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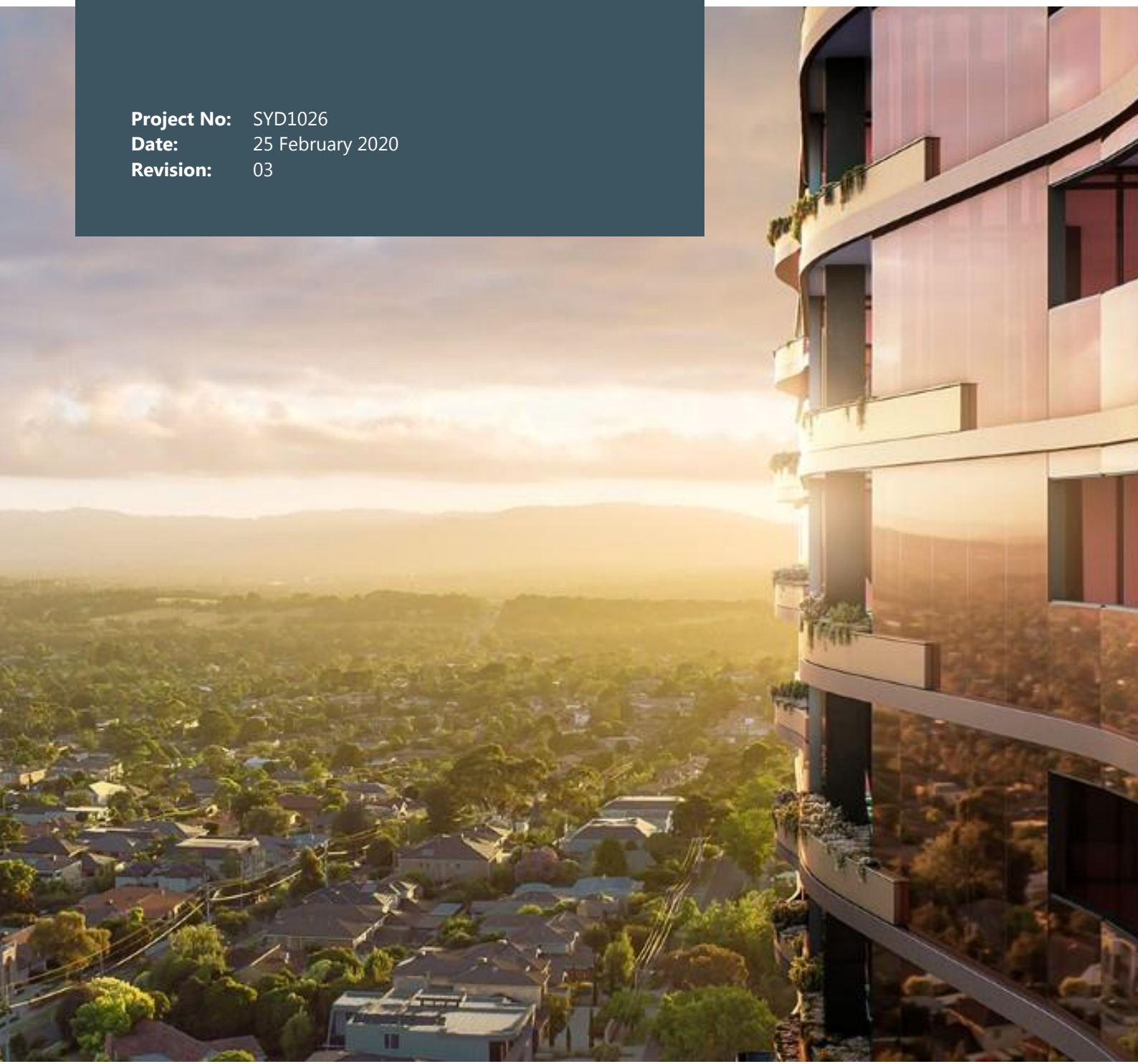
Summitcare Casula

BASIX Assessment Report

Project No: SYD1026
Date: 25 February 2020
Revision: 03



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Project:	Summitcare Casula
Location:	18 Randwick Road Casula, NSW, 2170
Prepared by:	ADP Consulting Pty Ltd Level 3, 8 Spring Street Sydney NSW 2000
Project No:	SYD1026
Revision:	03
Date:	25 February 2020

Rev	Date	Comment	Author	Signature	Technical Review	Signature	Authorisation	Signature
03	25/02/20	DA Issue	ZN		RR		RR	

Architect	Jackson Teece

Contents

Appendices

Executive Summary

ADP Consulting has been engaged by Centurion Projects to undertake the following BASIX assessment and certification for the proposed residential aged care facility located 18 Randwick Close, Casula, NSW 2170.

