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CLASS 1a-1b DTS Ver. 2013.05.15.A

Q-Bears Assessment Number 80471

Date of issue 15/11/2016

Applicant J Bird

Certifiers Building Approval Number J Bird

Applicant's Order Number Q16-0673

Approved BCA 6 Star Energy Efficiency Assessment

Building owners's Name J Bird

Building Street Address Row,Lane

Building Suburb Cedar Creek

Building State QLD

Building Post Code 4207

Building Real Property Description and Council Authority

Gold Coast City Council

Building Lot Number or Numbers 785

BCA Zone 2 <300m AHD

Building RP,DP or SP Number or Numbers 817753

BERS Pro 4.2 Zone

Building Class as per the NCC/BCA

Class 1a and/or Class 10a

And / or

And / or

Building Drawing Numbers Assessed

1

to

5

Building Project Numbers Assessed

QSM16

Building Drawing Issue Number & Date

087-11-2016

Star Rating and Conditions of Approval

Star Rating =



As per the BCA Vol 2 & QDC MP 4.1 (f)

Report Summary The report summary must be read and accepted below.

To achieve the requirements of the BCA Vol 2 Part 3.12.0 (a)(i) (B, C, D, E & F) the following must be provided:-

The QDC MP 4.1 A1 (i)(d) relaxation for ZONES 1, 2 & 5 has been incorporated into this assessment, therefore either:-

- (1) - Provide a 12 Sq m covered out-door living area as per QDC requirements, with the roof insulated to a total of R 1.5, and a minimum 900 mm ceiling fan installed - OR
- (2) - Provide a connected 1 kW solar photovoltaic panel to the roof

One OR the other of the above items must be incorporated into the full dwelling

1 - Class 1 Unenclosed floors - Nil insulation required to any suspended floors - when the QDC MP 4.1 relaxation is used

2 - Light weight cladding on METAL stud walls:- Insulbreak TM65 on battens

3 - Insulation to Roof or Ceiling can be one of four different insulation methods:-

- A. - R 3.0 bulk to ceiling only (allowance made for recessed down lights)
- B. - R 2.0 to ceiling & foil under roof sheeting (allowance made for recessed down lights)
- C. - 55 mm bonded blanket (or equal) under roof sheeting (NO allowance required for recessed down lights)
- D. - AirCell insulbreak TM 65 or equal to the roof (NO allowance required for recessed down lights)

5 - Glazing (windows & doors):- Glazing equal to or less than the NatHERS default windows as of 01-10-2014 for generic clear glass
SHGC = 0.70 & U-Value = 6.70 (SHGC plus or Minus 10%)

6 - Internal Ceiling Fans:- MUST be installed in BEDROOMS 2 & 3 (2 fans)

7 - Windows internal curtains:- N/a

8 - Rooflights / Skylights:- N/a

DOWN LIGHT EXEMPTION

9 - LED downlights can be used that do not require ventilation or insulation adjustments. EG:- SAL S9071 LED Downlight Kits. -Data sheet attached-

9 - Miscellaneous Data:- All other types of recessed down lights "MUST" have proprietary insulated covers or be of a type that does not require calculation in the BERS assessment

9 - Miscellaneous Data:- Insulation to ceiling has been adjusted for loss of insulation because of recessed down lights and other penetrations.

9 - Miscellaneous Data:- Natural ventilation is correct WITH CEILING FANS

9 - Miscellaneous Data:- IF metal studs are used in this building then a THERMAL BREAK is required as per NCC/BCA eg:- Insulbreak TM 65 or timber batten or cavity or foam tape on each stud or other alternative solution

☐ I have read the report summary above. The report summary is part of the conditions of approval for this assessment.

All BDAV accredited assessors of Q-Bears Pty Ltd have attained the NatHERS Cert IV CPP41212 & HSA Cert IV CPP41110 and certify that the above assessment has achieved the stated Star Rating as per the NCC/BCA 3.12.0 and 3.12.1.1 to 5 on the BERS PRO 4.2 program or DTS systems

Q-BEARS DEFINITIONS

copied directly from the NCC Part A1 Interpretations

Conditioned Space

Means a space within a building, including a ceiling or under-floor supply air plenum or return air plenum, where the environment is likely, by the intended use of the space, to have its temperature controlled by air-conditioning.

But does NOT include:-

- a) a non-habitable room of a Class 2 building or a Class 4 part of a building in which a heater with a capacity of not more than 1.2 kW or 4.3 MJ/hour provides the air-conditioning, or
- (b) a space in a Class 6, 7, 8 or 9b building where the input energy to an air-conditioning system is not more than 15 W/m² or 15 J/s.m² (54 KJ/hour.m², or
- (c) a Lift shaft

Envelope

For the purposes of **Section J**, means the parts of a building's fabric that separate a conditioned space or habitable room from:

- (a) the exterior of the building; or
- (b) a non-conditioned space including---
 - (i) the floor of a rooftop plant room, lift-machine room or the like; and
 - (ii) the floor above a carpark or warehouse; and
 - (iii) the common wall with a carpark, warehouse or the like

Fabric

means the basic building structural elements and components of a building including roof, ceilings, walls and floors

Floor Area

- (a) in relation to a building --- the total area of all storeys; and
- (b) in relation to a storey the area of all floors of the storey measured over the enclosing walls

Glazing

for the purposes of **Section J**, means a transparent or translucent element and its supporting frame located in the envelope, and includes a window other than a roof light

Habitable room

Means a room used for normal domestic activities, and---

- (a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but
- (b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialized nature occupied neither frequently nor for extended periods

R-Value (m².K/w)

means the thermal resistance of a component calculated by dividing its thickness by its thermal conductivity (written as R 0.0)

Total R-Value

means the sum of the R-Values of the individual component layers (surface air films, claddings, air spaces and the like), in a composite element (floors, walls & roofs), including any building material, insulation material, airspace and associated surface resistances. (written as R_t)

Incorporation of QDC MP 4.1 Acceptable Solutions

A1 (1) A class 1 building, including an enclosed attached class 10a part, complies with and this report incorporates:-

(f) Part 3.12 of the BCA 2009 Vol 2, where a Nominal Credit of not less than 1 star is obtained under (2)

A1 (2) For the purposes of A1 (1) (d)-(f) the following Nominal Credits have been incorporated in this EE report.

(b) 1 star where a building includes a covered outdoor living area, the roof of which achieves a R-Value of at least 1.5 for downward heat flow and includes a permanently installed (& powered) ceiling fan with a speed controller and a blade rotation of n

(c) 1 star where a building has a solar photovoltaic system of at least 1kW in capacity (maximum power output) installed.

Artificial Lighting requirements Class 1 buildings, including verandahs, patios, balconies or the like and attached Class 10a buildings

Other requirements of the Queensland Development Code:- MP 4.1 parts A5, A7, A8, & A9

A5 For hot water systems for a class 1 building: (a) disregard BCA 2010 Vol 2 3.12.5.6 ; and instead (b) comply with the Queensland Plumbing and Wastewater Code.

