

GROUND FLOOR PLAN
scale 1: 100

UNIT TYPE C5			
AREAS	m ²		
	BULK	COV	F.A.R.
GROUND FL	268.7	268.7	268.7
VERANDAH	71.2	71.2	
GARAGE	41.6	41.6	
PORCH	1.5	1.5	
1ST FL	184.5		184.5
BALCONIES	13.5		
STAFF	19.1	19.1	19.1
OPEN DECK	52.2		

TOTAL	652.3	402.1	472.3
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1ST FLOOR PLAN
scale 1: 100

GENERAL NOTES.

ALL WORK TO COMPLY WITH SANS 10400
CORNER BEACONS TO BE LOCATED AND EXPOSED BEFORE WORK ON SITE COMMENCES.
CONTRACTOR TO CHECK ALL DIMENSIONS AND LEVELS (SCHEDULES AND DETAILS) BEFORE THE RELEVANT WORK IS PLACED IN HAND AND REPORT ANY DISCREPANCIES TO THE DESIGNER/OWNER.
ALL WRITTEN DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALING.
ALL REINFORCED CONCRETE, SLABS, FOUNDATIONS, COLUMN DETAILS, BEAMS, STAIRS, STRUCTURAL STEEL WORK AND RETAINING WALLS ARE TO BE BUILT STRICTLY IN ACCORDANCE WITH PROFESSIONAL ENGINEERS DETAIL AND UNDER HIS SUPERVISION.

CONTRACTOR TO ENSURE THAT NO CHANGES IN LEVELS ARE MADE OVER LOCAL AUTHORITY SERVICES OR UNDERGROUND SERVICES UNLESS PERMISSION HAS BEEN GIVEN IN WRITING BY THE LOCAL AUTHORITY.
ANY DISCREPANCIES AND OMISSIONS ARE TO BE BROUGHT TO THE DESIGNERS/OWNERS ATTENTION IMMEDIATELY.
THE CONTRACTOR IS TO INSPECT THE OFFICIAL APPROVED COPIES OF THE DRAWINGS TO ENSURE THAT ALL AMENDMENTS HAVE BEEN TAKEN INTO ACCOUNT.
THE ATTENTION OF THE OWNER IS DRAWN TO THE FACT THAT CHANGES TO THE PLAN AND/OR SPECIFICATION AFTER OFFICIAL APPROVAL IS LIKELY TO INVALIDATE THAT APPROVAL.
GLAZING TO COMPLY WITH PART N OF SANS 10400

SITING AND EXCAVATION

IF ON EXCAVATION THE SITE IS FOUND TO CONTAIN EXPANSIVE CLAY, SHALE, GROUND WATER OR OTHER SUSPECT SOIL CONDITIONS, THEN ALL FOUNDATIONS ARE TO BE BUILT TO PROFESSIONAL ENGINEERS DETAILS AND UNDER HIS SUPERVISION.
ALL FOUNDATIONS TO BE TAKEN DOWN BELOW NATURAL GROUND LEVEL.
NATURAL GROUND LINE IN APPROXIMATE POSITION ONLY AND NO CLAIM CAN BE MADE FOR ANY DISCREPANCIES ON SITE.
NO BACKFILLING OF OVER EXCAVATED AREAS WILL BE PERMITTED.
ALL EARTHWORKS TO BE CONTAINED WITHIN SITE BOUNDARIES AND WITHIN 1000 OF ANY BOUNDARY.

BANKS TO BE CUT TO A MAXIMUM OF 26 DEGREES.

NB. corner beacons are approximate and to be verified by builder on site
NB. all new banks to be cut to a maximum of 26degrees to engineers detail.
NB. access panels to be provided to sewer ducts to comply with part PP 20.2
(a)(1)(2) of SANS 10400 NB. all sewer/stormwater pipes laid under slabs and hardened surfaces to be encased in concrete.

DRAINAGE NOTES.

ALL WASTE PIPES AND DRAINS TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH.
INSPECTION EYES (I.E.'S) TO BE PROVIDED AT ALL BENDS AND JUNCTIONS IN THE DRAIN AND AT A MAXIMUM OF 24M LENGTHS ALONG STRAIGHT RUNS OF DRAIN.
ALL I.E.'S MUST HAVE MARKED COVERS AT GROUND LEVEL.
CLEANING EYES (C.E.'S) TO BE PROVIDED AT ALL BENDS AND JUNCTIONS OF WASTE PIPES.
WASTE TO BE FITTED WITH 64mm RESEAL TRAPS.
WHERE THE VERTICAL DROP FROM SOIL FITTINGS TO THE MAIN DRAIN EXCEEDS 1.2m THESE FITTINGS ARE TO BE ANTI-SYPHONED



30 Bridgeview Road, 30, Morningview, Morningside, Durban, 4001 Cell. 0794612555			
ARCHITECT SIGNATURE	REG NUMBER	T.Kinloch 27096	
CLIENT	Mr Watkins		
PROJECT DESCRIPTION	UNIT C		
CADASTRAL	ERF 1697 Durban North		
ADDRESS	4 Grosvenor Place		
DRAWING TITLE	UNIT TYPE C		
DRAWN BY: T. KINLOCH	CHECKED BY: TK		
DATE/SCALE	JOB NO.	JOB STAGE	DRW NO.
12 07 2021	132001C/01	COUNCIL SUBMISSION	OF 1
1/100 A1 PAGE			OF 1
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WINDOW SCHEDULE TYPE C