The proposed development is comprised of the following:

- 3 proposed buildings within the property boundary;
- 93 apartments;
- 140 carparking spaces

This BASIX report has been prepared to support the DA submission as a legislative requirement in accordance with the Environmental Planning and Assessment Act (2000) and BASIX (2004).

Based on the project inputs specified within this report, the assessment demonstrates that the development can achieve compliant scores against their respective BASIX targets, as presented in Table 1.

Table 1 BASIX Target Scores

Basic Parameter	Target	Development Score
Water	40%	41%
Energy	45%	46%
Thermal Comfort	Pass (ind. Dwellings + average)	Pass

1. Introduction

ADP Consulting has been engaged by Centurion Projects to undertake the following BASIX assessment and certification for the proposed residential aged care facility located 18 Randwick Close, Casula, NSW 2170.

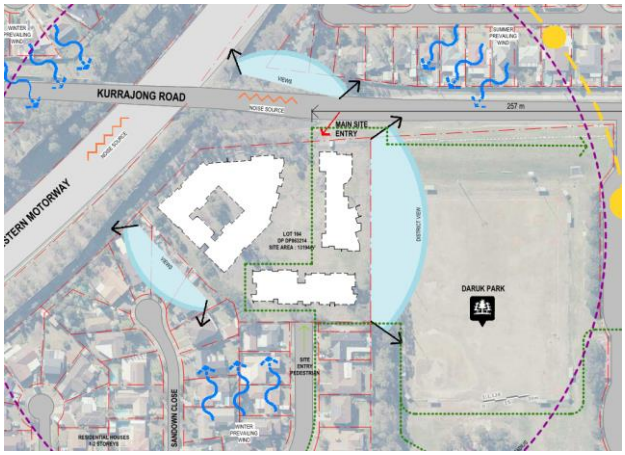
The purpose of this report is to provide a summary of the Environmentally Sustainable Design (ESD) initiatives adopted as part of the proposed building design. Key areas of improvement within the BASIX indices of water, energy and thermal comfort have been identified beyond the minimum compliance measures outlined by the state of NSW.

This report has been prepared as a contribution to the Development Application (DA) submission of the above noted project.

1.1 Project Context

The proposed residential aged care facility comprises of three new buildings located to the east of the Southern Western Motorway in Casula. The development contains shared carparking for residents and their guests, communal landscaped public spaces, retail amenities, aged care units (Class 9b) and individual aged care residential dwellings (Class 2).

Individual dwellings (Class 2) has been fitted with a shared living and kitchen space, one, two or three bedrooms, private amenities and an open balcony or courtyard for private tenant use.



1.2 Assessment Assumptions and References

This BASIX assessment has been based on the following DA architectural drawings and updates provided periodically by Jackson Teece Architecture on the following dates;

- Preliminary DA Drawings 19/08/2019
- Updated DA Architectural Set 30/09/2019
- Final Da Architectural Drawings 25/02/2020

1.3 BASIX Assessment

The Building Sustainably Index (BASIX) for the state of NSW, forms the minimum compliance control for any new residential (Class 1 & 2) developments as defined by the Department of Planning Industry and Environment.

The BASIX assessment outlines a minimum target of improvement for the proposed developments water, energy and thermal comfort performance. The minimum benchmark of improvement for each index is based on the location, size, height and dwelling density of project development.

The proposed casual multi-unit aged care residential facility has been assessed as three multi-unit (3-5 story) buildings consisting of a total of 93 individual (class 2) dwellings.

For this type of development, the following minimum targets must be achieved

- **40% improvement** in water consumption;
- **35% Improvement** in Energy consumption;
- **All units to 'pass'** the minimum thermal performance requirements for heating and cooling (as defined by the developments climate zone)

The minimum targets required for energy and water (45% and 40% respectively) represent a percentage saving and improvement for the development when compared to that of an average benchmark development for NSW.

The thermal comfort targets are assessed on an individual dwelling basis and are defined by the developments proposed location within NSW. Each dwelling must not exceed the minimum annual predicted heating and cooling load capacities outlined by BASIX and is assessed using the NatHERS thermal comfort software First Rate 5.