A7 In class 1 and class 2 buildings, in areas serviced by a water service provider, all shower roses have a minimum 3-star Water Efficiency Labelling and Standards rating (WELS)

A8 In class 1 and 2 buildings, in areas serviced by a water service provider, all toilet cisterns must: (a) have a dual flush function and have a minimum 4-star Water Efficiency Labelling and Standards rating; and (b) are compatible with the size of the toilet bowl to allow for proper function of the toilet

A9 In class 1 and class 2 buildings, in areas serviced by a water service provider, tap ware must have a minimum 3-star Water Efficiency Labelling and Standards rating where they serve: (a) laundry tubs, (b) Kitchen sinks, (c) Basins

If The QDC A1 (i) (f) is used the following Building Fabric conditions must be complied with

Vol 2 3.12.1.2 ROOFS

- (a) A roof must achieve the total R-Value specified in Table 3.12.1.1 for the direction of heat flow; or
- (b) In climate zones 1, 2 & 3, the total R-Value specified in Table 3.12.1.1 is reduced by R 0.5 for each of the following conditions:-

1

2

Vol 2 3.12.1.2(c) for Thermal Breaks to Roofs

Must be made to comply

3.12.1.2(c) A roof that - (i) is required to achieve a minimum Total R-Value; and (ii) has metal sheet roofing directly fixed to metal purlins, metal rafters or metal battens; and (iii) does not have a ceiling lining or has a ceiling lining fixed directly to those purlins, rafters or battens, must have a thermal break, consisting of a material with an R-Value of not less than 0.2, installed between the metal sheet roofing and its supporting metal purlins, rafters, or battens

Vol 2 3.12.1.3 Roof Lights

- (a) Roof lights serving a *HABITABLE* room or an interconnecting space such as a corridor, hallway, stairway or the like must comply with (i) (ii) (A) (B)
- (b) The aggregate area of roof lights serving a building must not exceed 3% of the total area of the floor of the storey served

Vol 2 3.12.1.4 External Walls

- (a) Each part of an external wall must satisfy one of the options in Table 3.12.1.3 except for--
 - (i) in climate zones 1, 2 and 3 south of latitude 20 degrees, an external wall facing south; and
 - (ii) opaque non-glazed openings such as doors (including garage doors), vents, penetrations, shutters and the like; and
 - (iii) glazing; and
 - (iv) a storey of a building complying with (b)
- (b) in climate zones 1 and 2, the requirements of (a) do not apply to the storey of a building provided--
 - (i) the external walls achieve a surface density of not less than 220 kg/m³; and
 - (ii) the external surface of the external walls achieves a solar absorptance of not more than 0.45 (a light colour); and
 - (iii) the external glazing complies with 3.12.2.1 with the applicable value for C_{SHGC} in Table 3.12.1.2 reduced by--
 - (A) 15%, when the external walls are shaded with a verandah, balcony, carport or the like which project at a minimum angle of 15 degrees in accordance with Figure 3.12.1.2 or (15 degrees from perpendicular at floor level to the external point of the eaves, or shade structure); and
 - (B) 25%, when the external walls are not shaded in accordance with (A) but the floor is concrete slab on ground and there is another storey above; and
 - (iv) the habitable rooms contain ceiling fans.

Vol 2 3.12.1.4(b) for Thermal Breaks to Walls

Must be made to comply

3.12.1.4(b) A wall in Table 3.12.1.3a that - (I) has lightweight external cladding such as weatherboards, fibre-cement, or metal sheeting fixed to a metal frame; and (ii) does not have a wall lining or a wall lining that is fixed directly to the metal frame as in Figure 3.12.1.3(a) and (b) of the BCA Vol 2 page 531, must have a thermal break, consisting of a material with an R-Value of not less than 0.2, installed between the external cladding and the metal frame.

Vol 2 3.12.1.5 Floors

- (a) A suspended floor in zones 4, 6, 7 and 8, other than an intermediate floor in a building with more than one storey
 - (i) must achieve the Total R-Value in Table 3.12.1.4 for the downwards direction of heat flow; and
 - (ii) with an in-slab heating or cooling system, must be insulated around the vertical edge of it's perimeter and underneath the slab with not less than R 1.0 insulation
- (c) A concrete slab on ground that has an in-slab heating or cooling system; or in climate zone 8 must have R 1.0 insulation installed around the perimeter's vertical edge

Vol 2 3.12.1.6 Attached Class 10a Buildings

A Class 10a building attached to a Class 1 building must --

- (a) have an external fabric that achieves the required level of thermal performance for a Class 1 building; or
- (b) be separated from the Class 1 building with construction having the required level of thermal performance for the Class 1 building; or
- (c) in climate zones 4 and 5 - (i) be enclosed with masonry walls other than where there are doors and glazing; and, (ii) be separated from the Class 1 building with a masonry wall that extends to the ceiling; and (ii) achieve a total R-Value in the roof equivalent to the requirements of the Class 1 building

Flooring System Breakdown

Any type of floor covering (Carpet, Vinyl, Tiles, Bare or Polished),Unenclosed sheet timber flooring,0001 Nil insulation,Open joist,Open joist open ai

		Heat Direction	UP
Floor Covering	Any type of floor covering (Carpet, Vinyl, Tiles, Bare or Polished)		0.11
Flooring Type	Unenclosed sheet timber flooring		0.26
Added Insulation	0001 Nil insulation		0.00
Floor Air Space	Open joist		0.00
Under Floor Ceiling	Open joist open air space		0.03
Total R-Value of system			0.40



Incorporating the QDC MP 4.1 A1 (1) (f) where the 2009 BCA Vol 2 part 3.12 is used when a NOMINAL CREDIT of 1 star is achieved from A1 (2) (a, b or c)

Required R-Value for the BCA DTS of Volume 2 0.00

Wall System Breakdown

Multiple types of light weight cladding (FC, Metal Or timber) lowest R-Value used, 20 to 50 mm air space (for cavity or battens), Air-Cell insulbreak TM

External Cladding	Multiple types of light weight cladding (FC, Metal Or timber) lowest R-Value used	0.07
First Cavity	20 to 50 mm air space (for cavity or battens)	0.17
External Insulation	Air-Cell insulbreak TM 65 light weight clad walls with air space summer	1.18
Wall Construction	70+ mm timber or metal stud walls	0.00
Internal Insulation	001 Nil insulation	0.00
Second or wall cavity	10 to 100 reflective air space	0.65
Internal wall lining	Plasterboard/FC wall lining	0.18
Total R-Value of system		2.25



Incorporating the QDC MP 4.1 A1 (1) (f) where the 2009 BCA Vol 2 part 3.12 is used when a NOMINAL CREDIT of 1 star is achieved from A1 (2) (a, b or c)

Required R-Value for the BCA DTS of Volume 2 1.9

Roof System Breakdown

Metal roof cladding,Air-Cell insulbreak TM 65 ,Pitched roof > 10 degrees unventilated air space,00 Insulation as required,Plasterboard/FC ceiling

