



ALTERNATIVE SOLUTION REPORT

PROPERTY: Lot 44, DP 805839
14 Tamarind Court
SUFFOLK PARK NSW 2481

APPLICANT: Ms. J A Smith
14 Tamarind Court
SUFFOLK PARK NSW 2481

DATE: 20 January 2014

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CONSTRUCTION CERTIFICATE:
Byron Shire Council certifies that work completed in
accordance with these plans and specifications as specified
in the Construction Certificate number above will comply
with the requirements of the
regulations referred to
in s81A(5) of the Environment
Planning and Assessment Act.
1979(NSW)

22 JAN 2014

Signature:.....

A handwritten signature in black ink, appearing to be "Uapto", written over a dotted line.



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	Copy of floor plans	(attached)



1.0 EXECUTIVE SUMMARY

In order to ensure that a building provides measures to ensure the health and safety of the occupants the Building Code of Australia (BCA) regulates the minimum ceiling height of habitable rooms within a building. The BCA also provides for an alternative solution to be developed where a structure or component cannot achieve the deemed to satisfy provisions of the Code.

This alternative solution report addresses the floor to ceiling height for the proposed conversion of a two storey dwelling located upon the land to a dual occupancy building.

The development has involved the conversion of an existing two storey dwelling to create 2 x separate sole occupancy units. In accordance with the provisions of the BCA the floor/ceiling separating the sole occupancy units is required to achieve minimum fire and sound transmission criteria.

The BCA specifies that the floor separating the sole occupancy units shall have an FRL of 30/30/30 or a fire protective covering and the floor shall have a sound insulation rating of $R_w + C_{tr}$ of not less than 50 and an $L_{n,w} + C_i$ (impact) of not more than 62.

As a consequence the floor/ceiling system requires modification which will reduce the floor to ceiling height of the proposed ground floor unit to 2350mm instead of the required 2400mm as specified by F3.1 of the BCA.

This report is limited to the performance requirements associated with:

1. Floor to ceiling height of habitable rooms.

The following table provides a précis of the requirements of the BCA in the application to the alternative solution.

No.	Description of alternative solution	DTS provision	Performance Requirement (A0.10)	Method of achieving Performance Requirement (A0.5)	Assessment Method (A0.9)
1	Floor to ceiling height of habitable room	F3.1(a)	FP3.1	Complies with the performance requirements	Expert judgement

The assessment has determined that:

1. The floor to ceiling height of the proposed habitable rooms will not unduly interfere with the functioning of the room and will be suitable for the proposed use of the rooms as a bedroom and living area.

2.0 PREAMBLE

This alternative solution report addresses the findings of an assessment undertaken to determine:

1. The floor to ceiling height of the proposed ground floor bedroom and living that is being converted to a separate sole occupancy unit will be suitable for occupants and will not duly interfere with the intended use of the rooms and will comply with relevant Performance Requirements of the Building Code of Australia 2013 – Volume One.

As indicated the proposal involves the conversion of an existing two storey dwelling to a dual occupancy building containing two separate sole occupancies. (refer to Architectural Plans prepared by Design Evolution dated

25/9/2013)

In accordance with the requirements of the BCA the conversion of the two storey dwelling necessitates that the fire separation requirements together with sound insulation capabilities of the floor/ceiling system are upgraded to meet the relevant deemed to satisfy provisions.

The building is the subject of a change of use being converted from class 1a to Class 2 under the BCA. The building consists of two storeys with the existing ground floor being converted for use as a separate domicile.

No other BCA issues are covered by this report.

The proponent is seeking to utilise this alternative solution to address the floor to ceiling heights for the proposed ground floor bedroom and living area. The room height of the proposed bedroom and living area do not meet the prescriptive requirements of the relevant deemed to satisfy provisions of the BCA.

3.0 SITE

The subject property is identified as Lot 44, DP 805389, 14 Tamarind Court, Suffolk Park. The building is the subject of a change of use and this report is to facilitate the consideration of the application by Byron Shire Council.