WINDOW NUMBER	W1	NUMBER OF	1	WINDOW NUMBER	W2	NUMBER OF	4	WINDOW NUMBER	W3	NUMBER OF	2	WINDOW NUMBER	W4	NUMBER OF	3	WINDOW NUMBER	W5	NUMBER OF	1	WINDOW NUMBER	W6	NUMBER OF	3	WINDOW NUMBER	W7	NUMBER OF	5	WINDOW NUMBER	W8	NUMBER OF	1	WINDOW NUMBER	W9	NUMBER OF	1
FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL							
Glass type				Glass type				Glass type				Glass type				Glass type				Glass type				Glass type				Glass type							
Thickness				Thickness				Thickness				Thickness				Thickness				Thickness				Thickness				Thickness							
Position				Position				Position				Position				Position				Position				Position				Position							
Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish							

WINDOW NUMBER	W13	NUMBER OF	2	WINDOW NUMBER		NUMBER OF	1	WINDOW NUMBER	D4	NUMBER OF	4	WINDOW NUMBER	D5	NUMBER OF	1	WINDOW NUMBER		NUMBER OF	4	WINDOW NUMBER	D1	NUMBER OF	1	WINDOW NUMBER	D2	NUMBER OF	1
				X												X											
FLOOR LVL				WP LVL				WP LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL			
Glass type				Glass type				Glass type				Glass type				Glass type				Glass type				Glass type			
Thickness				Thickness				Thickness				Thickness				Thickness				Thickness				Thickness			
Position				Position				Position				Position				Position				Position				Position			
Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish			

WINDOW NUMBER	W10	NUMBER OF	1	WINDOW NUMBER	W11	NUMBER OF	1	WINDOW NUMBER	W12	NUMBER OF	1	WINDOW NUMBER	D3	NUMBER OF	1	WINDOW NUMBER		NUMBER OF	1	WINDOW NUMBER		NUMBER OF	1	WINDOW NUMBER	D6	NUMBER OF	1
																X											
FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL							
Glass type				Glass type				Glass type				Glass type				Door type				Door type							
Thickness				Thickness				Thickness				Thickness				Thickness				Thickness							
Position				Position				Position				Position				Position				Position							
Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish							

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																X											
FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL				FLOOR LVL							
Glass type				Glass type				Glass type				Glass type				Door type				Door type							
Thickness				Thickness				Thickness				Thickness				Thickness				Thickness							
Position				Position				Position				Position				Position				Position							
Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish				Frame Finish							



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1:100 A1 PAGE			OF 1
			F

ORIENTATION

Design and Calculation Submission
As per the National Compulsory regulator and in terms of the National Building Regulations we hereby submit Energy Usage/Efficiency Analysis and calculations based on SANS 10400 Part XA:2011 (ENERGY USAGE IN BUILDINGS) AND SANS 204:2011 (Energy Efficiency in Buildings). These drawings indicate the calculated Energy usage and Energy Efficiency measures that were taken to ensure the building complies to the Deemed to Satisfy Requirements and or to achieve compliance to all performance targets under the current regulated standards SANS 10400 Part XA:2011 and SANS 204:2011.

All calculations were done by the manual calculation method with use of the regulated standard tables and diagrams with SANS 204:2011. Glazing Values for U and SHGC were obtained from the known and tested values "Smartglass performance Data Manual".

General Notes and Requirements
The developer/contractor/owner will comply to the following General Notes below and provide the information as stipulated on completion of the project.

The developer/contractor/owner will comply to SANS 10400 Part XA:2011 and applicable instructions to achieve compliance based on the calculations. Failure to comply to these drawings (EEU Series) will result in the Local Authority instructing work (Retrofitting) to be achieved compliance as per the National Building Regulation and their Mandate.

fenestration

The developer/contractor/owner will provide the Architect and the Local Authority Glazing Certificates indicating that the correct glazing was used in accordance to the calculated data, compliance instruction and fitted to the correct Fenestration Device as indicated in the Fenestration table.

insulation

Only TIASA and SABS approved insulation may be used.

Perimeter Floor Insulation (SANS 204:2011 - 4.3.2.1)
The developer/contractor/owner will provide the Architect and the Local Authority Insulation Certificate for perimeter floor insulation.

Floor Insulation - Under Surface Bed (SANS 204:2011 - 4.3.2.1)
It's Best practice to insulate under your surface bed, but the regulation only requires if The Developer/contractor/owner will using either in screed, under laminate or under carpet heating, conventional mat type piped.
The Developer/contractor/owner will provide the Architect and the Local Authority Insulation Certificate for under surface bed insulation (if installed).

Underfloor/Surface Bed Insulation does not need to be installed if the declaration is signed that he/she will never install an underfloor heating system, but Perimeter Insulation will be required to comply to (SANS 204:2011 - 4.3.2.1)

Thermal Radiant Roof Insulation (SANS 204:2011 - 4.3.2.1)
The developer/contractor/owner will provide the Architect and the Local Authority Insulation Certificate for roof insulation.