For Proposed SummitCare development at Casula the following minimum targets must be achieved;

- Maximum dwelling heating load 63.2 MJ/m2
- Maximum dwelling cooling load 56.2 MJ/m2

2. BASIX Compliance

The following section provides a summary of the water, energy and thermal comfort initiatives proposed for development to meet compliance with the minimum BASIX requirements.

2.1 Water Strategies

The following table outlines the water strategy proposed for the development. The project is currently achieving a 41% improvement on the BASIX average benchmark.

This will be achieved providing the following water commitments are implemented:

Table 2 Water Commitments

BASIX Base Case	Water Conservation Strategies
Individual Dwellings	Fixtures and fittings[1] to be included: > 3-star showerheads (7.5-9L/min) > 5-star kitchen and bathroom taps > 3-star flush toilets
Appliances (For Individual Dwellings)	> 4-star dishwasher > 4-star clothes washer
Common Areas	Fixtures and fittings to be included: Fixtures and fittings[2] to be included: > 3-star showerheads (7.5-9L/min) > 5-star kitchen and bathroom taps > 3-star flush toilets Landscaping: > No rainwater irrigation requirements > 90% indigenous /low water species to be provided.
	Rainwater Collection Tank > No rainwater tank requirements.
BASIX Water Target	**40%**
BASIX Water Score	**41%**

[1] More information on water efficient appliances can be found at www.waterrating.gov.au
[2] More information on water efficient appliances can be found at www.waterrating.gov.au

2.2 Energy Strategies

The following table outlines the energy strategy proposed for the development. The project is currently achieving a 45% improvement on the BASIX average benchmark.

This will be achieved providing the following energy commitments are implemented:

Table 3 Energy Commitments

BASIX Base Case	Energy Conservation Strategies
Individual Dwellings	> Dedicated LED light fittings located throughout each dwelling[3] (All downlights to be sealed) > All kitchen, bathroom and laundry exhausts to have individual fans ducted to the facade or roof with the following efficiency measures: – Kitchen: manual on/off switch – Bathroom and laundry: Interlocked to lighting. > Individual air-conditioned day-night zoning between bedrooms and living areas.
Appliances (For Individual Dwellings)	Efficient appliances[4] for each apartment as follows: > Gas cooktop and electric oven > 4.5-star energy rated dishwashers > 5-star energy rated clothes dryers > 3-star energy rated refrigerator > Well ventilated fridge space
Common Areas	Ventilation systems as follows: > Car park, supply and exhaust with CO monitors and VSD fans > Lobbies/corridors, ventilation supply only (Building A & B) > Lobbies/corridors, natural ventilation (Building C) > Switch room, supply only (continuous) > Garbage rooms, mechanical exhaust (continuous) > Plant and services rooms, supply only (continuous) Lighting systems and efficiency measures as follows: > Car parks, fluorescent lights with motion sensors > Lift cars, LED connected to the lift call buttons > Comms/server/plant rooms and garbage rooms, fluorescent lighting with manual on/off switch efficiency > Lobbies and corridors with LED's with timeclock and motion sensors

[3] Dedicated LED must be the predominate (i.e. 80% of fittings) light fitting in each room

[4] More information on energy efficient appliances can be found at www.energyrating.gov.au

BASIX Base Case	Energy Conservation Strategies
Central Systems	> Central Cooling System Water-source Package units with cooling towers (COP > 4.5) > Central Heating system Water-source Package units with gas fired boiler (COP > 4.5) > Central hot water system Gas-fired boiler with R0.6 (~25mm) piping insulation > Vertical Transport Gearless traction lifts with VVVF motor
Photovoltaic (PV) System	> 45 kW Photovoltaic (PV) System
Other	> Private outdoor clothes drying line
BASIX Energy Target	45%
BASIX Energy Score	46%

3. Thermal Comfort

3.1 National House Energy Rating Scheme (NatHERS) Assessment.

Thermal Comfort for each dwelling has been assessed out in accordance with the BASIX Thermal Comfort Protocol as defined by the Department of Planning Industry and Environment.

Thermal comfort levels for all proposed dwellings (Class 2) have been assessed using the FirstRate 5 (thermal modelling software). This approach has been approved by the National House Energy Rating Scheme (NatHERS) and aims to predict annual heating and cooling loads of each dwelling.