		Heat Direction	DOWN
External Cladding	Metal roof cladding		0.03
Roof Insulation	Air-Cell insulbreak TM 65		3.20
Roof Construction	Pitched roof > 10 degrees unventilated air space		0.28
Ceiling Insulation	00 Insulation as required		0.00
Ceiling Material	Plasterboard/FC ceiling		0.22
		Total R-Value of system	3.73

Incorporating the QDC MP 4.1 A1 (1) (f) where the 2009 BCA Vol 2 part 3.12 is used when a NOMINAL CREDIT of 1 star is achieved from A1 (2) (a, b or c)

Required R-Value for the BCA DTS of Volume 2 2.70

3.12.4 AIR MOVEMENT CONDITIONS

Vol 2 3.12.4.1 Air Movement

- (a) Air movement must be provided to a HABITABLE rooms in accordance with Table 3.12.4.1
- (b) Air movement required by (a) may be provided through an opening from an adjoining room (including an enclosed verandah) if --
 - (i) the adjoining room is not a sanitary compartment; and
 - (ii) the adjoining room/rooms meet the specifications of Figure 3.8.5.1 from Part 3.8.5 Ventilation
- (c) Region D is not applicable in Queensland

Vol 2 3.12.4.2 Ventilation

- (a) In climate zones 1, 2, 3, 4 & 5 the total ventilation opening area required by Table 3.12.4.1 to a HABITABLE room must--
 - (i) be connected by a breeze path complying with (b) to another ventilation opening in another room or space; or
 - (ii) be provided by a minimum of two ventilation openings located within the same HABITABLE room, with the smaller ventilation opening being not less than 25% of the required area in Table 3.12.4.1
- (b) A breeze path required by (a) (i) must--
 - (i) Pass through not more than two openings which are not less than 1.5 m²; and
 - (ii) Have a distance along the breeze path between ventilation openings of not more than 20 m

Vol 2 3.12.4.3 Ceiling Fans and Evaporative Coolers

- A ceiling fan or evaporative cooler required to comply with Table 3.12.4.1 must--
- (a) Be permanently fixed; and
 - (b) Have a working speed controller; and
 - (c) For a ceiling fan, have a blade rotation diameter of not less than 900 mm
 - (d) For ceiling fans must comply with the Australian Standards for safety for the height of the fan blades



Part 3.12.3 Building Sealing

(a) This Part Applies to - (i) a class 1 building; and (ii) a class 10a building with a conditioned space. (b) The provisions of (a) do not apply to the following (i) A building in climate zones 1, 2, 3 & 5 where the only means of air-conditioning is by using an evaporative cooler, (ii) A permanent building ventilation opening that is necessary for the safe operation of a gas appliance, (iii) A Class 10a building used for the accommodation of vehicles (conditioned or not)

In all the following Acceptable Construction Requirements automatically apply to (I) a conditioned space; or (ii) a habitable room in climate zones 4, 5, 6, 7 & 8

3.12.3.1 Chimneys and Flues

3.12.3.2 Roof Lights

3.12.3.3 External Windows and Doors

APPLICABLE:-	(a) a seal to restrict air infiltration must be fitted to each edge of an external door, openable window and any other such opening.
	(b) A window complying with the maximum air infiltration rates specified in AS 2047 need not comply with (a)
	(c) A seal required by (a)- (i) for the bottom edge of an external swing door must be a draft protection device; and (ii) For the other edges of an external swing door or the edges of an openable window or the like, may be a foam or rubber compressible strip, fibrous seal or the like.

3.12.3.4 Exhaust Fans

3.12.3.5 Construction of Roofs, Walls & Floors

APPLICABLE:-	(a) Roofs, External walls or floors and any opening such as the external side of window, door or roof light frames or the like must be constructed to minimise air leakage in accordance with (b) when forming part of the external fabric of the building.
	(b) Construction required by (a) must be:- (I) enclosed by internal lining systems that are close fitting at ceiling, walls and floor junctions; or (ii) sealed by caulking to skirting, architraves, cornices or the like

3.12.3.6 Evaporative Coolers



Part 3.12.5 Services

Vol 2 3.12.5.0 Acceptable Construction Manuals

- (a) A hot water supply system must be designed and installed in accordance with Section 8 of AS/NZS 3500.4 or Clause 3.38 of AS/NZS 3500.5 (except solar hot water in zones 1, 2, & 3)
- (b) in Queensland for hot water systems (a) disregard BCA Vol 2 3.12.5.6; and instead use (b) comply with the Queensland Plumbing and Wastewater Code

Vol 2 3.12.5.1 Insulation of Services

Thermal insulation for central heating water piping and heating and cooling ductwork must (a) be protected against the effects of weather and sunlight; and (b) be able to withstand the temperatures within the piping or ductwork; and (c) use thermal insulation material in accordance with AS/NXS 4859.1

Vol 2 3.12.5.2 Central Heating Water Piping

Central heating water piping that is not within a conditioned space must be thermally insulated to achieve the minimum material R-Value in accordance with Table 3.12.5.1

Central heating water piping provisions only apply to systems designed to heat the building (including heating and cooling piping to split system air -conditioners)

Vol 2 3.12.5.3 Heating and Cooling Ductwork

- (a) Heating and cooling ductwork and fittings (including all duct work to air -conditioning system) must
 - (i) achieve the material R-Value in Table 3.12.5.2; and
 - (ii) be sealed against air loss--
 - (A) by closing all openings in the surface, joints & seams of ductwork with adhesives, mastics, sealants or gaskets in accordance with AS 4254 for a Class 4 seal; or
 - (B) for flexible ductwork, with a draw brand in conjunction with a sealant or adhesive tape.
- (b) Duct insulation must -
 - (i) abut adjoining duct insulation to form a continuous barrier; and
 - (ii) be installed so that it maintains its position and thickness, other than at flanges and supports; and
 - (iii) where located outside the building, under a suspended floor, in an attached Class 10a building or in a roof space -
 - (A) be protected by an outer sleeve of protective sheeting to prevent the insulation becoming damp; and
 - (B) have the outer protective sleeve sealed with adhesive tape not less than 48 mm wide creating an airtight and waterproof seal.
- (c) The requirements of (a) do not apply to heating & cooling ductwork & fittings located within the insulated building envelope including service risers, internal floor spaces and the like

Vol 2 3.12.5.4 Electric Resistance Space Heating

An electric resistance space heating system that serves more than one room must have -

- (a) Separate isolating switches for each room; and
- (b) a separate temperature controller and time switch for each group of rooms with common heating needs; and
- (c) power loads of not more than 110 W/m² for living areas, and 150 W/m² for bathrooms

Vol 2 3.12.5.5 Artificial Lighting

HAS BEEN REPLACED WITH THE QDC A3 (b) and THEREFORE NOT APPLICABLE

Vol 2 3.12.5.6 Water Heater

HAS BEEN REPLACED WITH THE QDC A5 (b) and THEREFORE NOT APPLICABLE

Vol 2 3.12.5.7 Heating and Pumping of a Swimming Pool or Spa Pool

- (a) Heating for a swimming pool other than a spa pool must be by a solar heater not boosted by electric resistance heating

- (b) Heating for a spa pool having a capacity of 680 l or more must be by -

- (i) a solar heater; or
- (ii) a gas heater; or
- (iii) a heat pump; or
- (iv) a combination of 2 or more of (i), (ii) and (iii)

- (c) Where some or all the heating required by (b) is by a gas or heat pump, a spa pool must have -

- (i) a cover; and
- (ii) a push button and a time switch to control the operation of the heater

- (d) A time switch must be provided to control the operation of a circulation pump for a swimming pool other than a spa pool with capacity of less than 680 l.