Within the remainder of this submission
Please Refer to each separate section within this submission for the applicable calculation data, details and any additional information pertaining to those sections.

DECLARATION OF OWNER/DEVELOPER (UNDER FLOOR HEATING)

I/We _____ CANNOT GUARANTEE THERE WILL NOT BE A FUTURE UNDERFLOOR HEATING SYSTEM, so understand to comply to the functional regulation (SANS 204:2011 - 4.3.2.1) I/we will install underfloor/undersurface insulation only. And will install to the construction details within this submission to allow for the possible future installation of an underfloor heating system.

I/We _____ WILL NOT INSTALL UNDERFLOOR HEATING, so understand to comply to the functional regulation (SANS 204:2011 - 4.3.2.1) I/we will still be required to install perimeter insulation only. And will install to the construction details within this submission.

I/We _____ WILL INSTALL UNDERFLOOR HEATING, so understand to comply to the functional regulation (SANS 204:2011 - 4.3.2.2) I/we will install underfloor/undersurface bed insulation only. And will install to the construction details within this submission.

SIGN: _____ DATE: _____ OWNER

SIGN: _____ DATE: _____ DEVELOPER

1. Compliance SANS 204:2011 4.1 SITE OPERATIONS AND 4.2 BUILDING ORIENTATION

The building satisfies compliance with the deemed to satisfy requirements under SANS 204:2011 (edition 1) -4.1 (Site Orientation)

Site Orientation is North for Optimal Orientation given in figures B.1 TO B.6 in is accordance to 4.1. SANS 204:2011.

The building satisfies compliance with the deemed to satisfy requirement under SANS 204:2011 (Edition 1) - 4.2 (Building Orientation) Optimal Orientation (zone 5 - Durban = True North +- 15 Deg)

Building is Orientated North as per North sector for Orientation given in Figures B.1 to B.6 in is accordance to 4.2. SANS 204:2011.

Major Living Spaces are located on Southern Orientation.

2. Compliance SANS 10400-XA:2011 (Edition 1) - 4.4.3. (External Walls)

The building satisfies compliance with the deemed to satisfy requirements under SANS 10400XA Part 4.4.3.2 (EXTERNAL WALLS)

Building is constructed of Double skin 230mm and parts triple skin 345mm Masonry brick wall (no cavity) with external plaster finish and internal finish with additional plaster finish layer to all internal wall surfaces.

Product Specification and Calculation Data

Product R-Value data is obtained from clay brick. org

DECLARATION OF OWNER/DEVELOPER

I/We _____ have read and understood the above General Notes & Requirements and will ensure that all components and products specified will be fitted to achieve compliance in terms of SANS 10400XA - 2011 and SANS 204:2011 and will abide by the calculated data within this submission and install components in accordance to the calculated data to achieve compliance.

SIGN: _____ DATE: _____ OWNER

SIGN: _____ DATE: _____ DEVELOPER

Design and Calculation Criteria

The following information is provided for accurate calculation for this project.

In terms of SANS 10400-A:2010(Edition 3) Table 1 (Occupancy or Building Classification)

H4 (Dwelling House

In terms of SANS 10400-A:2010(Edition 3) Table 2 (Design Population)

H4 (Dwelling House) - 6 Persons per House

In terms of SANS 204:2011 (Edition 1) Table 5 (Constants for Conductance: U Value and Solar Heat Gain Coefficient: SHGC

Conductance Cu (zone 5)

SHGC (zone 5)

In terms of SANS 10400XA (edition 1) Table 7 (min total R-Value of roof assembly)

Min required total R-Value (m2 Kw) - zone 1,3,7

Direction of heat flow - zone 5 up

In terms of SANS 204:2011 (edition 1) table 12 (maximum energy demand and energy consumption for lighting for the class of occupancy or building)

Maximum energy demand: 5KWh/m²

Maximum energy consumption: 5 KWh/m²

In terms of SANS 204:2011 (edition 1) table 7 (energy index)

Energy index. (zone 5)

General Note:

Contractor to check all dimensioned on site and on drawings. Any and all discrepancies must be reported to the architect.

Only figured dimensions are to be taken. Do not scale off drawings.

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All work to comply with the NATIONAL BUILDING REGULATIONS ACT 103 OF 1977 thereto as well as the by-laws of the relevant municipality.

These drawings are to read in conjunction with the structural engineer's, civil engineer's, mechanical engineer's or plumbing consultants drawings where specified.

Drainage SABS materials used throughout, 75mm deep seal traps used with all waste fittings. All is to be marked at the surface and sealed. Wc's to have s or p traps with side access cleaning eyes. All Whites to have 32 diam, waste pipes and 40 diam, waste pipes to all other fittings. Floor drains to have 100diam, soil pipes.

