

# Master Builders Queensland

## Response to

**RD 2004-02 – Energy Efficiency for houses**

**and**

**RIS 2005-02 - Regulation Impact Statement**

**Name:** Peter Osterhage **Date:**

**Position:** Director Housing

**Organisation:** Master Builders Queensland

**Address:** 417 Wickham Terrace BRISBANE QLD 4000

**Email:** [peter.osterhage@masterbuilders.asn.au](mailto:peter.osterhage@masterbuilders.asn.au)

**Mobile:** 0419 704 390 **Phone:** 07 3404 6420

## INTRODUCTION

Master Builders Queensland is the largest industry organisation in Queensland, representing over 10,000 members including builders, subcontractors, manufacturers, industry consultants and suppliers. More than 90% of all commercial building work and 85% of all housing construction is conducted by Master Builder members. It has nine regional offices located in all the major centres throughout Queensland from Cairns to the Gold Coast and west to Toowoomba. For more than a century Master Builders has represented the building and construction industry and has provided governments with valued and respected input into the development of policy at all levels which affect both the industry and the community.

Master Builders Queensland does not support the increased stringency proposed for energy efficiency in houses to be introduced in 2006. This submission canvasses some of the major issues of concern and offers some solutions to the proposed Deemed-to-Satisfy provisions which are deemed to be practical and cost effective.

## INCIDENCE OF “MARKET FAILURE” REQUIRING INTERVENTION BY GOVERNMENT.

Energy Efficiency requirements were introduced into the BCA in 2003 to meet the objective of reducing greenhouse gas emissions. The existing requirements address wall and roof insulation, glazing, ventilation and various other elements. Alternatively, an energy rating of 3½ stars can be utilized.

Before introducing more stringent requirements, the savings on the estimated 0.005% p.a. contribution to greenhouse gas emissions achieved by the current regulations must be determined. The Regulatory Impact Statement does not identify these gains, in-fact it ignores them. *“Market failure” of the existing energy efficiency measures, requiring intervention by government and moreover by statutory means, cannot be demonstrated.*

There is therefore no justification to significantly increase the current requirements at a high cost to the community (especially block construction in North Queensland) when the overall savings to total greenhouse gas emissions are negligible. In relation to the cost/benefit ratio, insignificant savings in emissions compared to additional building costs to be borne by the community are flawed and cannot be justified.

### Artificial Heating and Cooling

The Objective (O2.6) of Part 2.6 Energy Efficiency of the Building Code of Australia is

“to reduce greenhouse gas emissions by efficiently using energy”

The Performance Requirement P2.6.1 requires a building to have a level of thermal performance to facilitate the efficient use of energy for **artificial heating and cooling**.

The Queensland Government has published that typical household energy consumption is:

Hot Water	34%
Kitchen	23%
Lighting	13%
<b><u>Artificial heating/cooling</u></b>	<b>10%</b>
Laundry	10%
Entertainment	6%
Cleaning	2%
Other	2%

*Source Energex 2004*

In its Regulatory Impact Statement for its proposed amendments to Plumbing Regulations, the Queensland Government has further stated that:

Total electricity generation contributes 26% to total greenhouse gas emissions. Of this, 23% of electricity generated is for housing stock. Artificial heating and cooling consumes 10% of household energy. It is forecast that housing growth will be 1.9% of existing housing stock. The following table demonstrates impacts on total greenhouse gas emissions.

<b>Contributors to Greenhouse Gas</b>	<b>% contribution to TOTAL Greenhouse Gas Emissions per annum</b>
Total electricity generation in QLD	26%
23% of electricity generated is for total housing stock (23% of 26%)	6%
Artificial heating/cooling 10% of total household use (10% of 6%)	0.6%
New homes forecast growth 1.9% per annum (1.9% of 0.6%)	<b>0.01%</b>

A conclusion is that if every new home constructed in Queensland per annum installed artificial heating or cooling appliances (air-conditioners) they would contribute 0.01% p.a. to total greenhouse gas emissions.

The Regulatory Impact Statement (RIS) RD2004-02 states that a 2002 ABS survey reported that 38% of Queensland homes were air-conditioned. Even if that figure were inflated to 50% of all new homes constructed it would result in a **0.005%** contribution to total greenhouse gas emissions. Over the 10 year life of the Regulation this equates to 0.05% to total emissions.

Furthermore, the recently released Productivity Commission Draft Report on Energy Efficiency (page 143) states:

*“ABARE figures show that residential energy consumption, taking Australia as a whole, accounts for around 11.9 per cent of total (end use) consumption...”*

*Space heating and cooling accounts for around 41 per cent (heating 40%, cooling 1.2%) of household delivered energy use...*” It could be concluded that the energy efficiency measures therefore have a focus on heating.