The development consists of the conversion of an existing two storey dwelling to create a dual occupancy building.

The existing ground floor area will be converted to a separate sole occupancy unit with kitchen, living, bedroom and ensuite. An external laundry shall be constructed to service the newly created unit. The existing first floor shall be modified to incorporate a laundry within the existing bathroom.

In order to achieve the required fire and sound separation between the units the depth of separation between the floor/ceiling elements is required to increase thus reducing the minimum floor/ceiling height to the proposed ground floor unit.

The requirements of the BCA provide that the minimum floor/ceiling height of 2400mm will be reduced to 2350mm in order to install the required fire and sound floor/ceiling system.

The following assessment data has been drawn from the provisions of the BCA.

Classification

The building is currently class 1a.

As a result of the proposed conversion of the dwelling to a dual occupancy building the new classification will be Class 2.

Number of storeys contained

The design contains 2 storeys.

Type of Construction

Type C

5.0 DISCUSSION

Limitations

This report is limited to the alternative solution as described within the report. It is assumed that the remainder of the building, other the area already mentioned provided with an alternate solution, complies with the deemed to satisfy provisions of the BCA.

This report is limited to compliance with the performance requirements of the BCA. The report does not address the implications of other matters including property protection, security, environmental concerns, public perception and the like. These matters are considered outside the scope of the BCA.

The report deals with the construction of the building in accordance with the plans and specifications prepared by the applicant. Should the final concept be modified in any way or should future alteration to the design be proposed a reassessment will be necessary to determine if the assumptions made in this report are consistent with the modifications.

The data, calculations and conclusions used in this report are specific to the proposed development. The contents shall not be used for any other purpose.

This report has been developed based upon our assessment of advice and documentation provided by others. Techton has not verified the accuracy of the submitted documentation and Techton shall not be responsible for any errors or omissions which may form the basis of the conclusions.

Assumptions

The building complies with the deemed to satisfy provisions of the BCA with the exception of the alternative solution as described.

The remaining building has been completed in accordance with the plans and specifications and complies with the requirements of the deemed to satisfy provisions of the BCA.

6.0 ASSESSMENT

As indicated in the preamble an alternate solution is sought for the room heights in the proposed ground floor bedrooms and living areas. The application is seeking a reduction in the floor to ceiling height to 2350mm which is less than 2.4m high as required by Part F3.1 of the BCA.

Room heights

The applicant is seeking a variation to the room heights for proposed ground floor bedroom and living areas for the proposed conversion of the ground floor of the dwelling to a separate sole occupancy unit.

As the existing floor ceiling system does not meet the fire and sound criteria of the BCA the floor/ceiling system will need to be upgraded to achieve an FRL of 30/30/30 or a fire protective covering and the floor shall have a sound insulation rating of $R_w + C_{tr}$ of not less than 50 and an $L_{n,w} + C_1$ (impact) of not more than 62.

The owner has indicated their intention to use CSR System 814 which comprises:

- Timber floor surface to upper sole occupancy unit
- Timber floor joist
- Minimum 205mm cavity depth
- Furring channels @ 600mm crs max.
- 2 x 13mm fire grade plasterboard
- 75 Soundscreen 2.0



Performance Requirements:

Performance requirement FP3.1 of the BCA states that *"a habitable room or space must have sufficient height that does not unduly interfere with its intended function"*.