PLEASE NOTE:
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FIRE NOTE:
THIS DRAWING HAS BEEN DESIGNED IN ACCORDANCE WITH THE SABS 0-400. THE FIREFIGHTING EQUIPMENT AND SERVICES INDICATED ON THIS DRAWING IS A GUIDELINE. ADDITIONS OR AMENDMENTS MAY BE REQUIRED DUE TO THE RECOMMENDATIONS OF A QUALIFIED RATIONAL FIRE SPECIALIST OR THE FIRE DEPARTMENT AT TIME OF SUBMISSION.

GENERAL NOTES:
All habitable rooms to have a minimum of 10% natural light and 5% natural ventilation to comply with the NATIONAL BUILDING REGULATIONS, otherwise specified, refer to mechanical engineers specifications only where applicable. All openings to have prestressed lintols over. Brickwork to every course for 5 courses above lintol. Brickwork to every fifth course of brickwork. Use figured dimensions only, do not scale off drawing.

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All habitable rooms to have a minimum of 10% natural light and 5% natural ventilation to comply with the NATIONAL BUILDING REGULATIONS, otherwise specified, refer to mechanical engineers specifications only where applicable. All openings to have prestressed lintols over. Brickwork to every course for 5 courses above lintol. Brickwork to every fifth course of brickwork. Use figured dimensions only, do not scale off drawing.

THE RECOMMENDATIONS MADE BY THE QUALIFIED RATIONAL FIRE SPECIALIST AND/OR FIRE DEPARTMENT, TAKE PRECEDENT OVER THE FIRE SERVICES INDICATED ON THESE DRAWINGS. THESE DRAWINGS ARE TO BE THEN READ IN CONJUNCTION WITH THE APPROVED FIRE SPECIALISTS DRAWINGS AND APPROVED RATIONAL DESIGN DOCUMENTS.

All work to comply with the NATIONAL BUILDING REGULATIONS ACT 103 OF 1977 thereto as well as the by-laws of the relevant municipality.

These drawings are to read in conjunction with the structural engineer's, civil engineer's, mechanical engineer's or plumbing consultants drawings where specified.

Drainage SABS materials used throughout, 75mm deep seal traps used with all waste fittings. All is to be marked at the surface and sealed. Wc's to have s or p traps with side access cleaning eyes. All Whites to have 32 diam, waste pipes and 40 diam, waste pipes to all other fittings. Floor drains to have 100diam, soil pipes.

PLEASE NOTE:
THE EMPLOYER INDEMNIFIES THE ARCHITECT FOR ANY CLAIMS OR DAMAGES ARISING OUT OF OMISSIONS OR ALTERATIONS TO THE STANDARD PRACTICE, INSTRUCTED BY THE EMPLOYER.

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LIGHTING

No.	Type	Lamp Type Description	Wattage per lamp		
1	LED (Recessed Downlighter) LED (External PAR Fitting)	High Power PAR 16 - LED Input: 220v-230v Fitting Base: GU10 Light Colour: Warm White or Cool White Total Power Consumption: 4.5 Watts	4.5	11	Compact Fluorescent Mini Type Mini Type Fluorescent Fitting (Baonette or Screw Type) Input: 220v - 230v Fitting Base: B22 or 327 Light Colour: Cool White or Warm White Lumens: 495 - 605 (Varies on Colour and Wattage) Total Power Consumption: 8 - 11 Watts (Assumed Highest Wattage - 11 Watts)
2	LED (Starlight)	Low Voltage 12V Driver Input: 3V DC (12V AC/DC Transformed) Fitting Base: G4 Bi Pin 12V Lamp Light Colour: Natural White or Warm White Lumens: 105 Natural White & 75 Warm White Total Power Consumption: 1-2.25 Watts (Assumed Highest Wattage - 2.25)	2.25	12	LED (Foot Light/Brick Light) External Voltage: 240v Fitting Base: PC Board Fitted 21x0,1w Fittings - Factory Fitted - Total 2.1Watts Per Fitting Light Colour: Cool White LED Total Power Consumption: 21x0.1 Watts (Total Wattage - 2.1 Watts)
3	LED (Foot Light/Brick Light) Internal	Low Voltage 24V Driver Fitting Base: PC Board Fitted 12x0,06w Fitting - Factory Fitted = Total 0.72 Watts Per Fitting Light Colour: Cool White LED Total Power Consumption: 12x0.6 Watts (Total Wattage - 0.72 Watts)	0.72	13	LED (Pool Light/Submersible) Low Voltage 12V Driver Fitting Base: PC Board Fitted 6x1w Fittings - Factory Fitted = Total 6.000Watts Per Fitting Light Colour: RGB Total Power Consumption: 6x1 Watts (Total Wattage - 6 Watts)
4	LED (Bulkhead Cove Lighting)	LED Strip Lighting Per Linear Meter (914mm Exact Length) Low Voltage: 24V Driver Fitting Base: PC Board Fitted 36x0,08w Fitting - Factory Fitted = Total 2.88 Watts Per Fitting Light Colour: Blue or White (Dependant on Clients Requirements) Max. amount of Light Bands Allowed per Controller - 8	2.88 (Per Length)	14	LED (Pond Light/Submersible) Low Voltage 12V Driver Fitting Base: PC Board Fitted 6x1w Fittings - Factory Fitted = Total 6.000Watts Per Fitting Light Colour: Blue Total Power Consumption: 6x1 Watts (Total Wattage - 6 Watts)
5	Compact Fluorescent Circular Type	Circular Type Fluorescent Fitting Input: 220v - 230v Fitting Base: Circular or 2D Type Light Colour: Pure White or Warm White Lumens: 750 - 1320 Total Power Consumption: 32 - 35 Watts (Assumed Highest Wattage - 35 Watts) Wattage will Reduce to 16w - 28w if a 2D Type Fitting is used	35	14	LED (Pond Light/Submersible) Low Voltage 12V Driver Fitting Base: PC Board Fitted 6x1w Fittings - Factory Fitted = Total 6.000Watts Per Fitting Light Colour: Blue Total Power Consumption: 6x1 Watts (Total Wattage - 6 Watts)

