6th MAY 2013 & 16th OCTOBER 2014.
- 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: 22/06/2016
Signature: 

**registered as a structural engineer in Australia

**Certifying Engineers Certification

Name: ASSET SERVICES PTY LTD
NT Registration Number: 152941ES
Date: 22/06/2016
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.

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 & 2 ON DRAWINGS 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
- RAMSET SPECIFERS RESOURCE BOOK

Limitations

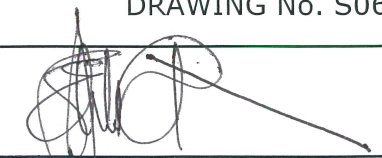
- STEEL ABUTMENT POSTS TO BE 3mm (MIN.) IN THICKNESS WITH A MINIMUM STRESS GRADE OF G250.
- CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF BLOCK WALL UNIT (f_{uc}) = 15 MPa (MIN.).
- CORE FILLING OF BLOCKWALL (f'_c) = 15 MPa (MIN.).
- COEFFICIENTS OF FRICTION (μ) BETWEEN ALL STEEL SURFACES HAS BEEN 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 STRUCTURAL 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 PRESSURES FOR ANY GIVEN SPAN DO NOT EXCEED THE VALUES PROVIDED IN TABLE 1 AND FIGURES 1 & 2 ON DRAWINGS S05 AND S06.
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- THE STRUCTURAL ENGINEER IS TO DESIGN ADDITIONAL STEEL SUPPORTS AT DOOR OPENING ENDS FOR DOORS THAT STRUCTURALLY REQUIRE WINDCLIPS AT EVERY SLAT. REFER ALSO TO NOTATION BELOW TABLE 2 ON DRAWING S05.

Accepted for Inclusion

DTCM ref: *M/434/06*

DRAWING No. S06-Rev.1

Chairman's Signature:

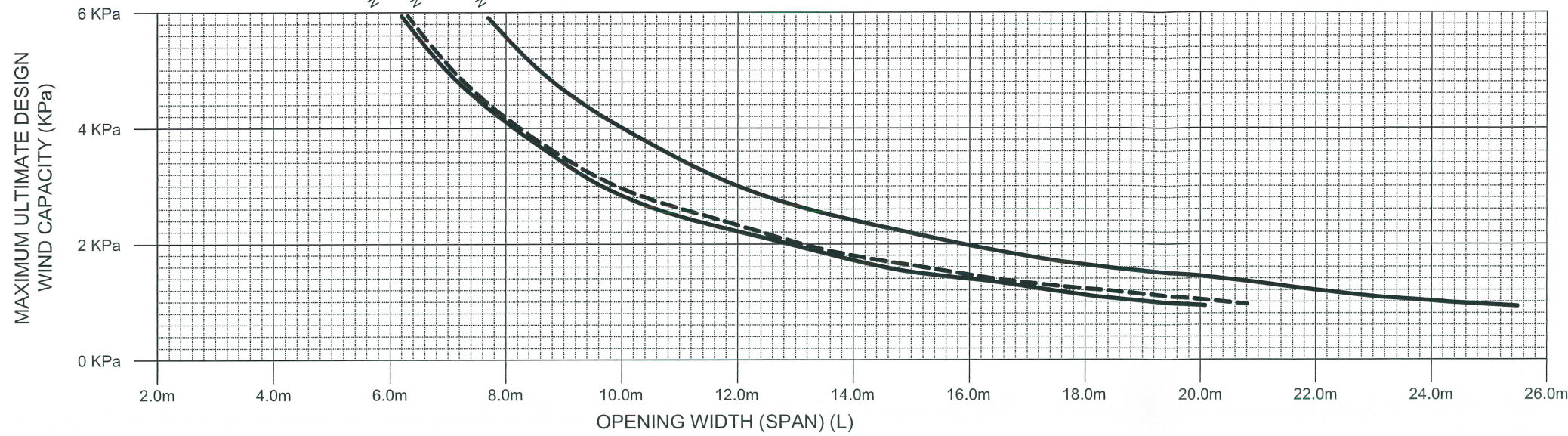


Chairman's Name:

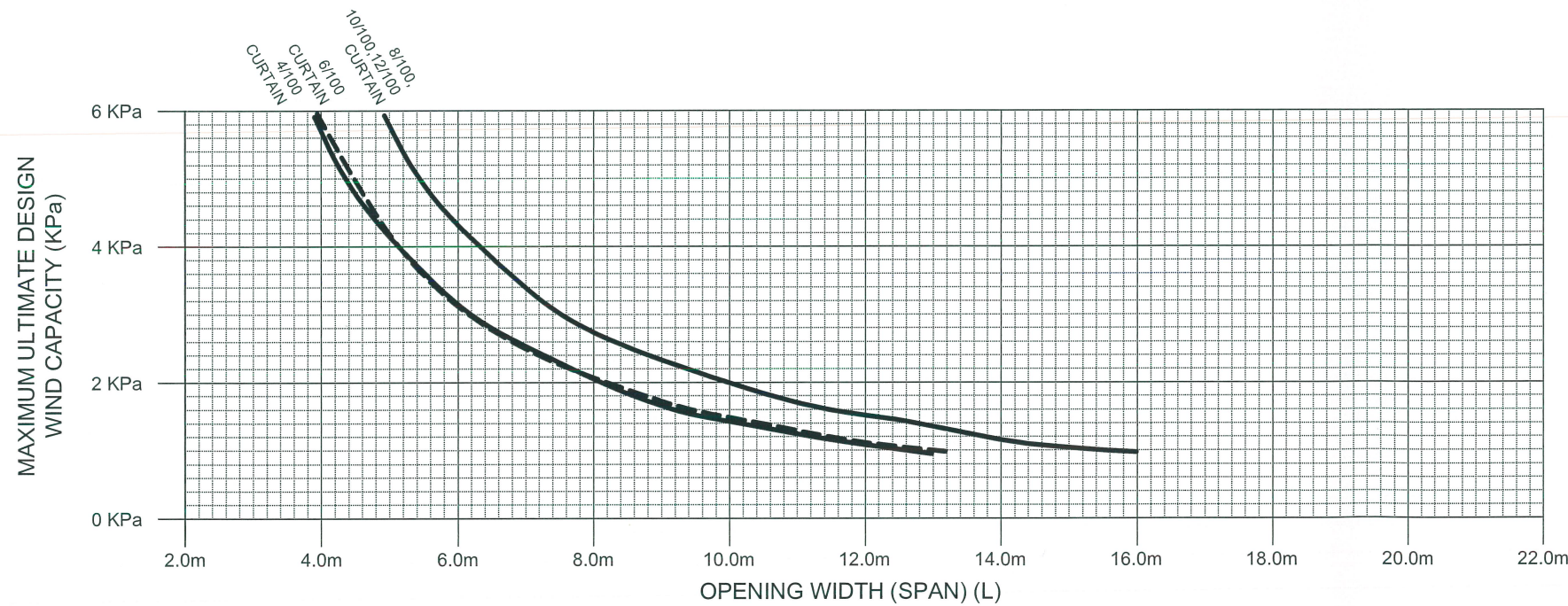
STEVEN J. EHRLICH

Date of Approval: *24 Aug 2016*

Expiry Date: *23 Aug 2021*



NOTE: CURTAIN WIDTH = OPENING WIDTH + CURTAIN OVERLAPS
FIGURE 1: ULTIMATE DESIGN WIND CAPACITY FOR A GIVEN SPAN (CLIPS AT EVERY SLAT)




NOTE: CURTAIN WIDTH = OPENING WIDTH + CURTAIN OVERLAPS
FIGURE 2: ULTIMATE DESIGN WIND CAPACITY FOR A GIVEN SPAN (CLIPS AT EVERY 2nd SLAT)

Notes covering basis of DTC (Relevant test reports etc)

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****Design Engineers Certification**

Name: JAMES ELLIS
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Date: 22/06/2016
Signature: 

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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.