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Natural Ventilation required for the dwelling assessed below is correct to the 2009 BCA as per the Queensland Development Code 4.1



Q-Bears Pty Ltd --- Ventilation Calculator - for 2009 QDC MP 4.1 relaxation

ASSESSMENT #	80471	BUILDING OWNER	J Bird & I West	NCC ZONE	2
SITE ADDRESS	Lot 785 Row lane, Cedar Creek Q 4207			LOT #	785
Storey type	1	Floor type or building #	house on stumps	RP/SP/DP #	817753
			Miscellaneous Details		

Room Name	Calculated Room Square meters	NCC required ventilation %	Relaxation type allowed by NCC & QDC MP 4.1	Required Ventilation after relaxations	Achieved amount of glazing sq meters per room	Achieved ventilation in sq meters per room	Sharing allowed from adjacent rooms (only one door between)	Percentage of Ventilation
1 Ensuite 1	5.00	10.0%	NOT APPLICABLE	0.0%	0.54	0.24		5%
2 Combined living area 1	63.83	10.0%	NONE	10.0%	13.86	6.29		10%
3 Bed 4	9.67	10.0%	NONE	10.0%	1.80	1.71		18%
4 Bathroom 1	6.25	10.0%	NOT APPLICABLE	0.0%	0.81	0.36		6%
5 WC	1.40	10.0%	NOT APPLICABLE	0.0%	0.00	0.00		0%
6 Bed 3	10.42	10.0%	CEILING FAN	5.0%	1.80	0.81		8%
7 Bed 2	10.42	10.0%	CEILING FAN	5.0%	1.80	0.81		8%
8 Bed 1	15.47	10.0%	NONE	10.0%	4.86	2.19		14%
9	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
10	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
11	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
12	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
13	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
14	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
15	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
16	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
17	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
18	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
19	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
20	0.00	10.0%		#N/A	0.00	0.00		#DIV/0!
122.46					25.47	12.42		

A ROOM IS DESCRIBED AS A WALK-IN SPACE ENCLOSED WITH WALLS, ROOF, FLOOR AND A DOOR

total average ventilation achieved

8%

GLAZING CALCULATOR FOR USE WITH PART 3.12.2, BCA VOLUME TWO (HOUSING)

Climate zone	2	Building name/description	80471 - Lot 785 Row Lane, Cedar Creek Q 4207 - (SG Generic Clear Glazing)
Storey	1	Floor Construct'n	Type A
		Area of Floor	128m ²
		Air Movement	S
		Glazing area	25.5m ²

CONSTANTS	Type A	Type B
C _u / C _{SHGC}	2.5 / 0.15	
ALLOWANCES		
C _u x Area	320.0	
C _{SHGC} x Area	19.2	

Note: Air Movement level must be separately verified

(20% of area of floor Type A)

Number of rows preferred in table below 10 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION, SIZE AND PERFORMANCE CHARACTERISTICS									
Glazing element		Orientation		Size		Performance		SHADING	
ID	Description (optional)	Floor type	Area type	Height (m)	Width (m)	Area (m ²)	Total U-Value (NFRG)	P & H or device	P & H or device
1	W1, W6 - sw	SW		0.90	1.50		6.7	Device	
2	W2, W3, W5 - sw	SW		1.20	4.80		6.7	2.60	1.50
3	W4 - sd	SW		2.10	1.80		6.7	2.60	2.40
4	W7 - aw	NW		1.80	0.60		6.7	0.60	2.10
5	W8, W9 - sw	NE		1.20	3.00		6.7	2.60	1.50
6	W10 - sd	NE		2.10	2.40		6.7	4.60	2.40
7	W11 - sd	NE		2.10	1.80		6.7	2.60	2.40
8	W12 - sw	SE		0.60	1.80		6.7	0.60	0.90
9									
10									

CALCULATION DATA				CALCULATED OUTCOMES - OK (if inputs are valid)			
Exposure		Size		Conductance - PASSED		Solar heat gain - PASSED	
P/H	E factor	Area used (m ²)	U x area	Element share of % of allowance used	SHGC x E x area	Element share of % of allowance used	
2.00	0.22	1.35	9.0	5% of 53%	0.2	4% of 27%	
1.73	0.26	5.76	38.6	23% of 53%	1.0	21% of 27%	
1.08	0.38	3.78	25.3	15% of 53%	1.0	19% of 27%	
0.29	0.70	1.08	7.2	4% of 53%	0.5	10% of 27%	
1.73	0.21	3.60	24.1	14% of 53%	0.5	11% of 27%	
1.92	0.19	5.04	33.8	20% of 53%	0.7	13% of 27%	
1.08	0.29	3.78	25.3	15% of 53%	0.8	15% of 27%	
0.67	0.46	1.08	7.2	4% of 53%	0.4	7% of 27%	

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

The Glazing Calculator has been developed by the ABCB to assist in developing a better understanding of glazing energy efficiency parameters. While the ABCB believes that the Glazing Calculator, if used correctly, will produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all. Your use of the Glazing Calculator is entirely at your own risk and the ABCB accepts no liability of any kind.