8. Compliance SANS 204:2011 (Edition 1) 4.5 Services 4.5.1 Lighting and Power

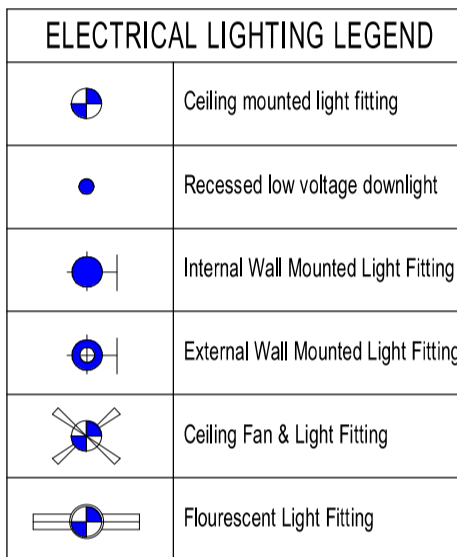
Please refer to the calculation data within this submission using (Manual Calculation method. Using formulas and tables within this regulation)

Minimum Lighting Levels shall be determined in accordance with the requirements of SANS 10114-1 and SANS 10400-0. Compliance with the relevant national legislation is required for safety.

Under 4.5.1.3 The Energy demand (power) and energy consumption for the building has been determined in accordance with the requirements using table 12 for this particular building occupancy.

The Electrical Layout is a Proposed Layout Only. Lights May be located in New Positions. But total wattage per year may not be exceeded. Light Fittings may be replaced but fittings replaced must be of an equal wattage or less.

PLEASE NOTE THE FOLLOWING: THE ELECTRICAL LIGHTING LAYOUT THAT IS ON THIS SHEET FOR DESIGN AND CALCULATION PURPOSES ONLY INDICATING THE MAX AMOUNT OF FITTINGS THAT MAY BE USED PER ROOM. THE DESIGN MAY BE CHANGED, THE QUANTITY OF FITTINGS MAY BE REDUCED BUT NOT INCREASED AND THE TYPE OF LAMP MAY BE CHANGED AS LONG AS ITS EQUAL OR LESS THAN THE WATTAGE INDICATED. THE DEVELOPER DOES NOT HAVE TO SUPPLY THE AMOUNT OF FITTINGS AS INDICATED (FOR CALCULATION PURPOSES ONLY). FINAL LAYOUT AND QUANTITIES ARE TO BE FINALISED BY OWNER AND DEVELOPER ONLY AFTER CONSULTATION.



HOT AND COLD WATER RETICULATION

9. Compliance SANS 204:2011 (Edition 1) 4.5 Services - 4.5.2 Hot Water Services

Please refer to Calculation data within this submission using (please refer to Drawing and Tables on this drawing which are obtained from Table 2 and 5 from SANS 10252:1 (Edition 3)

Developer/Contractor/Subcontractor (Plumber)/owner will comply to SANS 10252. All applicable Parts with regards to supply and installation of a water supply system (Hot and Cold).

Developer/Contractor/Subcontractor (plumber)/Owner will comply to SANS 204 Part 4.5.2 Hot Water Services 4.5.2.1 a min of 50% by volume of the average hot water heating requirement shall be provided by means other than electrical resistance heating, including but not limited to solar, heating, heat pumps, heat recovery from other systems or processes (extracted from SANS 204:2011 (edition 1)

4.5.2.2 The solar water system shall comply with the following regulations in addition.
1. Thermal performance SANS 1307 and SANS 10106
2. Installation SANS 10254.

Entire Exposed piping (hot) that means from the hot water storage or producing device (tanks or gysers) will be lagged with a thermal insulation material with 1m of the Cold Supply to the hot water storage or producing (tanks or gysers) as per SANS 204:2011 - Part 4.5.2.9.

Insulation Material will comply to TIASA and SABS regulations.

The insulation material will be protected from the effects of weather and sunlight, and be able to withstand the temperature of the piping and will have a min R-Value of 1.5 as per Table 13 determined with a hot water surface temperature of 60°C and an ambient temperature of 15°C.

Hot water storage or producing device (tanks or gysers) will be insulated by an insulation material with a min R-Value of 2 as per SANS 204:2011 - Part 4.5.2.6.