To satisfy the BASIX thermal comfort requirements, the following objectives must be achieved:

> The individual heating and cooling loads for each dwelling must not exceed the limit specified in the BASIX scheme;

> The average heating and cooling loads of all dwellings in a development must not exceed the specified average limit.

Table 4 Thermal Comfort Targets

Climate Zone 28	Max. Heating Load (MJ/m^2)	Max. Cooling Load (MJ/m^2)
Individual Dwelling	63.2	63.7
Average All Dwellings	22	35

The table below outlines the building envelope constructions assumed as part of the thermal comfort model and provides the average heating and cooling loads achieved for BASIX compliance.

Table 5 Construction Details

Building Element	Envelope Requirements
Construction & shading	> As indicated on the architectural drawings. balconies have been included in the assessment.
External Walls	> 200mm Concrete + R2.5 insulation + plasterboard
Internal Walls	> Plasterboard on stud (internal apartment)
Roof	> 150mm concrete + R2.5 insulation + plasterboard ceiling > Below balconies - 150mm Concrete + R1.0 insulation + plasterboard ceiling
Floor	> 200 mm concrete slab + carpet/tile > Above balcony/outside - 200mm concrete slab + R1.5 insulation + carpet/tile
Glazing	> Double Glazed unit: **U = 4.8W/m²k, SHGC =0.59**
BASIX Target	Average Thermal Load: Heating **55.7 MJ/m²** Cooling **56.2 MJ/m²**
Thermal Comfort Score	Average Thermal Load: Heating **22 MJ/m2²** Cooling **35 MJ/m²**

Please note; glazing values quoted above are based on AFRC figures and are values for the total glazing system including frame.

For all apartments, the following assumptions have been made:

> All windows and doors are weather stripped and have insect screens;

> Window openings have been calculated as per the BASIX protocol based on input from the architectural team for awnings windows and sliding doors.

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Appendix A
BASIX Certificate

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Appendix B
Thermal Comfort Results

Assessors Details: **Drawing Stamp:**

Table 3 Thermal Comfort Results

Unit Number	Simulated Loads (MJ/m²/y)		Floor Area (m²)		Star Rating	Glazing / Floor Insulation Alternatives
	Heating	Cooling	Conditioned	Unconditioned		
A.01.01	12.9	21.2	103.0	0.0	8.0	
A.01.02	7.6	13.3	71.0	0.0	9.0	
A.01.03	7.6	13.3	71.0	0.0	9.0	
A.01.04	7.6	13.3	71.0	0.0	9.0	
A.02.01	12.9	21.2	103.0	0.0	8.0	
A.02.02	7.6	13.3	71.0	0.0	9.0	
A.02.03	7.6	13.3	71.0	0.0	9.0	
A.02.04	7.6	13.3	71.0	0.0	9.0	
A.02.05	51.4	19.6	98.0	0.0	7.0	
A.03.01	14.4	26.9	103.0	0.0	8.0	
A.03.02	11.3	15.4	71.0	0.0	9.0	
A.03.03	11.3	15.4	71.0	0.0	9.0	
A.03.04	11.3	15.4	71.0	0.0	9.0	
A.03.05	51.4	19.6	98.0	0.0	7.0	
A.04.01	7.5	38.3	103.0	0.0	7.9	
A.04.02	6.0	13.8	71.0	0.0	9.2	
A.04.03	6.0	13.8	71.0	0.0	9.2	
A.04.04	6.0	13.8	71.0	0.0	9.2	
A.04.05	6.0	13.8	71.0	0.0	9.2	
A.04.06	43.8	30.5	71.0	0.0	6.6	
A.04.07	6.9	14.9	101.0	0.0	9.1	
A.04.08	45.3	35.5	105.0	0.0	6.3	
A.04.09	31.7	31.1	98.0	0.0	7.1	
A.04.10	31.7	31.1	98.0	0.0	7.1	
B.00.10	9.9	39.8	124.7	0.0	7.7	
B.00.11	22.1	47.8	77.2	0.0	6.8	
B.00.12	13.5	35.7	92.6	0.0	7.8	
B.00.13	39.1	54.6	90.3	0.0	5.7	
B.01.01	18.9	43.4	64.9	0.0	7.2	
B.01.02	15.7	44.2	106.3	0.0	7.3	
B.01.03	10	28.1	93.9	0.0	8.3	