If inputs (including air movement levels) are valid



Form 15 Compliance Certificate for building Design or Specification

NOTE	This is to be used for the purpose of section 10 of the Building Act 1975 and/or section 46 of the Building Regulation 2006 RESTRICTION: A building certifier (class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the QDC. A building certifier (class B) can not give a certificate regarding QDC boundary clearance and site cover provisions												
1. Property description This section need only be completed if details of street address and property description are applicable. EG. In the case of (standard/generic) pool design/shell manufacture and/or patio and carport systems this section may not be applicable. State/Lot Number RP, SP DP Numbers Postcode The description must identify all land the subject of the application. The lot & plan details (eg. SP/RP) are shown on title documents or a rates notice. If the plan is not registered by title, provide previous lot and plan details.	Street address (include no, street, suburb / locality & postcode) <table border="1"> <tr> <td>Street</td> <td>Row</td> <td>Lane</td> </tr> <tr> <td>Suburb</td> <td>Cedar Creek</td> <td>State QLD Postcode 4207</td> </tr> </table> Lot & plan details (attach list if necessary) <table border="1"> <tr> <td>Lot Number</td> <td>785</td> <td>RP, SP, DP Numbers</td> <td>817753</td> </tr> </table> In which local government area is the land situated? <table border="1"> <tr> <td>Gold Coast City Council</td> </tr> </table>	Street	Row	Lane	Suburb	Cedar Creek	State QLD Postcode 4207	Lot Number	785	RP, SP, DP Numbers	817753	Gold Coast City Council	
Street	Row	Lane											
Suburb	Cedar Creek	State QLD Postcode 4207											
Lot Number	785	RP, SP, DP Numbers	817753										
Gold Coast City Council													
2. Description of components certified Clearly describe the extent of work covered by this certificate, e.g All structural aspects of the steel roof beams.	An assessment of the Energy Efficiency of the above dwelling (Class 1 & 10a) as per the BCA requirements as per Volume 2 Parts 3.12.1 to 3.12.5 & P2.6.2												
3. Basis of certification Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications, were relied upon.	BCA Volume 2 Parts 2.6.1 & 2.6.2 & 3.12.1 to 3.12.5 & Queensland Development Code Australian Standards National Timber Development Council Manufacturers NATA approved data sheets and specifications Code Marked material data sheets Energy Inspection's BERS verification computer program FirstRate 5												
4. Reference Documentation Clearly identify any relevant documentation eg. Numbered structural engineering plans.	Building design plans received from applicant below <table border="1"> <tr> <td>Building design plan sheet numbers</td> <td>J Bird</td> <td>1 to 5</td> </tr> <tr> <td>Building design project/job numbers</td> <td>QSM16</td> <td>Iss ##</td> </tr> </table> Any Data sheets provided by the applicant's representative below <table border="1"> <tr> <td>Certificate Number</td> <td>J Bird</td> <td>80471</td> </tr> <tr> <td>Certificate Pages</td> <td></td> <td>11</td> </tr> </table>	Building design plan sheet numbers	J Bird	1 to 5	Building design project/job numbers	QSM16	Iss ##	Certificate Number	J Bird	80471	Certificate Pages		11
Building design plan sheet numbers	J Bird	1 to 5											
Building design project/job numbers	QSM16	Iss ##											
Certificate Number	J Bird	80471											
Certificate Pages		11											

LOCAL GOVERNMENT USE ONLY

Date Received	Reference Number/s
---------------	--------------------

The *Building Act 1975* is administered by the
Department of Housing and Public Works



**Queensland
Government**

5. Building certifier reference number

Building certifier reference number If applicable or known

J Bird

6. Competent person details

A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practise in an aspect of the building and specification design, of the building work because of the individuals skill, experience and qualifications in the aspect. The competent person must also be registered or licenced under a law applying in the state to practise the aspect.

If no relevant law requires the individual to be licenced or registered to be able to give the help, the certifier must assess the individual as having appropriate experience, qualifications or skills to be able to give the help

If the chief executive issues any guidelines for assessing a competent person, the building certifier must use the guidelines then assessing the person.

Name (In full)

Glendra Harrison

Company Name (If Applicable)

QTEE Solutions Pty. Ltd.

Contact person

W.H Harrison

Phone no. (Business Hours)

1300 304 313

Mobile No.

Fax No.

1300 307 331

Email Address

info@qbears.com.au

Postal Address

PO BOX 895

Helensvale, QLD

4212

Licence or registration number (if applicable)

NatHERS Assessment Certificate IV Education in Building # 022213

Home Sustainability Assessment Certificate IV Education in Building # 021726

BERS Licence #

Solar Logic no: 148

7. Signature of competent person

This certificate must be signed by the individual assessed by the building certifier as competent.

Signature



Date

15/11/2016





281 Jacobs Well Rd, Albion QLD 4207
Tel: 07 3807 4800
Fax: 07 3807 4766
A.C.N. 164 424 417

reception@queenslandshedmarkets.com
www.qldshedmarkets.com.au

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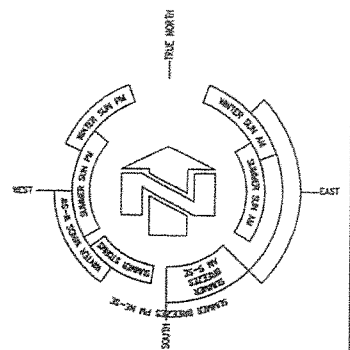
SITE: -

LOT: -785 of RP817753

LOCAL AUTH: - Gold Coast

PARISH: - Darlington Tamboirine

COUNTY: - Ward



GENERAL NOTES

ALWAYS USE FIGURED DIMENSIONS IN PREFERENCE TO DRAWING SCALE. ANY DISCREPANCIES IN ANY DOCUMENTATION REFER TO SUPERINTENDENT BEFORE COMMENCEMENT OF WORKS.

IF IN DOUBT ASK!

- . STEEL FRAME CONSTRUCTION IS TO COMPLY WITH AS4600 AND ENGINEERS SPECIFICATION FORM 15 AND 16.
- . THE BUILDER SHALL BE RESPONSIBLE FOR THE WATER TIGHTNESS OF THE BUILDING AND SHALL PROVIDE ALL FLASHING, DPC'S AND MEMBRANES NEEDED TO PREVENT THE ENTRY OF MOISTURE AND DAMPNES.
- . LIGHTING IN ALL AREAS TO COMPLY WITH CLAUSES F4.1 TO F4.4 OF THE BCA.
- . VENTILATION IS TO COMPLY WITH CLAUSES F4.5 TO 4.10 OF THE BCA.
- . THE BUILDER SHALL LOCATE ALL EXISTING SERVICES BEFORE ANY COMMENCEMENT OF WORKS.
- . DRAINAGE CONNECTIONS TO BE IN ACCORDANCE WITH LOCAL AUTHORITIES DETAILS/DRAINAGE PLAN.
- . THE BUILDER IS RESPONSIBLE FOR THE REMOVAL OF DEBRIS FROM SITE.
- . READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DRAWINGS.
- . INSTALLATION OF SMOKE ALARMS TO COMPLY WITH THE BCA.
- . THE BUILDER SHALL PROVIDE ADEQUATE TERMITE PROTECTION IN ACCORDANCE WITH AS3660.1. AND THE BCA.
- . ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA (BCA) AND THE BUILDING ACT AND ALL LOCAL AUTHORITIES REGULATIONS.
- . ALL CONSTRUCTION IS TO COMPLY WITH THE ENERGY EFFICIENCY CODE PART 3.12 IN BCA.

NOTE: Call/Text Line indicates only. Site dimensions taken from the title.