The Regulatory Impact Statement (Page iii) states

*“The benefit/cost ratio is relatively low and, under alternative assumptions in regards to the amount of energy saved or the value of energy, the proposal would be seen as more marginal. Certainly there are some areas of Australia, such as Brisbane and areas with similarly mild climates, where the use of heating and cooling systems is minimal and it seems likely that the benefits will be about equal to costs”*

Master Builders has demonstrated in this submission that the costs to comply with the proposed Deemed-to-Satisfy far exceed the costs articulated in the Regulatory Impact Statement and that the benefit/cost advantage stated in the Regulatory Impact Statement are flawed and overstated, especially in Zone 1.

It is further stated that .....*“the ABCB has relied on detailed analytical work commissioned by the Sustainable Energy Authority of Victoria (SEAV) to develop the 5 Star efficiency requirements that have now been adopted in Victoria.”*

Queensland has a significantly different climate than Victoria. The SEAV used the energy rating tool to assess impacts on energy consumption in Bendigo and Ballarat (which are relatively cold in winter and rely heavily on heating). Their findings were that the net benefits are higher for the harsher climates, which are colder, with the greatest returns in alpine areas. Emphasis has therefore been placed on insulation and sealing buildings. Benefits fall progressively towards the more benign climates. Glazing also features as a priority in these regions, however in Cairns it is common that the majority of homes are constructed with security grills and windows left open all day (with the exception of the prevailing weather side) to keep the house cool, which would seem to negate the use of higher performance glass.

## **PROPOSED DEEMED TO SATISFY REQUIREMENTS**

### **Impact on North Queensland**

Masonry block is the predominant form of construction in North Queensland with 90% of homes built using this form of construction. This form of construction has evolved over the past 10-15 years primarily due to cyclonic requirements and the tyranny of distance. The cost of timber framed homes, either brick veneer or lightweight cladding, is prohibitive as the majority of these materials must be shipped thousands of kilometers by either rail or road. Masonry block manufacturing plants utilizing local materials have been established in Cairns, Townsville, Mackay and other Far North Queensland regional

centres and have proven to be the most cost effective building material. Furthermore, the structure of the industry has also evolved with this form of construction. Block-layers predominate over bricklayers and the numbers of carpenters diminish rapidly from Mackay to Cairns.

The cost impacts of the energy efficiency requirements introduced in the BCA in 2003 were recognized by the Queensland Government, particularly for block construction, resulting in a Queensland amendment specifically for masonry construction. The amendment also catered for brick veneer and lightweight cladding in Zones 1, 2 and 3 by reducing the R value for walls from R1.4 to R1.0. This amendment requires reflective foil in these forms of construction rather than bulk insulation.

## **WALL SHADING**

***Current requirement*** – overhang  $\frac{1}{4}$  height of wall above floor level.

For most brick veneer or lightweight cladding single storey homes with a 2400mm ceiling a 450mm eave with a 150 gutter (total 600mm overhang) exceeds the requirement. For North Queensland block homes with a 2600mm ceiling (caters for ceiling fan clearances) a 600mm overhang meets the requirement depending upon roof pitch.

***Proposed requirement*** – overhang of 30° from floor level.

For a 2400mm ceiling with 2100mm floor level to underside of eave this would necessitate a 1212mm overhang. For block with 2600mm ceilings and 2300mm from floor level to underside of eave it would necessitate a 1328mm overhang. For cyclonic conditions in North Queensland, this is impractical due to tie down requirements and uplift and cost impacts on increasing the size and strength of truss members. Industry is adamant that the proposal is unworkable.

Furthermore, large overhangs significantly reduce living space areas due to boundary clearance requirements and the size of allotments.

***Solution*** –

- The shading effect given by adjoining buildings on small lots and built to boundary construction, although recognized in the Performance Requirement P2.6.1(d), is rarely recognized by building certifiers and should form a specific Deemed-to-Satisfy solution.
- The Deemed-to-Satisfy for land exceeding a certain frontage (e.g. 20 metres) should require an overhang of 900mm (including gutter) – for smaller frontages (e.g. less than 20 metres) an overhang of 600mm (including gutter). This caters for assumed shading from buildings on adjoining lots. North and South walls should be a minimum of 600mm irrespective of frontage width.
- As an alternative to the previous dot point, the current either/or solutions under Deemed-to-Satisfy (being either shading or insulation) could be combined to require

a Deemed-to-Satisfy of mandatory 600mm overhangs with mandatory reflective foil in the wall. This combines the effect of both the shading option and insulation option for brick veneer and lightweight cladding.

- For built to boundary where it was assumed a building would be erected on the next block, no overhang should be stipulated as a Deemed-to-Satisfy solution.
- For two storey masonry block construction the top floor should meet the shading requirements and the current exemption in Queensland for the lower storey be retained with the exception that any glazing would need to meet a higher U and SHGC value (higher performance glass) or be shaded.