Deemed to Satisfy Provisions:

The deemed to satisfy requirements relating to ceiling heights are detailed in Part F3.1 which states:

The ceiling height must be not less than—

(a) in a Class 2 or 3 building or Class 4 part of a building—

(i) a kitchen, laundry, or the like — 2.1 m; and

(ii) a corridor, passageway or the like — 2.1 m; and

(iii) a habitable room excluding a kitchen — 2.4 m; and

(iv) in a room or space with a sloping ceiling or projections below the ceiling line within—

(A) a habitable room—

(aa) in an attic — a height of not less than 2.2 m for not less than two-thirds of the floor area of the room or space; and

(bb) in other rooms — a height of not less than 2.4 m for not less than two-thirds of the floor area of the room or space; and

(B) a non-habitable room — a height of not less than 2.1 m for not less than two-thirds of the floor area of the room or space; and

when calculating the floor area of a room or space, any part that has a ceiling height of less than 1.5 m is not included; and

The objective for the provision of floor to ceiling heights is to provide occupants with a comfortable floor to ceiling height based on the use of the area. The performance requirement requires that the space must not unduly interfere with the intended use of the area. Bedrooms and living areas are habitable rooms as defined in the BCA, and are required to have a floor to ceiling height of 2.4m in the deemed to satisfy provisions.

Following the proposed conversion and installation of the fire rated ceiling system the bedroom and living areas will have a ceiling height of 2.35m being 50mm below the required floor to ceiling height. It is therefore considered that the use of the proposed bedrooms at a ceiling height of 2.35m will not unduly interfere with the function of the bedrooms.

Assessment/Expert Judgement

Based on my role as an Accredited Certifier with some 25 years experience as a Building Surveyor it is my opinion that the use of the proposed ground floor bedroom and living area at the reduced ceiling height of 2.35m will not unduly impact on the function of the rooms.



7.0 SUMMARY

As requested I have undertaken a review of the legislation applicable for the provision of ceiling heights as detailed in the Building Code of Australia and it is my opinion that the application for the use of an alternative solution to achieve Performance Requirement F3.1 (ceiling heights) and can be justified given the minor reduction in height of 50mm below the required minimum height of 2.4m and the use as a bedroom and living area will not unduly interfere with the use of the space by occupants.

I am satisfied that Performance Requirement F3.1 will be achieved:

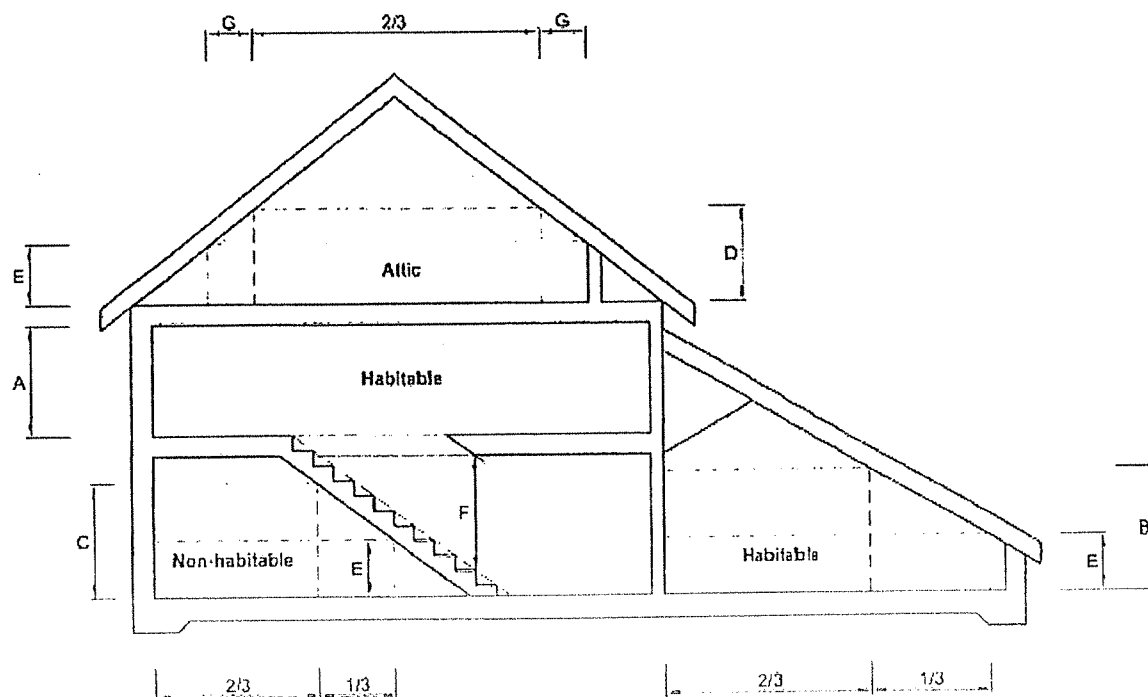
Should you require any additional information or clarification of the issues raised please contact the undersigned.