APPROX LOCATION OF NEW DWELLING (To be confirmed by owner) 76000

EXISTING DWELLING



Energy Rating



☒ single-dwelling rating

☐ multi-unit development (attach listings of ratings)
If selected, data specified is the average across the entire development

6.0 DTS stars
heating N/A MJ/m2
cooling N/A MJ/m2

Recessed downlights confirmation: ☐ Rated with ☒ Rated without

Assessor Name/Number Glendra Harrison VIC/BDV/13/1528 Q-BEARS Cert# 80471

Assessor Signature Date 15/11/2016

DESIGN: SPECIAL
FACADE: CEILING:
GARAGE:

OWNER: WEST Ian & BIRD Jillian
785 Rowe Lane
Cedar Creek, Queensland 4207

SITE

JOB NO: QSM16 - DATE: 08/11/2016
F.C.DATE: MST VER:

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PERMIT No: DWS: NJ
DRAWN: CALLEN CHKED: SHEET: 1 of 8

NOT TO SCALE



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Tel: 07 3807 4800 Fax: 07 3807 4766
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reception@shedmarkets.com.au
www.shedmarkets.com.au

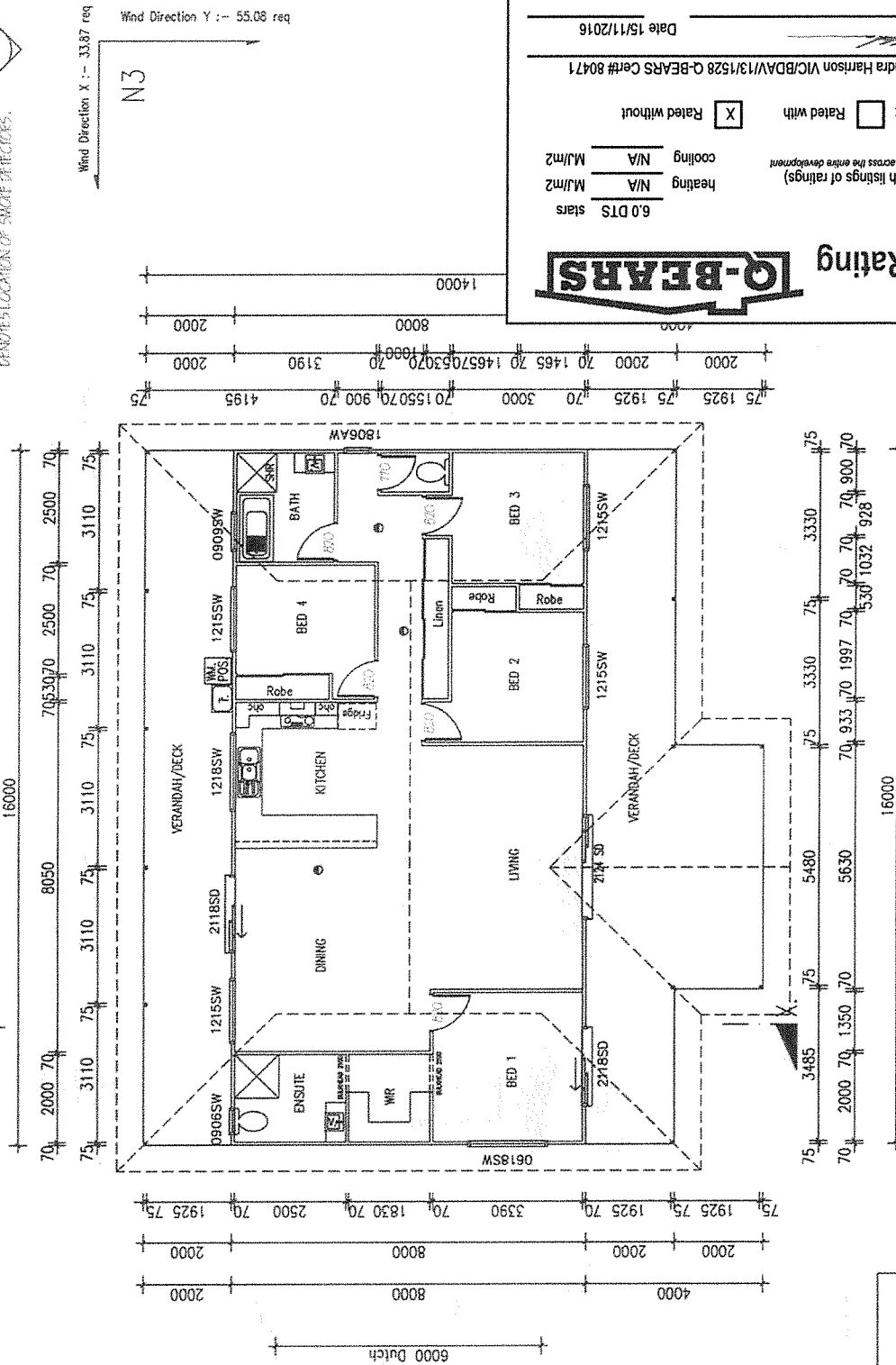
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NOTE: 70MM STEEL FRAME & TRUSSES

NOTES

PROVIDE REMOVABLE HINGES TO W/C FLOOR.
DENOTES LOCATION OF SMOKE DETECTORS.



WINDOWS NOTE:

PLEASE NOTE WINDOW SIZES ARE INDICATIVE ONLY.
PLEASE REFER TO WINDOW MANUFACTURER'S SCHEDULE TO
ASCERTAIN CORRECT OPENINGS.

GROUND FLOOR
PLAN 1:100

Final Signed Copy

I/WE ACCEPT THAT THESE PLANS ARE FINAL WORKING DRAWINGS
THAT SUPERSEDE PRELIM PLANS & I/WE HAVE CHECKED THAT
ANY ALLEGATIONS OR ACTIONS ARE SIGNED.
THESE PLANS ALSO FORM PART OF OUR CONTRACT BETWEEN THE
PROPRIETOR & QUEENSLAND SHED MARKETS.

PROPRIETOR SIGNATURE

PROPRIETOR SIGNATURE

BUILDERS SIGNATURE

AREAS:

GRD FLR:

128 SQM

CARPORT:

50M

PORTICO:

BALCONY:

VERANDAH: 75.26 SQM

TOTAL: 203.026 SQM

SUBTOTAL:

128 SQM

TOTAL:

203.026 SQM

FOCON Pty Ltd

Consultant Engineer, Design &
Project Management

ACN 1057657 ABN 51 105765719
Address: PO Box 476, PENRICH QLD 4355
Telephone: 0411192330
Email: shed@focon.com.au

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Energy Rating



6.0 DTS

stars

heating

N/A

M/J/m²

cooling

N/A

M/J/m²

Rated without

Rated with

Recessed downlights confirmation:

Assessor Name/Number

Glenda Harrison VIC/BDV/13/1528 Q-BEARS Cert# 80471

Date 15/11/2016

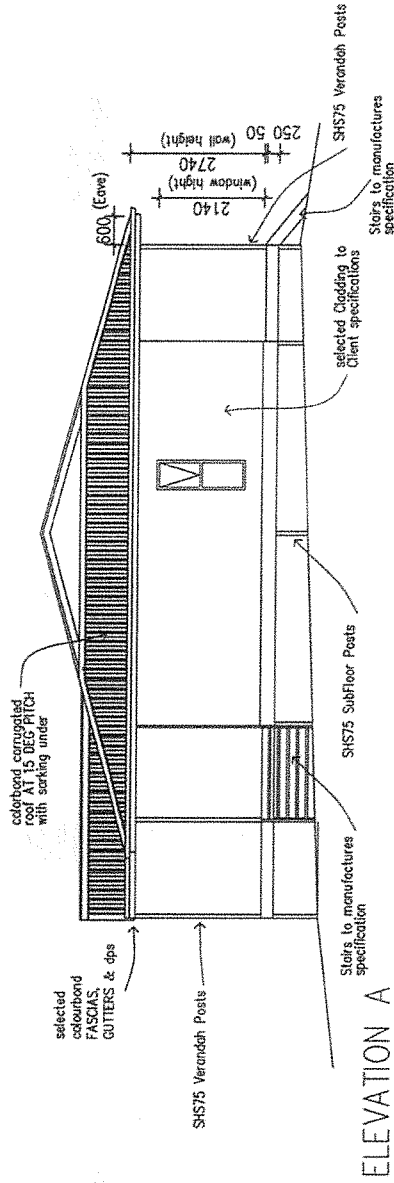
Assessor Signature



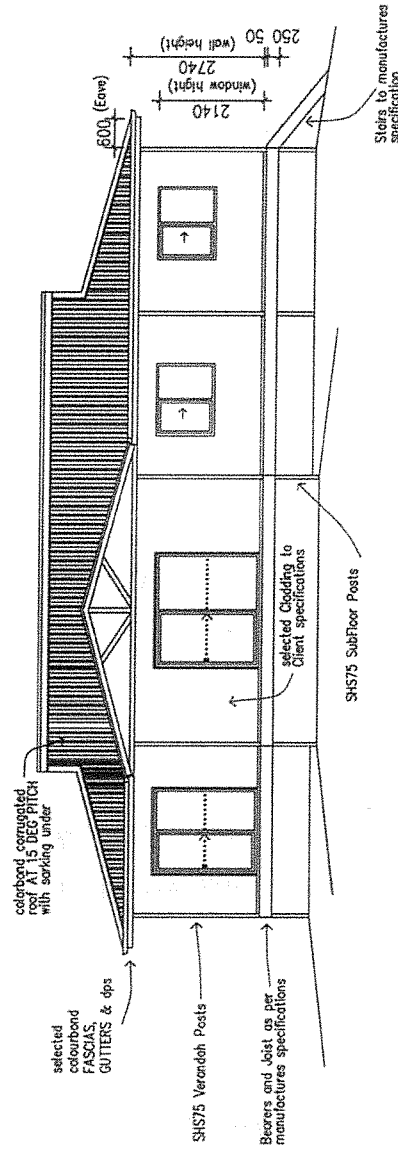
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NOTE: 70MM STEEL FRAME & TRUSSES



ELEVATION A



ELEVATION B

HOUSE ENERGY RATING

Recessed downlights confirmation: ☐ Rated with ☒ Rated without

multi-unit development (attach listings of ratings) ☐ If selected, data specified is the average across the entire development

heating MJ/m2 N/A cooling MJ/m2 N/A

6.0 DTS stars

Assessor Name/Number Glendia Harrison VIC/BDVA/13/1528 Q-BEARS Cert# 80471

Assessor Signature _____ Date 15/11/2016

FOCON Pty Ltd
Consultant Engineers, Design & Project Management
1/211 TROTTON AVE PT MORELAND VIC 3043
Address: PO Box 425, BIRKENHEAD QLD 4255
Phone: 07 3807 4800
Email: info@focon.com.au

DESIGN: SPECIAL
FACADE: TRADITIONAL
CEILING: 24L
GARAGE:

ELEVATIONS

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Final Signed Copy
I/WE ACCEPT THAT THESE PLANS ARE FINAL WORKING DRAWINGS THAT SUPERSEDE PRELIM PLANS & I/WE HAVE CHECKED THAT ANY ALTERATIONS OR ADDITIONS ARE SHOWN. THESE PLANS ALSO FORM PART OF OUR CONTRACT BETWEEN THE PROPRIETOR & QUEENSLAND SHED MARKETS.

PROPRIETOR SIGNATURE _____ PROPRIETOR SIGNATURE _____
BUILDERS SIGNATURE _____

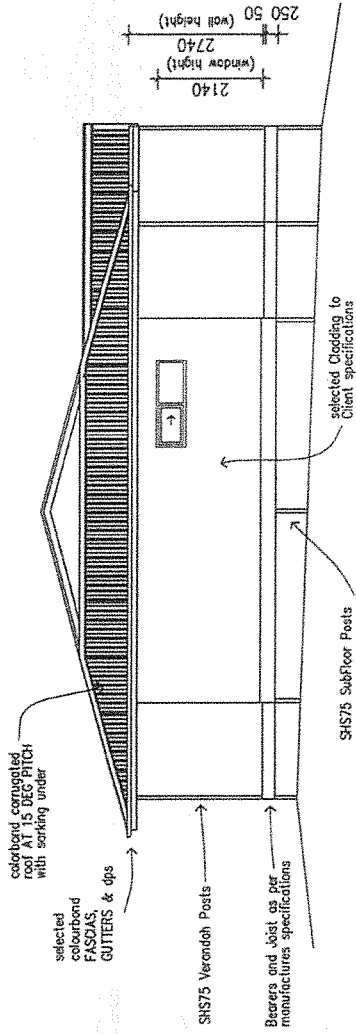
ELEVATIONS 1:100



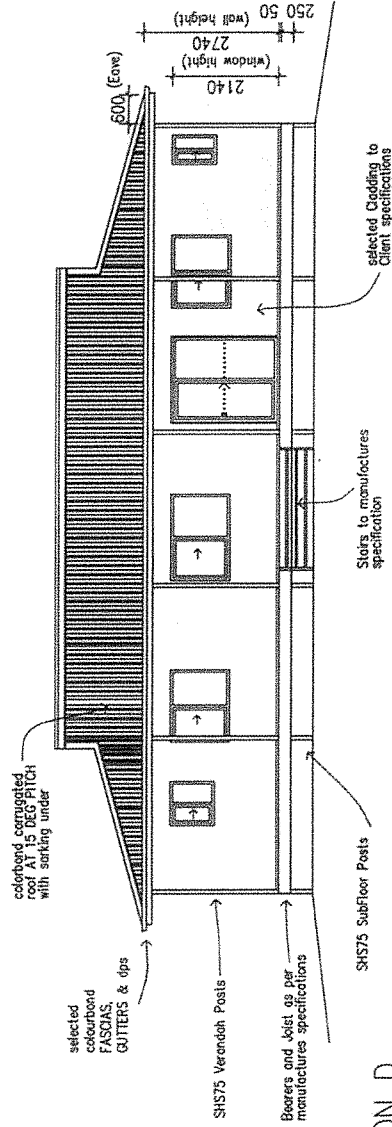
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NOTE: 70MM STEEL FRAME & TRUSSES



ELEVATION C



ELEVATION D

Final Signed Copy
I/WE HEREBY CERTIFY THAT THESE PLANS ARE TRUE WORKING DRAWINGS
I/WE HAVE PREPARED THESE PLANS AND I/WE HAVE AGREED THAT
ANY ALTERATIONS OR ADDITIONS ARE TO BE MADE BY THE
PROFESSIONAL DESIGNER AND NOT BY THE CONTRACTOR.
THESE PLANS ALSO FORM PART OF OUR CONTRACT BETWEEN THE
PROFESSIONAL DESIGNER & QUEENSLAND SHED MARKETS.