## **WALL INSULATION**

### ***Current Requirement*** –

- *Zone 1, 2 & 3* – The current Queensland amendment requires R1.0. For brick veneer and lightweight cladding this only requires reflective foil based upon the R values determined by the University of Adelaide. Bulk insulation is not required.
- *Zone 5* – The current requirement for Queensland Zone 5 is R1.4. This necessitates bulk insulation in lightweight cladding. Furthermore, as the University of Adelaide studies indicate that the use of reflective foil in brick veneer produces R1.4 inwards and only R1.3 outwards, confusion exists in Zone 5 as to whether bulk insulation is required rather than reflective foil.

### ***Proposed Requirements***

#### ***Zone 1,2 & 3*** –

- ***Slab-on-ground*** – Proposed R1.4

For lightweight construction this will necessitate bulk insulation rather than reflective foil. For brick veneer the same confusion which currently exists in Zone 5 (bulk insulation or reflective foil) will exist.

For block construction, insulating to R1.4 will necessitate the use of 65mm furring channels at 600mm centres, inclusion of bulk insulation and plasterboard lining. For entry level homes the current construction practice is to have painted block walls with ironed joints. For second and third home buyers it is common to have plasterboard fixed directly to the blockwork. The costs involved with insulating these block walls to R1.4 is significant and will severely affect housing affordability, especially for the entry level market

- ***Suspended floor*** – Proposed R1.9 for walls

This will necessitate bulk insulation in all circumstances and will add significant costs.

***Zone 5 and Zone 2 above 300m altitude*** – Proposed R1.9.

This will necessitate the use of bulk insulation in brick veneer homes which is the predominant form of construction in these two zones. It will add significant costs.

***Solution*** –

- The current Queensland requirement of R1.0 in Zones 1,2 & 3 should be retained as the cost impact of increasing to R1.4, especially for block construction, is prohibitive and cannot be justified. This would cater for brick veneer and lightweight cladding, including buildings with suspended floors, only requiring reflective foil. The R1.4 and R1.9 requirements should be rejected or revisited taking into account light coloured walls.
- The use of reflective foil in Zones 1,2 & 3 in Queensland for brick veneer and lightweight cladding should be a Deemed-to-Satisfy solution
- For Zone 5 and Zone 2 above 300m altitude the R Value should be reduced from R1.9 to R1.4 inwards and R1.3 outwards. This will remove the confusion of using foil in brick veneer
- Consideration should be given to allow some flexibility e.g. allow an exemption from shading or insulation for a percentage of a wall area (say 5%) in block construction
- Emphasis on block construction should be on shading rather than insulation

**ROOF INSULATION**

***Current requirement*** – R values for bulk insulation for Zones 1,2,3 &5 with an option for Zones 1, 2 & 3 to utilize roof ventilation with reflective foil and a light coloured roof.

***Proposed requirement*** – Increase the R values for bulk insulation and remove the option for roof ventilation.

***Solution*** -

- Industry has no concerns with increasing the R value for bulk insulation in roofs.
- It is recommended that roof ventilation, where range hoods etc do not vent into the roof space, be retained as an option in tropical Queensland. Reported problems with condensation in the roof have been minimal in Queensland. Perhaps where it has been reported, condensation may have been influenced by venting range hoods or exhaust fans into the roof cavity.

## **GLAZING**

***Current requirement*** – The amount of glazing is limited to a percentage of total floor area of a storey and takes into account shading of glazing, type of glazing and north orientation.

***Proposed requirement*** – The amount of glazing per storey is dependant upon two separate calculations for each pane of glass utilizing the U value and SHGC value, specific orientation of the building sectors and shading values. Different calculations are applied for slab on ground versus suspended floors.

***Issues*** – Although a specific calculator has been developed for glazing calculations, high volume project builders with standard plans will be forced to perform the calculations for each standard plan depending upon the orientation of each block of land. This may necessitate upgrading some panes of glass or alter shading of windows in standard plans for each building location.

### ***Solution -***

- The proposed calculation be adopted
- To cater for high volume project builders, where standard plans would need to be calculated for each orientation, the Deemed-to-Satisfy solutions should allow for a minimum high performance glass of a certain U value and SHCG value to be specified for all glazing without the need to verify via calculations for each orientation

## **DEEMED-TO- SATISFY VERSUS STAR RATING (ACCURATE)**

Master Builders Queensland hosted an industry tour and workshop in Cairns with Building Codes Queensland, together with a representative from the Australian Building Codes Board and the Association of Building Sustainability Assessors (ABSA) representing the Australian Greenhouse office, on 21/22 April 2005. The purpose of the visit was to view the type of construction in Cairns (predominantly block) and assess the impact the proposed new Deemed-to-Satisfy requirements would have on the entire industry in Far North Queensland.

One of the homes visited was constructed to the current Queensland amendment to the energy efficiency Deemed-to-Satisfy requirements introduced in 2003. The house was then rated using the Accurate software program which demonstrated the dwelling was the equivalent to 3½ stars, the current requirement for Zone 1. The house was constructed using the option of shading walls with eaves ¼ the height of the wall rather than wall insulation, current glazing requirements, current ventilation requirements and current roof insulation R values.