Craig Nowlan



Encl.

Appendix 1.



Note: The letters in the diagram represent the following minimum dimensions:

- | | | |
|-----|-------|---|
| A = | 2.4 m | In a <i>habitable room</i> (excluding a kitchen). |
| B = | 2.4 m | In a <i>habitable room</i> with a sloping ceiling for at least two-thirds of the floor area of the room or space. |
| C = | 2.1 m | In a <i>non-habitable room</i> with a sloping ceiling for at least two-thirds of the floor area of the room or space. |
| D = | 2.2 m | In an <i>attic</i> with a sloping ceiling for at least two-thirds of the floor area of the room or space. |
| E = | 1.5 m | For the purpose of calculating the floor area of a room or space, any ceiling height of less than 1.5 m is excluded. |
| F = | 2.0 m | In a stairway (measured vertically above the nosing line). |

The combined dimensions of G must not exceed one-third of the floor area (See E above) of the room or space.

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ELECTRICAL
PILLAR
BOX

85°29' 6.00m

COVERED TIMBER DECK

SINGLE STOREY
TIMBER RESIDENCE
12

CARPORT

TIMBER
SHED

10

355°28' 50" 20.00m

4.411

200 1.690

TIMBER DECK

A1

LAUNDRY

SUB-FLOOR

WC

RUMI

LINE OF
FALSE CEILING

CONC

37
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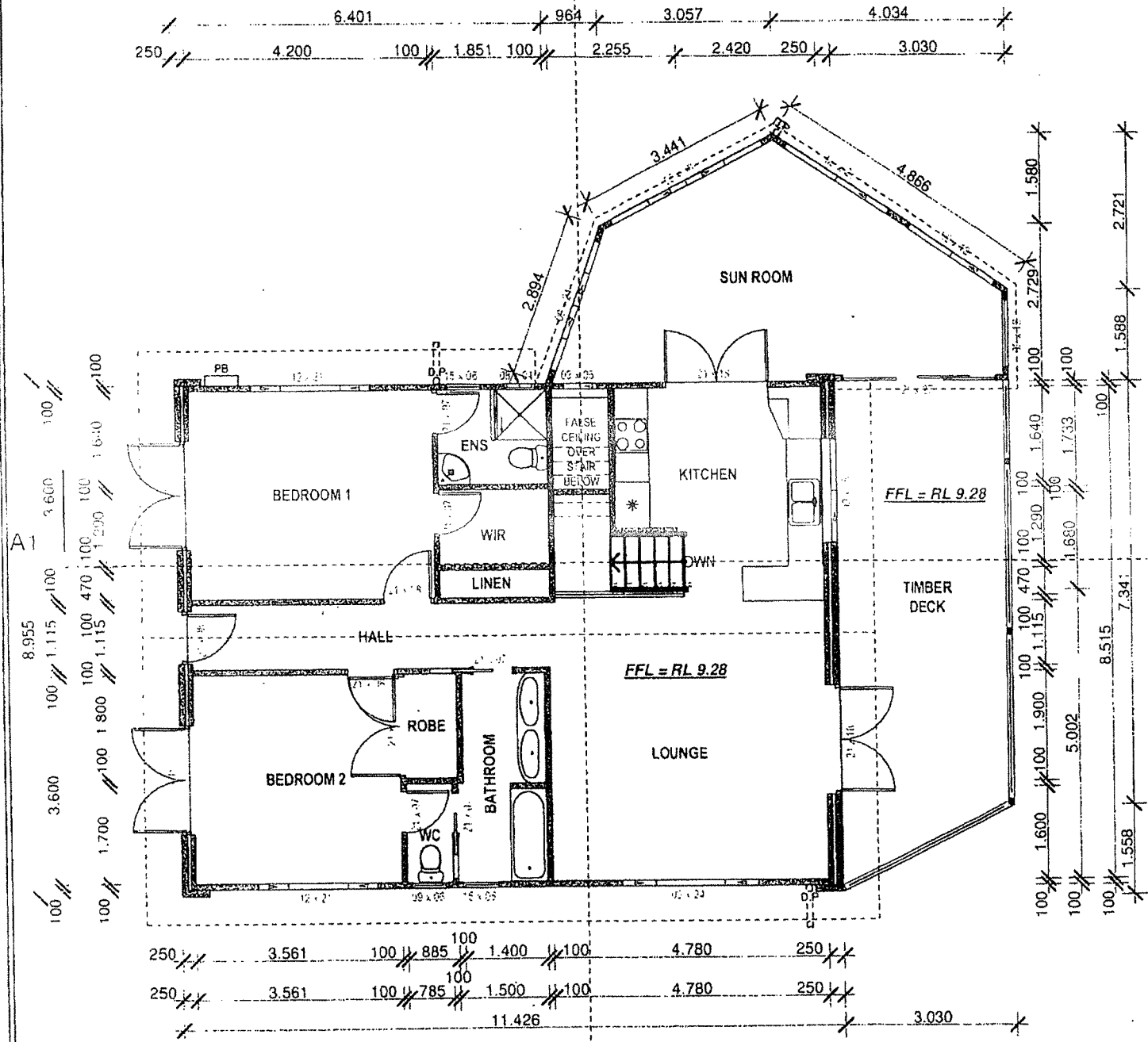
GENERAL NOTES:
1. DO NOT SCALE OFF DIMENSIONS FROM THIS DRAWING.
2. ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE BY OWNER, BUILDER, TRADESMAN PRIOR TO COMMENCEMENT OF WORK.
3. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH ENGINEERS DRAWINGS & OTHER RELEVANT CONSULTANTS' DOCUMENTATION.
4. ALL FOOTINGS, SLABS, WALLS, STEEL, FLOORING, ROOFING AND EXHAUSTION TO BE DESIGNED AND CLARIFIED BY ENGINEER.
5. ALL DETAILS & SPECIFICATIONS GIVEN & NOT NOTED TO COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS & THE BUILDING CODE OF AUSTRALIA.
6. ALL GROUND LINES ARE CONFORMAL.
7. ALL BOUNDARIES & BUILDING SETOUT TO BE APPROVED BY REGISTERED SURVEYOR.
8. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH SIGHT REPORT.
9. ALL ALTERATIONS TO THE DRAWINGS TO BE REFERRED TO THE CERTIFYING AUTHORITY.
10. THESE DRAWINGS ARE THE COPYRIGHT AND THE PROPERTY OF DESIGN EVOLUTIONS.

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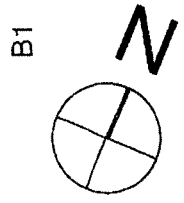


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PROPOSED ADDITIONS & ALTERATIONS TO CREATE	
AND CAR PORT	

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GENERAL NOTES:
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ELECTRICAL
PILLAR
BOX

10

85°29' 6.00m

COVERED TIMBER DECK

SINGLE STOREY
TIMBER RESIDENCE
12

CARPORT

TIMBER
SHED

TIMBER DECK

A1

355°28'50" 20.00m

265°29'

26.00m



B2

B2

200 1.690
100 3.964

LAUNDRY

NEW DOOR

WM

W3

21.00m

SINK

STV

KITCHEN

REMOVE WINDOW &
FIRE RATE WALL

REMOVE WALL

NEW FIRE RATED WALL

SUB-FLOOR

WC

FIRE RATE WALL A
REMOVE EXISTING C
DWELLING
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