Unit Number	Simulated Loads (MJ/m²/y)		Floor Area (m²)		Star Rating	Glazing / Floor Insulation Alternatives
	Heating	Cooling	Conditioned	Unconditioned		
B.01.04	13.8	47.7	77.2	0.0	7.2	
B.01.05	18.3	52.1	76.7	0.0	6.8	
B.01.06	20.8	40.1	105.7	0.0	7.2	
B.01.07	22.7	46.2	77.2	0.0	6.9	
B.01.08	13.9	34.9	92.8	0.0	7.8	
B.01.09	39.2	54.3	90.3	0.0	5.7	
B.01.10	11.8	42.3	98.6	0.0	7.6	
B.02.01	18.9	43.4	64.9	0.0	7.2	
B.02.02	15.7	44.2	106.3	0.0	7.3	
B.02.03	10	28.1	93.9	0.0	8.3	
B.02.04	13.8	47.7	77.2	0.0	7.2	
B.02.05	18.3	52.1	76.7	0.0	6.8	
B.02.06	20.8	40.1	105.7	0.0	7.2	
B.02.07	22.7	46.2	77.2	0.0	6.9	
B.02.08	13.9	34.9	92.8	0.0	7.8	
B.02.09	39.2	54.3	90.3	0.0	5.7	
B.02.10	11.8	42.3	98.6	0.0	7.6	
B.03.01	18.9	43.4	64.9	0.0	7.2	
B.03.02	15.7	44.2	106.3	0.0	7.3	
B.03.03	10	28.1	93.9	0.0	8.3	
B.03.04	13.8	47.7	77.2	0.0	7.2	
B.03.05	18.3	52.1	76.7	0.0	6.8	
B.03.06	20.8	40.1	105.7	0.0	7.2	
B.03.07	22.7	46.2	77.2	0.0	6.9	
B.03.08	13.9	34.9	92.8	0.0	7.8	
B.03.09	39.2	54.3	90.3	0.0	5.7	
B.03.10	11.8	42.3	98.6	0.0	7.6	
B.04.01	37.3	56.3	64.8	0.0	5.7	
B.04.02	33.2	57.4	106.3	0.0	5.8	
B.04.03	41.5	38.4	129	0.0	6.4	
B.04.04	39.9	45.2	136.5	0.0	6.1	
B.04.05	35.2	57.8	64.9	0.0	5.8	
C.00.01	15.1	28.8	54.9	0.0	8	

Unit Number	Simulated Loads (MJ/m²/y)		Floor Area (m²)		Star Rating	Glazing / Floor Insulation Alternatives
	Heating	Cooling	Conditioned	Unconditioned		
C.00.02	6.7	20.5	56.3	0.0	8.8	
C.00.03	15.3	38.3	111.5	0.0	7.6	
C.00.04	44.4	37.4	101	0.0	6.2	
C.00.05	20.2	41.9	88.5	0.0	7.2	
C.00.06	48.2	19.8	86	0.0	6.9	
C.00.07	52.2	48.2	99.4	0.0	5.4	
C.00.08	24	74.1	85.9	0.0	5.5	
C.00.09	7.2	18.1	54.1	0.0	8.8	
C.00.10	12.7	27.7	54.8	0.0	8.3	
C.01.01	15.3	28.1	56.6	0.0	8	
C.01.02	6.7	20.5	56.3	0.0	8.8	
C.01.03	15.3	38.3	111.5	0.0	7.6	
C.01.04	44.6	37.3	101	0.0	6.3	
C.01.05	41.9	20.2	88.5	0.0	7.2	
C.01.06	48.2	19.8	86	0.0	6.9	
C.01.07	48.2	52.2	99.4	0.0	5.4	
C.01.08	24	73.9	85.9	0.0	5.5	
C.01.09	7.2	18	54.1	0.0	8.9	
C.01.10	12.7	27.7	54.8	0.0	8.2	
C.02.01	16.6	26.4	56.1	0.0	8	
C.02.02	8	19.6	55.7	0.0	8.8	
C.02.03	17.4	37.1	111.5	0.0	7.5	
C.02.04	44.5	39.1	101	0.0	6.2	
C.02.05	18.8	45	88.5	0.0	7.1	
C.02.06	51.2	18.3	86	0.0	6.8	
C.02.07	46.2	53.1	99.4	0.0	5.4	
C.02.08	24.5	58.1	85.9	0.0	6.2	
C.02.09	17.6	28.1	54.1	0.0	7.9	
C.02.10	17.2	27.5	54.8	0.0	7.9	
Average	**21.6**	**34.9**			**7.4**	

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Appendix C
Certified Stamped Drawings

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