THEORETICAL HOT WATER CALCULATION

HOT WATER DEMAND CALCULATION

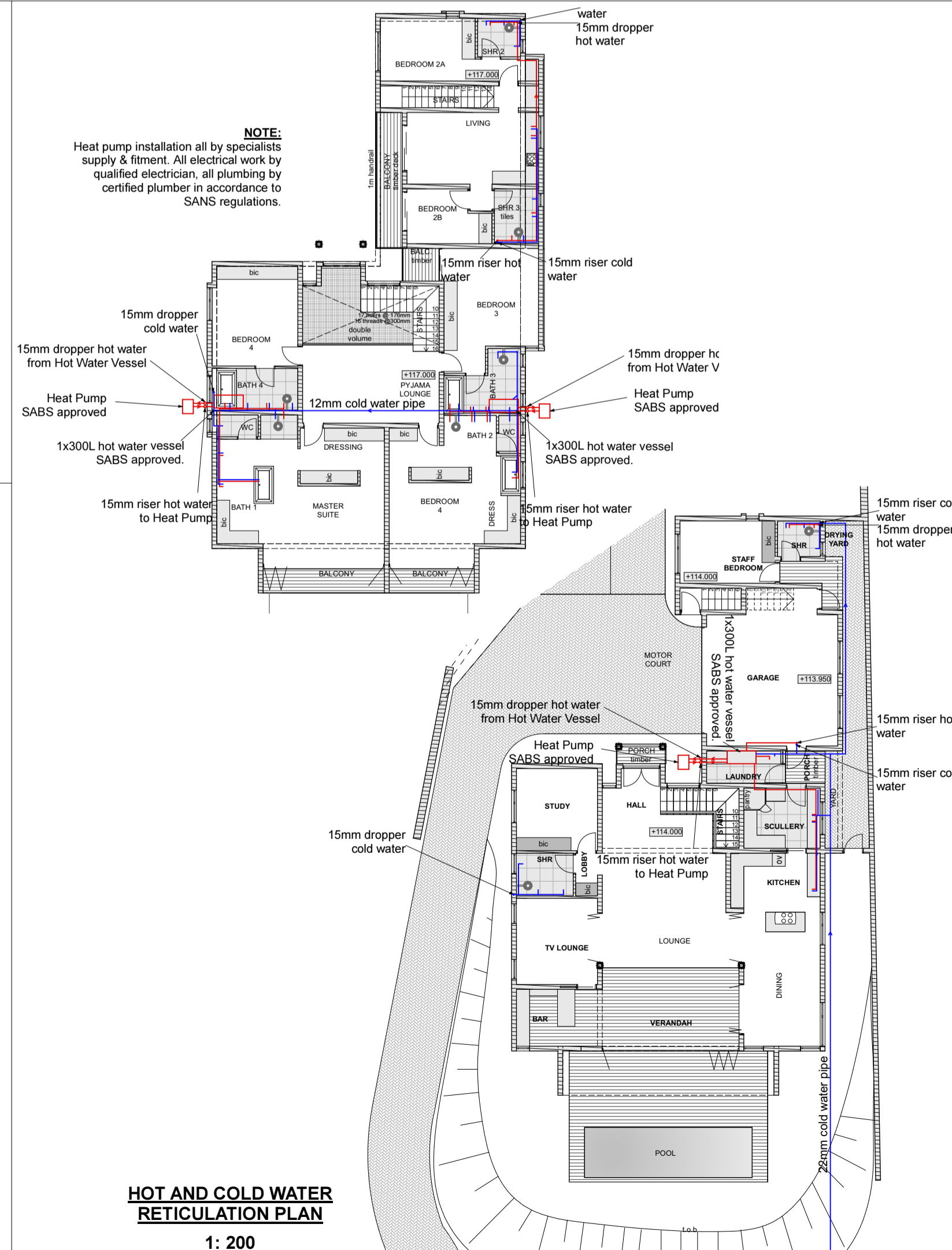
6 person home
Water demand based on medium to high rental (domestic residence - moderate to high income)
"GUIDELINES FOR HUMAN SETTLEMENT PLANNING AND DESIGN" 25-145 litres per person per day
Assumed highest usage 145 litres
6 persons x 145 litres (6x145) = 870 litres per day
870 Litres per day x 365 days per year (870 x 365) = 317 550 Per Annum.
Total Hot water Storage at 60deg = 300L per day

THIS HOT AND COLD WATER LAYOUT DRAWING IS A GUIDE ONLY. ONLY A TRAINED PLUMBER (VIEW DESCRIPTION UNDER SANS 10400-A:2010) MAY INSTALL THE HOT AND COLD WATER SYSTEM AND ALL HOT WATER VESSELS (CONVENTIONAL AND SOLAR). ONLY A TRAINED AND QUALIFIED ELECTRICAL CONTRACTOR MAY INSTALL THE ELECTRICAL SYSTEM REQUIRED FOR HOT WATER VESSELS. A TRAINED PLUMBER MAY ALTER THE SYSTEM AS REQUIRED, BUT MUST ADHERE TO ALL SANS REGULATIONS AT ALL TIMES FOR PIPE ROUTING, SIZES, SUPPLY, AND INSULATION. ALL HOT WATER MANUFACTURING DEVICES MUST BE SABS TESTED AND APPROVED AND MUST BE INSTALLED IN ACCORDANCE. DOMESTIC SOLAR HEATING WITH HOT WATER STORAGE VESSELS, WITH A HOT WATER MAINTENANCE HEATING ELEMENT WILL BE USED. DOMESTIC HEAT PUMP WITH HOT WATER STORAGE VESSEL, WITH A HOT WATER MAINTENANCE HEATING ELEMENT WILL BE USED. DOMESTIC (INNA) ON DEMAND IN LINE GAS WATER HEATER WILL BE USED, NO HOT WATER VESSEL REQUIRED, (AS ON DEMAND REQUIRED).