By making some minor changes to only the glazing within the building, a 5 star rating was achieved. It can be therefore concluded that there is a mismatch between the *proposed* Deemed-to-Satisfy and a 5 star rating under Accurate. **There therefore seems to be no demonstrated justification to significantly increase the stringency of the Deemed-to-Satisfy under the current proposals.**

A study needs to be commissioned to match the Accurate software to Deemed-to-Satisfy or visa versa before introducing these more stringent requirements. It should be noted that a previous workshop conducted by Building Codes Queensland in Townsville indicated that the majority of homes were constructed to Deemed-to-Satisfy rather than verification methods/ratings.

It should be acknowledged that the Australian Government Productivity Commission Draft Report on Energy Efficiency recently released has recommended that:

*“New or more stringent energy efficiency standards for residential buildings should not be introduced until existing standards have been fully evaluated. The evaluation should be commissioned by the Australian Building Codes Board to:*

- *Assess how effectiveness and compliance costs differ between the Deemed-to-Satisfy and performance based standards;*
- *Analyses the distributional impacts of standards on different socioeconomic groups, including first home buyers and less affluent groups”*

## **COST IMPACTS**

The Regulatory Impact Statement (Page 23 para 5.2.1) indicates that the estimated increase in construction costs for Zone 1 is **\$478**. This is a gross underestimation of actual costs.

During a recent visit to Cairns with Building Codes Queensland, a new home complying to the current Queensland Deemed-to-Satisfy requirements was viewed and the cost to upgrade the house to the proposed Deemed-to-Satisfy presented. The upgrade involved insulating the external wall to R1.4 and shading one window.

The original contract price on this 128m<sup>2</sup> home (entry level first home market) was \$129,049. The increase in cost to comply with the proposed Deemed-to-Satisfy was \$9,359 which represents a 7.25% increase in the contract price. It also resulted in a loss of 3.2m<sup>2</sup> of living area floor space. The house plans and costings are included at Attachment A.

This reinforces the Productivity Commission’s Report that

*“The increase in capital costs could make building efficiency standards regressive. This will be the case if the proportionate increase in capital costs tends to be greatest for cheaper homes and such homes are typically bought by less affluent people.*

*Poorer (and first) home buyers are more constrained in their ability to finance higher capital costs now in return for lower operating costs many years into the future.”*

The Regulatory impact Statement (page 23 Table 5.1 Impact analysis for Zone 1) shows an increase in construction cost of only \$478 and a net lifetime saving over 40 years of \$1,052. The following is a comparison to actual costs as applied to the Cairns home.

	RIS Costs	Actual Costs Cairns
Financial impact	Base Case 40 year life	Cairns Case 40 year life
Construction Cost	<b>\$478</b>	<b>\$9,359</b>
Lifetime energy cost	(-\$1,187)	(-\$1,187)
Appliance costs savings	(-\$344)	(-\$344)
Net lifetime impact	<b>(-\$1,052)</b>	<b>\$7,828</b>

The Regulatory Impact Statement places emphasis on the benefit/cost ratio which are distorted as true cost impacts have not been taken into account. The increase in capital costs is more pronounced in North Queensland, where masonry block is the predominant form of construction, and lower cost housing which will have a disproportionate impact or poorer (including first home) buyers.

## CONCLUSION

- Energy efficiency provisions were included in the BCA in 2003. No analysis on the results of saving to greenhouse gas emissions based on existing requirements have been determined to identify if a market failure exists. There is therefore no justification to increase the stringency of current requirements.
- There is a mismatch between the new energy rating schemes (Accurate) and the proposed Deemed-to-Satisfy. Further work and analysis on either the software or Deemed-to-Satisfy solutions needs to be conducted to assess how effectiveness and compliance costs differ and to bring the two solutions closer in alignment.
- Implementing the proposed Deemed-to-Satisfy solutions to block construction in North Queensland will have a significant impact on capital costs and housing affordability, with little gains in reducing greenhouse gas emissions.
- The Regulatory Impact Statement cost/benefit analysis is seriously flawed and does not take into account the real impact on costs in Queensland, especially its impact on masonry block construction in North Queensland
- Master Builders Queensland does not support the proposed increase in stringency levels in its current form.
- Proposed solutions to the Deemed-to-Satisfy provisions have been developed which industry is comfortable with. These are articulated in this submission.

**Attachment A : Cairns house plans and costings**

# **ATTACHMENT      A**

## **Master Builders Queensland Submission**

**Analysis of cost difference for upgrading to proposed new 5 star energy rating.**

Home used in the exercise is a four bedroom home of 128 M2 living area at Lot 75 Timberlea Drive, Cairns. Cyclone rating C1.

The contract price for this home was \$129,049.00.