PROPRIETOR SIGNATURE

PROPRIETOR SIGNATURE

BUILDERS SIGNATURE

DESIGN: SPECIAL
FACADE: TRADITIONAL
GARAGE: CEILING: 24L

ELEVATIONS

FOCON Pty Ltd

Consultant Engineers, Design &

PROJECT MANAGEMENT

100 WILSON ROAD, SUITE 10/11, RINGBROOK QLD 4081

Address: PO Box 416, RINGBROOK, QLD 4081

Telephone: 04115020

Fax: 04115020

Email: info@focon.com.au

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Energy Rating



☒ single-dwelling rating

☐ multi-unit development (attach listings of ratings)

heating N/A MJ/m2

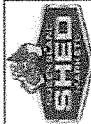
cooling N/A MJ/m2

Rated without ☒ Rated with ☐

Assessor Name/Number Glendra Harrison VIC/BDAY/13/1528 Q-BEARS Cert# 80471

Assessor Signature Date 15/11/2016

ELEVATIONS 1:100



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www.gdshedmarkets.com.au

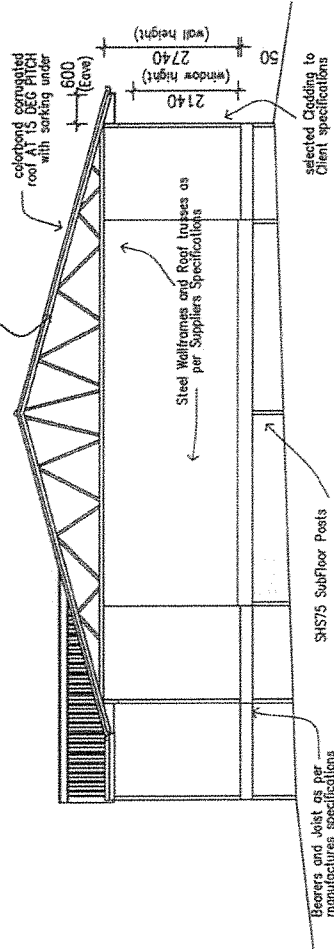
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NOTE: 70MM STEEL FRAME & TRUSSES

STANDARD NOTES:

- WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALE.
- ROOF CLADDING
- AS SPECIFIED ON ADJACENT SECTION.
- ROOF WATER
- SELECT COLORBOND FASPA & GUTTER
- SELECT COLORBOND (RAINWATER WHERE NOTED)/
- DOWNSPIES TO BE CONNECTED TO U/G DRAINAGE
- 4mm FIBRE SHEET
- 4mm W/FE FROM STUD FRAME FOR LIGHTWEIGHT
- CLAD AREAS (DISCREGARD PACKING/CLADDING)
- FRAMING - GENERAL
- ALL STRUCTURAL STEEL FRAMING SIZES TO BE IN
- ACCORDANCE WITH STEEL FRAMING CODES.
- STEEL FRAMING CODE & OR ENGINEERS
- STRUCTURAL COMPUTATIONS.
- ROOF FRAMING
- PREFABRICATED ROOF TRUSSES TO MANUFACTURERS
- SPECIFICATIONS. PITCH AS SHOWN ON ADJACENT SECTION.
- SPACED & FIXED AT 1200mm MAX. CRS.
- WALL FRAMING
- EXTERNAL STUD WALLS TO BE 70mm THICK
- INTERNAL STUD WALLS TO BE 600mm CRS.
- UNLESS NOTED OTHERWISE 600mm CRS.
- ALL WINDOW HEADS (TO UPPER LEVEL)
- TO PLASTER WITH STEEL UNITS U.N.O.
- PROVIDE FIBRE SHEET IN ALL WINDOW &
- SLOPING DOORS TO SIDE & REAR ELEVATION U.N.O.
- UNIT SIZES TO ENGINEERS DESIGN
- WALL FRAMING - BRACING ETC.
- WALL BRACING FORMS, TIE DOWNS, DURABILITY NOTES
- & ANY ADDITIONAL ENGINEERING REQUIREMENTS TO BE
- AS PER ENGINEERS DETAIL
- INTERNAL WALL/CEILING CLADDING - GENERAL
- WALLS TO BE 10mm UNISPAN PLASTERBOARD.
- CEILING DIRECT FIX 10mm UNISPAN PLASTERBOARD.
- EXTERNAL WALL CLADDING
- AS PER CUSTOMER SPECIFICATIONS
- FLOOR SYSTEM
- AS PER STEEL FRAMING COMPANIES ENGINEERED SYSTEM.

40mm Roof Bolts at 900c with
intermediate ceiling battens.



NOTE: REFER ENGINEER'S FOOTING DESIGN.

SOIL CLASSIFICATION
REFER SOIL REPORT (REF.)

SECTION X-X

STEEL FRAMING REQUIREMENTS:

70mm Steel Frame & Trusses requiring the issue of a signed Compliance Certificate for the Building Design - Form 15 upon completion and prior to final certification.

Steel frames and trusses to comply with:
AS/NZS 1170.0:2002 Structural design actions: Part 0: General principles
AS/NZS 1170.1:2002 Structural design actions: Part 1: Permanent, imposed and other actions
AS/NZS 4600:2005 Cold-formed steel structures
AS4055:2006 Wind Loads for Housing
AS4100: 1990 Steel Structures Code
AS 3623-1993 Domestic Metal Framing
AS 3566.1-2002 Self Drilling Screws

SECTION 1:100



House Energy Rating

Recessed downlights confirmation: ☐ Rated with ☒ Rated without
cooling N/A M/J/m2
heating N/A M/J/m2
6.0 DTS stars
single-dwelling rating ☒ multi-unit development (attach listings of ratings)
if selected, data specified is the average across the entire development

Assessor Name/Number
Glendra Hamson VIC/BDAY/13/1528 Q-BEARS Cert# 80471
Assessor Signature
Date 15/11/2016

FOCON Pty Ltd
Consultant Engineers, Design &
Project Management
ACN 10877587 ABN 51 107758700
Address: PO Box 472, Pymble NSW 1570
Telephone: 041170320
Email: info@focon.com.au

DESIGN: SPECIAL
FACADE: CEILING: 27/L

SECTION

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