DEFINITION OF A TRAINED PLUMBER UNDER SANS 10400-A:2010
Any person who in the trade of plumbing has, interns of the Manpower Training Act, 1981 (act no. 56 of 1981), passed a qualifying trade test, has been issued with a certificate of proficiency or has obtained a National Certificate in Construction Plumbing, National Qualification Framework Level 3.

HOT AND COLD WATER RETICULATION PLAN

1: 200



Energy Efficiency Calculations

CLIENT:	Warkins
INDUSTRIAL DESCRIPTION:	ERF 1697 Durban North
SITE ADDRESS:	4 Grosvenor Place
PROPOSAL:	proposed new dwelling

Net Floor Area - Ground Floor		Area	15%	Total	30.960	Total Area	43.970								
OCCUPANCY CLASSIFICATION: H4															
CLIMATIC ZONE: 5.000															
GLASS DESCRIPTION: Single clear and Low E															
FRAME: Aluminium															
Area	Zone	Max Conductance	Total Conductance Value	Area	Zone	Solar Heat Gain	Total SHGC								
Max Conductance	206.4	1.4	288.960	288.513	SOLAR Heat Gain	206.4	0.11	22.704	21.607						
therefore complies															
North East Elevation	W	H	Area	Conductance Table 6	Aggregate C Value	SHGC Table 6	P	H	Total	Exposure Factor Table C	Aggregate SHGC				
W1	1.9	1.7	3.230	0.66	2.130	0.66	1	0.8	1	0.02	5.73	2.076			
W4	1.4	1.7	2.380	0.66	1.572	0.66	1	0.8	1	0.02	5.73	1.529			
W5	1.4	1.4	1.960	0.81	1.584	0.81	1	0.8	0.94	0.02	7.9	1.504			
W5	1.4	1.4	1.960	0.81	1.584	0.81	1	0.8	0.94	0.02	7.9	1.504			
W5	1.4	1.4	1.960	0.81	1.584	0.81	1	0.8	0.94	0.02	7.9	1.504			
W10	0.8	1.1	0.880	0.81	0.712	0.81	1	0.8	0.94	0.02	7.9	1.504			
D7	0.9	2.3	2.070	0.81	1.673	0.81	1	0.8	0.84	0.02	7.9	1.454			
14.440								6.715	0.81	0.1	1.7	0.059	0.029	0.75	0.516
17.419								0.66	1	0.88	1	0.02	5.73	2.114	
3.890								0.175							
therefore complies															
North West Elevation	W	H	Area	Conductance Table 6	Aggregate C Value	SHGC Table 6	P	H	Total	Exposure Factor Table C	Aggregate SHGC				
W2	1.7	1.7	2.890	0.66	1.907	0.66	1	0.48	1	0.02	5.73	1.247			
W3	1.4	1.7	2.380	0.66	1.572	0.66	1	0.48	1	0.02	5.73	1.027			
W8	0.8	1.1	0.880	0.81	0.712	0.81	1	0.48	1	0.02	7.9	0.481			
W6	0.8	1.7	1.360	0.81	1.109	0.81	1	0.48	1	0.02	7.9	0.744			
8.870								0.659							
South East Elevation	W	H	Area	Conductance Table 6	Aggregate C Value	SHGC Table 6	P	H	Total	Exposure Factor Table C	Aggregate SHGC				
W9	0.5	1.7	0.850	0.81	0.689	0.81	1	0.91	1	0.02	7.9	0.763			
W6	0.8	1.7	1.360	0.81	1.109	0.81	1	0.91	0.83	1	0.02	7.9	1.047		
W6	0.8	1.7	1.360	0.81	1.109	0.81	1	0.91	0.83	1	0.02	7.9	1.047		
D1	6	2.2	13.200	0.66	8.712	0.66	1	0.91	1	0.02	5.73	8.965			
16.770								1.895							
43.970								288.513	4.656	21.607					