**Option 1.** Change internal walls to plasterboard lining with battening with insulation to inside of external walls.

Internal partitions from block to plasterboard on steel frame.	\$353.00
Replace steel framed doors to timber frame with architraves.	\$616.00
Line internal of external wall with plasterboard and timber sills and skirting.	\$4,024.00
<u>Sub Total</u>	<u>\$4,993.00</u>
Steel batten off the internal face of the external wall and insulate With fibreglass insulation. Extra width sills included.	\$3,820.00
Increase thickness of ceiling insulation	\$48.00
Cost of upgrading glazing. Requires one hood to Bedroom 3.	\$498.00
<b><u>Total of this option is</u></b>	<b><u>\$9,359.00</u></b>

**Option 2.** Change construction to brick veneer with aircell instead of sarking.

From block walls internally & externally to brick veneer.	\$13,666.00
Increase thickness of ceiling insulation	\$48.00
Cost of upgrading glazing. Requires one hood to Bedroom 3.	\$498.00
<b><u>Total of this option is</u></b>	<b><u>\$14,212.00</u></b>

## For and against the various options.

### Option 1.

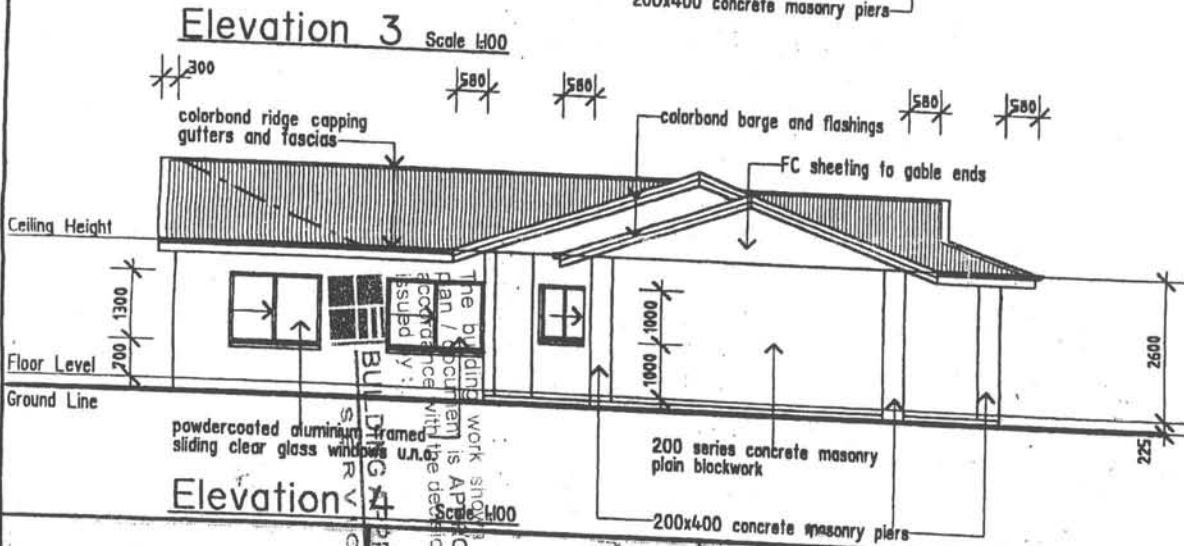
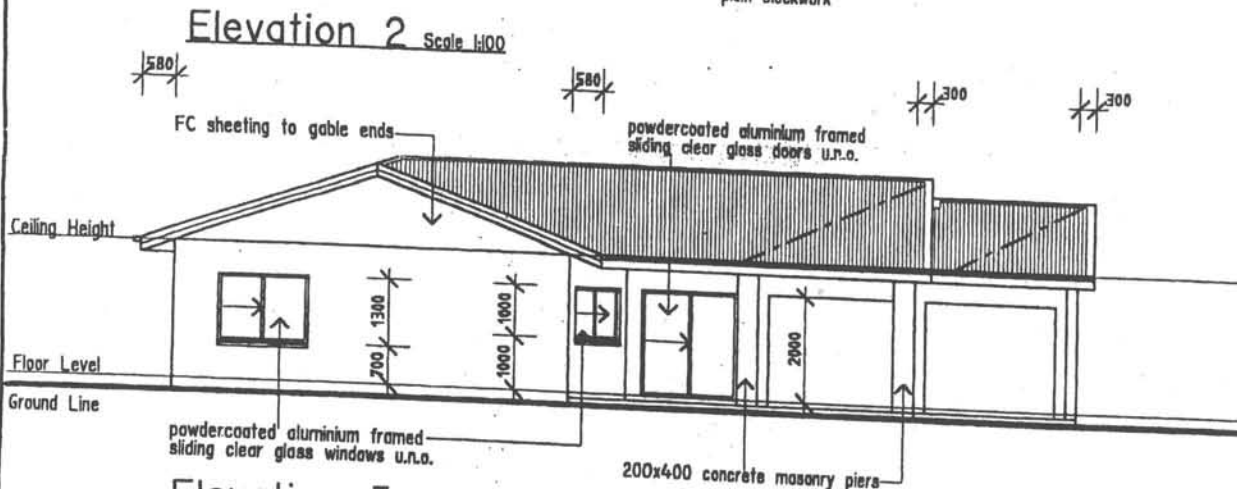
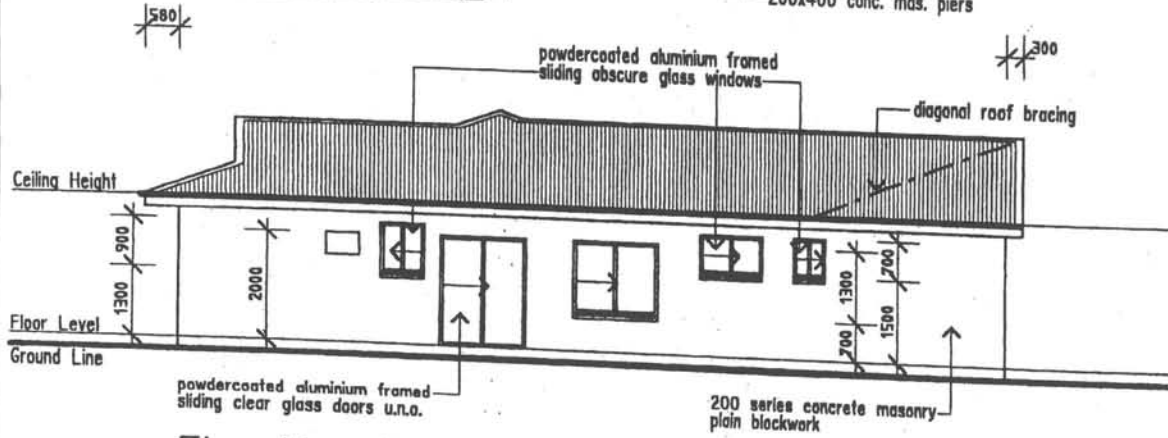
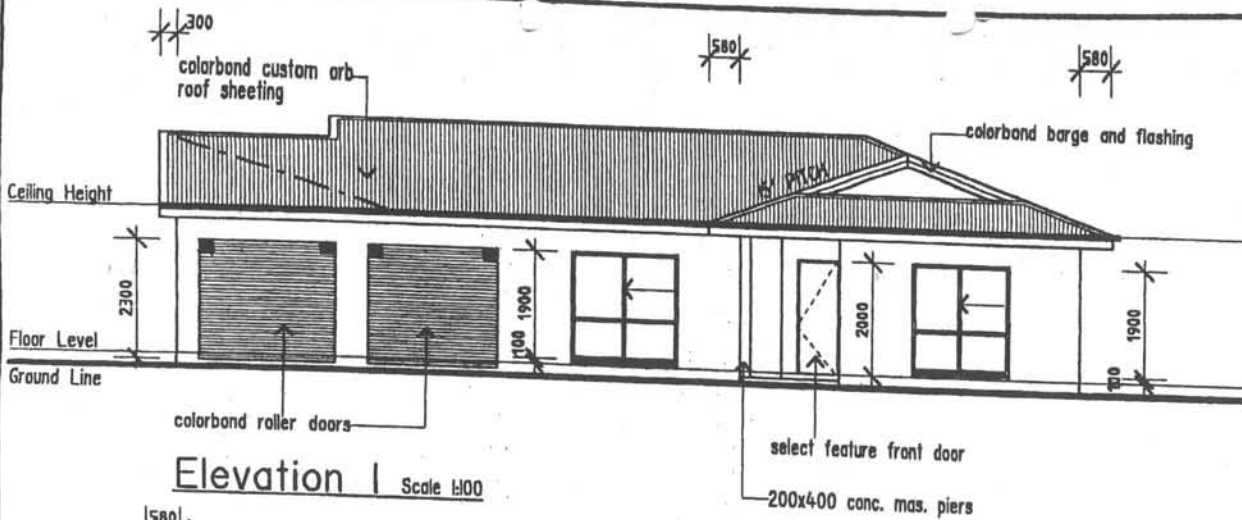
- For. Retains the strength of block and is the least expensive increase in price when the cyclone category increases from C1. Materials sourced locally. Trades sourced locally. No termite risk. High impact resistance.
- Against. Loss of 3.2M2 of living area floor space. Is an increase of \$73 per M2 of living area or an increase of 7.25% of the contract price.