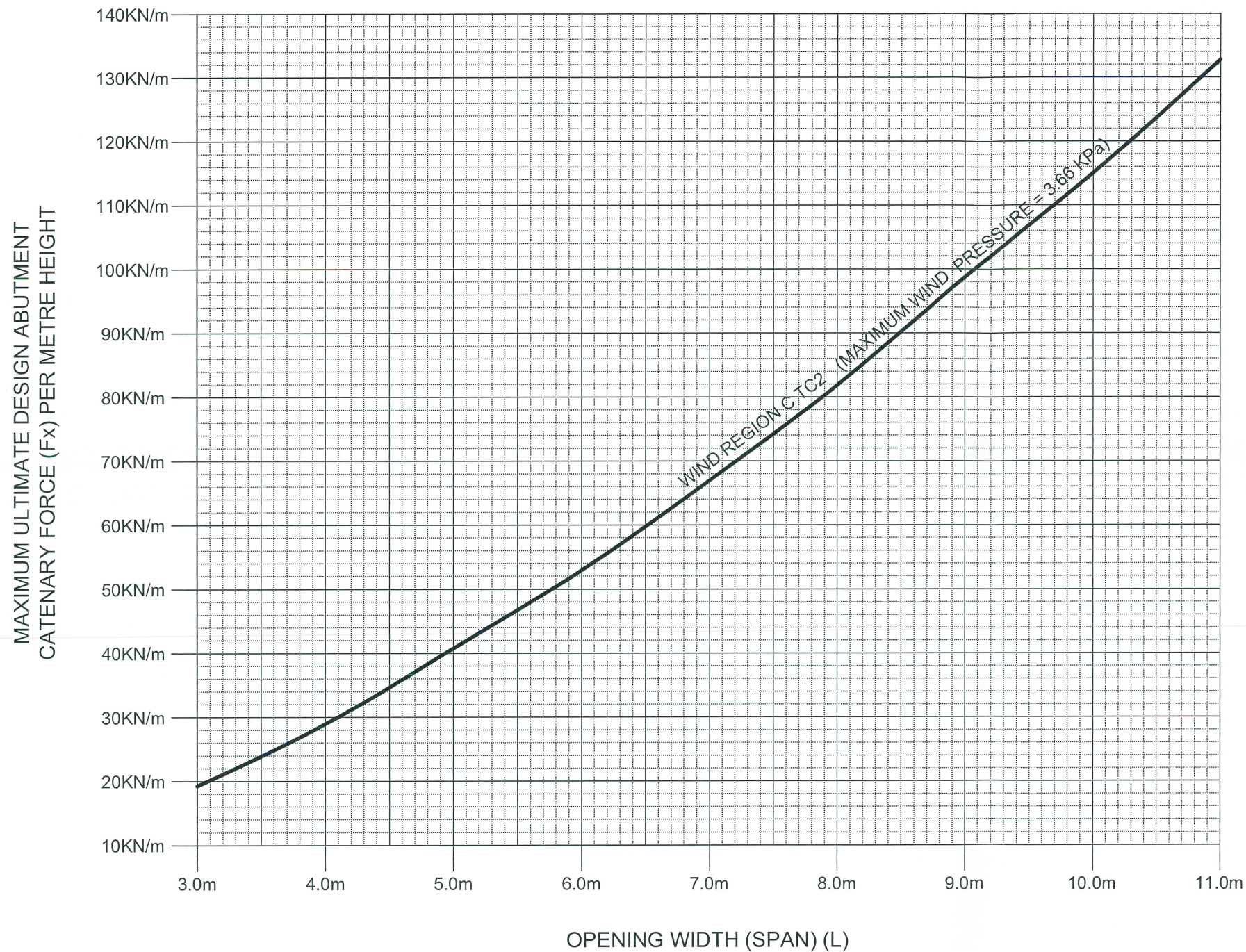


FIGURE 3: ULTIMATE DESIGN CATENARY FORCE FOR A GIVEN SPAN AND WIND PRESSURE

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)

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)
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Accepted for Inclusion

DTCM ref: *M/434/07* DRAWING No. S07

Chairman's Signature:

Chairman's Name: *STEVEN J FURLIGH*

Date of Approval: *24 Aug 2016* **Expiry Date:** *23 Aug 2021*

Notes covering basis of DTC (Relevant test reports etc)

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