Facade Area	Energy Index	Max Aggregate AC Energy Value										
72.9	1.4	102.060										
North East Elevation	W	H	Area	SHGC Table 6	Energy Constant D1-Ca	Heating Shading D2	Energy Constant D1-Cb	Cooling Shading D3	Energy Constant D1-Cc	Conductance Table 6		
W1	1.9	1.7	3.230	0.66	0.000	1	0.8	1	0.02	5.73	2.076	
W4	1.4	1.7	2.380	0.66	0.000	1	0.8	1	0.02	5.73	1.529	
W5	1.4	1.4	1.960	0.81	0.000	1	0.8	0.94	0.02	7.9	1.504	
W5	1.4	1.4	1.960	0.81	0.000	1	0.8	0.94	0.02	7.9	1.504	
W5	1.4	1.4	1.960	0.81	0.000	1	0.8	0.94	0.02	7.9	1.504	
W10	0.8	1.1	0.880	0.81	0.000	1	0.8	0.94	0.02	7.9	1.504	
D7	0.9	2.3	2.070	0.81	0.000	1	0.8	0.84	0.02	7.9	1.454	
10.279												
North West Elevation	W	H	Area	SHGC Table 6	Energy Constant D1-Ca	Heating Shading D2	Energy Constant D1-Cb	Cooling Shading D3	Energy Constant D1-Cc	Conductance Table 6		
W9	0.5	1.7	0.850	0.81	0.000	1	0.88	1	0.02	7.9	0.740	
W6	0.8	1.7	1.360	0.81	0.000	1	0.88	1	0.02	7.9	2.114	
2.84												
South West Elevation	W	H	Area	SHGC Table 6	Energy Constant D1-Ca	Heating Shading D2	Energy Constant D1-Cb	Cooling Shading D3	Energy Constant D1-Cc	Conductance Table 6		
W2	1.7	1.7	2.890	0.66	0.000	1	0.48	1	0.02	5.73	1.247	
W3	1.4	1.7	2.380	0.66	0.000	1	0.48	1	0.02	5.73	1.027	
W8	0.8	1.1	0.880	0.81	0.000	1	0.48	1	0.02	7.9	0.481	
W6	0.8	1.7	1.360	0.81	0.000	1	0.48	1	0.02	7.9	0.744	
W6	0.8	1.7	1.360	0.81	0.000	1	0.48	1	0.02	7.9	0.744	
4.242												
South East Elevation	W	H	Area	SHGC Table 6	Energy Constant D1-Ca	Heating Shading D2	Energy Constant D1-Cb	Cooling Shading D3	Energy Constant D1-Cc	Conductance Table 6		
W9	0.5	1.7	0.850	0.81	0.000	1	0.91	1	0.02	7.9	0.763	
W6	0.8	1.7	1.360	0.81	0.000	1	0.91	0.83	1	0.02	7.9	1.047
W6	0.8	1.7	1.360	0.81	0.000	1	0.91	0.83	1	0.02	7.9	1.047
D1	6	2.2	13.200	0.66	0.000	1	0.91	0.94	0.02	5.73	8.965	
11.990												

Net Floor Area - 1st Floor	Area	15%	Total	Total Area									
47.610	7.142	10.713	57.880	105.490									
OCCUPANCY CLASSIFICATION: H4													
CLIMATIC ZONE: 5.000													
GLASS DESCRIPTION: Low E Glass													
FRAME: Aluminium													
Area	Zone	Max Conductance	Total Conductance Value	Area	Zone	Solar Heat Gain	Total SHGC						
Max Conductance	247.2	1.4	346.080	307.357	SOLAR Heat Gain	247.2	0.11	27.192	27.065				
therefore complies													
North East Elevation	W	H	Area	Conductance Table 6	Aggregate C Value	SHGC Table 6	P	H	Total	Exposure Factor Table C	Aggregate SHGC		
W7	1.1	1.1	1.210	0.66	0.793	0.66	1	1.1	0.091	0.045	0.74	0.593	
W10	0.5	1.1	0.550	0.73	0.403	0.66	1	1.1	0.091	0.045	0.74	0.269	
W10	0.5	1.1	0.550	0.73	0.403	0.66	1	1.1	0.091	0.045	0.74	0.269	
W10	0.5	1.1	0.550	0.73	0.403	0.66	1	1.1	0.091	0.045	0.74	0.269	
W5	1.4	1.7	2.380	0.66	1.572	0.66	1	1.1	0.059	0.029	0.74	1.162	
W10	0.5	1.1	0.550	0.73	0.403	0.66	1	1.1	0.091	0.045	0.74	0.269	
6.340								0.604					
North West Elevation	W	H	Area	Conductance Table 6	Aggregate C Value	SHGC Table 6	P	H	Total	Exposure Factor Table C	Aggregate SHGC		
W9	0.5	1.7	0.850	0.73	0.621	0.66	1	0.23	2.2	0.091	0.045	0.621	
W11	1.4	3.7	5.180	0.66	3.421	0.66	1	0.9	4.6	0.098	0.64	2.188	
W12	0.5	3.7	1.850	0.73	1.361	0.66	1	0.9	4.6	0.098	0.64	0.781	
MD	1.6	2.8	4.480	0.66	2.957	0.66	1	0.9	3.7	0.243	0.6	1.774	
6.330								0.243					
South West Elevation	W	H	Area	Conductance Table 6	Aggregate C Value	SHGC Table 6	P	H	Total	Exposure Factor Table C	Aggregate SHGC		
W2	1.7	1.7	2.890	0.66	1.907	0.66	1	0.1	1.7	0.059	0.029	1.17	2.232
W3	1.4	1.7	2.380	0.66	1.572	0.66	1	0.1	1.7	0.059	0.029	1.17	1.838
W1	1.1	1.1	1.210	0.66	0.793	0.66	1	0.1					