### Option 2.

- For. Gives some sort of feel of strength and quality.
- Against. The most expensive option and hardest to strengthen up to perform even in the lowest cyclone category. No use of local materials requires the trucking in of all materials, bricks, timber, steel lintels, sarking etc. Little use of local trades. Very few carpenters and bricklayers here. Termite risk. Is an increase of \$111 per M2 of living area or an increase of 11% of the contract price.

## Items of concern in Zone 1.

- Impact statement incorrect by up to 1,958% for option 1 the current method of construction here.
- The only study for Zone 1 was based on Darwin. Cairns has a very different climate and is against the foothills on the western side.
- The protection to the public from cyclones given by masonry block may be lost for economy.
- The local block industry may be lost without energy efficiency objectives being enhanced at all. Windows are left open in the tropics during the wet or dry season.
- More use of fuel, with more trucks on the roads supplying southern product to us.
- Loss of self sufficiency in the building industry from Mackay north.
- Valuations will not stand up for several years and the building industry stops again.



**Homes (N.O.) LTD**

P.O. Box 205, Bungalow 4870,  
192 Mulgrave Road, Earlville.

Ph: (07) 40413333 Fax: (07) 40413388

AMENDMENTS	DATE

TITLE: Proposed Residence at  
Lot 75 Timberlea Drive  
Edmonton.

FOR: J Mulholland

CLIENT:	[Signature]
BUILDER:	
SCALE:	DATE:
1 : 100	
SHEET No:	JOB N°

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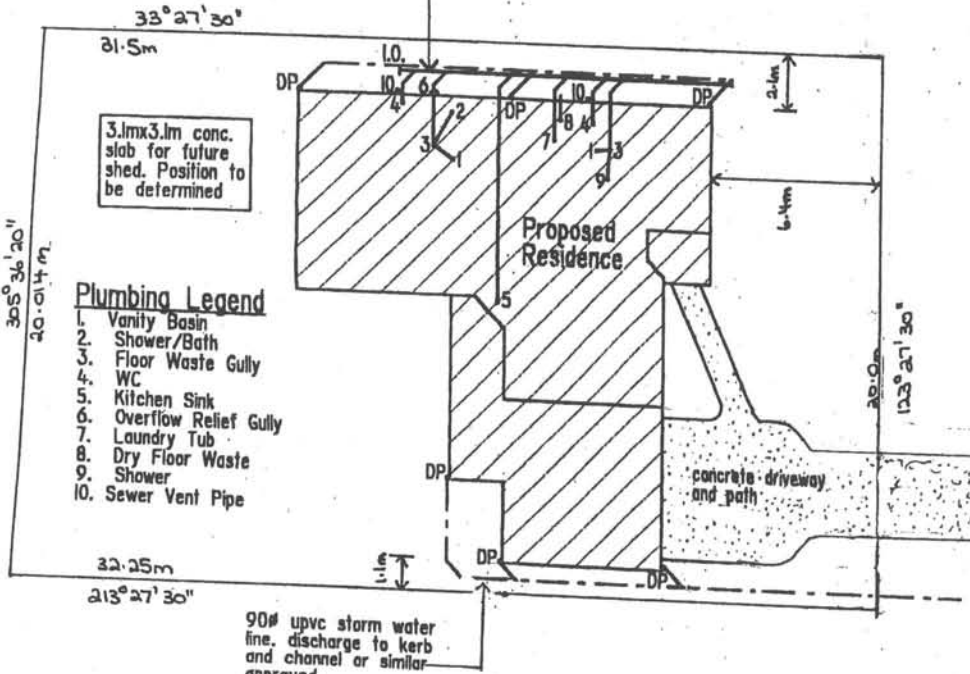


100# upvc sewer line connect to sewer jump-up. confirm exact location on site

R.P.D.  
Lot 75  
SP167067  
637m<sup>2</sup>  
Parish of Grafton  
County of Nares  
Design Wind Speed = 41m/s

**SITE PREPARATION & FOUNDATIONS**

1. STRIP BUILDING SITE OF ALL TOPSOIL & VEGETABLE MATTER;
2. COMPACT APPROVED IMPORTED FILL IN 150mm MAX. LAYERS TO 95% S.P.D.D.;
3. ALL EARTHWORKS ARE TO COMPLY WITH THE REQUIREMENTS OF A.S. 3798-1990 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL & RESIDENTIAL DEVELOPMENTS";
4. DRAIN ALL SURFACE WATER AWAY FROM RESIDENCE DURING & AFTER CONSTRUCTION AS PER A.S. 2870J "RESIDENTIAL SLABS & FOOTINGS";
5. FLOOR SLABS TO BE MINIMUM OF 25mm ABOVE FINISHED GROUND LEVEL U.N.O. ON PLANS.



**Plumbing Legend**

1. Vanity Basin
2. Shower/Bath
3. Floor Waste Gully
4. WC
5. Kitchen Sink
6. Overflow Relief Gully
7. Laundry Tub
8. Dry Floor Waste
9. Shower
10. Sewer Vent Pipe

90# upvc storm water line. discharge to kerb and channel or similar approved.

plumbing shown is diagrammatic only, confirm with licensed plumber  
all plumbing & drainage work shall be in accordance with the Sewerage & Water Supply Act 1949-1982, associated amendments & relevant Australian Standards.

**Site Plan Scale 1:200**

WE HEREBY CERTIFY THE STRUCTURAL DETAILS AS SHOWN ON THESE DRAWINGS FOR CONSTRUCTION IN TERRAIN CATEGORY C1 (cyclonic)

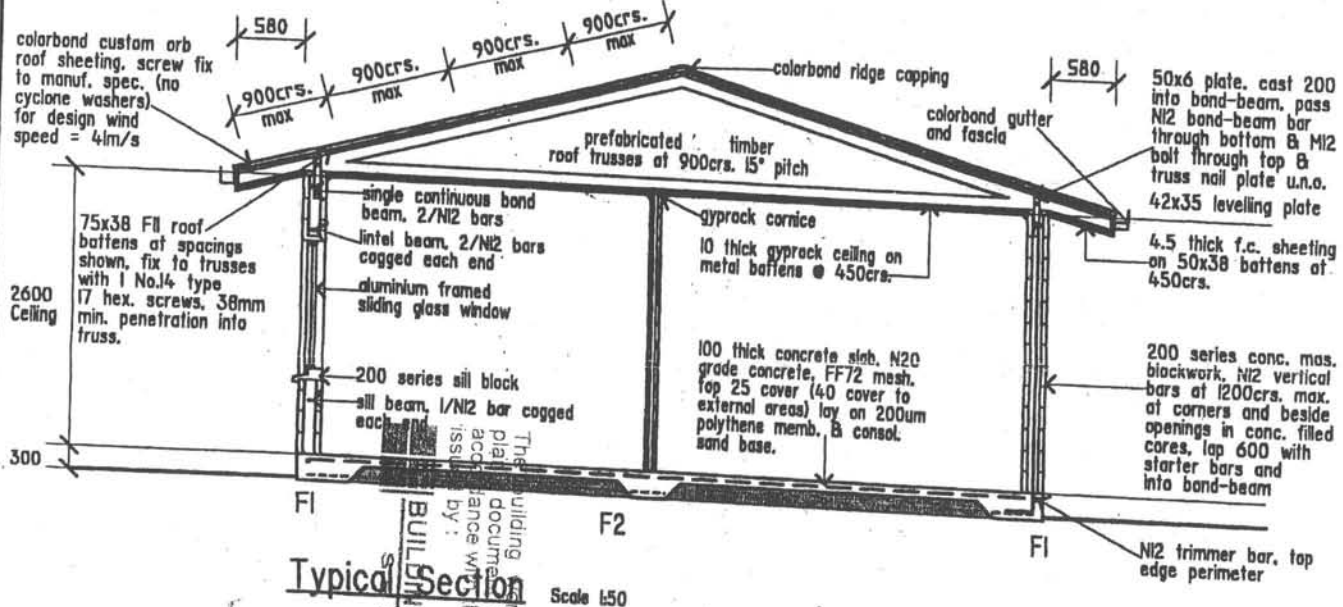
*C. J. Farnsworth 31/8/04*

**C.M.G. CONSULTING ENGINEERS** PVT. LTD.  
208 BUCHAN ST. CARBON BLD. 1470 PT. ST. GEORGE QLD 4032  
TEL: 07 4602175 FAX: 07 4602903

**ROOF TRUSSES**

1. ROOF TRUSSES SHALL BE DESIGNED & CERTIFIED BY THE TRUSS MANUF. FOR LOADINGS SHOWN. THE DESIGN SHALL INCLUDE:
  - (a) ALL NECESSARY WIND & BOTTOM CHORD BRACING;
  - (b) ALL INTERNAL TRUSS CONNECTIONS;
2. TRUSS HOLD-DOWN: BLOCKWORK, 50x6thk PLATE CAST 200 INTO BOND-BEAM. THREAD BOND-BEAM BAR THROUGH BOTTOM. M12 BOLT THROUGH TOP & TRUSS NAIL PLATE U.N.O. TIMBER ROOF BEAMS: 2 No. TRIP-L-GRIPS 4/2.80mm NAILS EACH LEG
3. GIRDER TRUSS HOLD-DOWN: 50 x 6 THICK PLATE CAST 200 INTO BOND-BEAM EACH SIDE. THREADED M12 BOND-BEAM BAR THROUGH BOTTOM. M16 BOLT THROUGH TOP & TRUSS NAIL PLATE.

**TERMITE PROTECTION**  
TERMITE RESISTANCE IS PROVIDED BY THE USE OF TERMITE RESISTANT STRUCTURAL MATERIALS.  
STRUCTURAL TIMBER MEMBERS ARE EITHER:  
\* NATURALLY TERMITE RESISTANT AS LISTED IN APPENDIX A OF A.S. 3660.1 OR;  
\* PRESERVATIVE TREATED TIMBER, TREATED IN ACCORDANCE WITH APPENDIX B OF A.S. 3660.1



**Typical Section Scale 1:50**

**Homes (N.O.) Pty Ltd**  
P.O. Box 205, Bungalow 4870,  
192 Mulgrave Road, Earlville.  
Ph: (07) 40413333 Fax: (07) 40413388

AMENDMENTS	DATE	TITLE

TITLE: Proposed Residence at Lot 75 Timberlea Drive Edmonton.  
FOR: J Mulholland

CLIENT: *[Signature]*  
BUILDER: *[Signature]*  
SCALE: 1:50, 200  
SHEET No: *[Signature]*  
DATE: *[Signature]*  
JOB No: *[Signature]*

**C1**