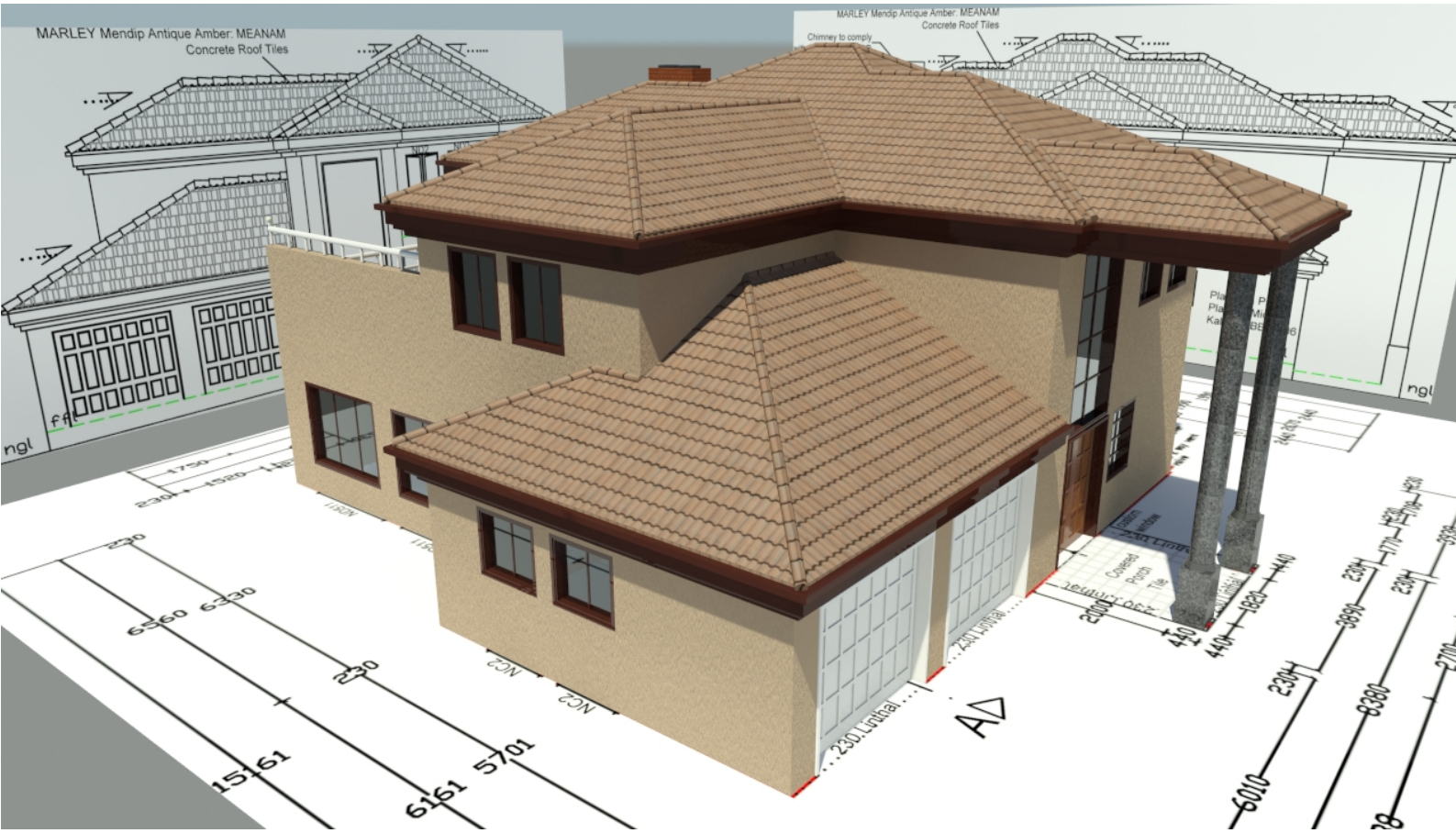
SANS 10252-1 WATER RETICULATION CALCULATIONS



BETA VERSION

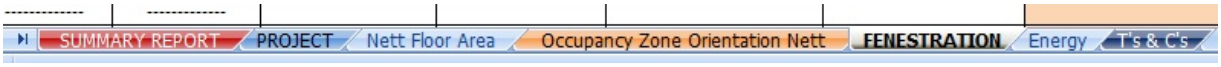
KMT Draughting

SANS 10252 CALCULATOR GUIDE

- Excel workbook with 6-7 sheets
- All formulas already in to minimize any calculation errors
- Easy to use
- Just "save as" the calculator to your project renaming the file
- Complete the "white" areas
- All calculations is AUTOMATED
- Copy and paste into you AutoCAD file OR
  Use the PAGE 0 DWF provided

TIME SAVER 1000

BONUS: You will get additional when buying the calculator:
Sample: Project (pdf & Dwg Format)
CALCULATION SHEETS
- Calculations: Hot Water Storage
- Calculations: Water Storage
- Calculations: Daily Water demand
- Calculations: Service Pipe Sizing
- Calculations: Sizing and Residual Head Ground
- Calculations: Sizing and Residual Head Upper level
- Calculations: Hot water pipe length



SHEET 1

Water Reticulation
SANS 10252 - Part 1

SANS Competant Person

SACAP Reg. No.

Project Details

Type of Project	
Street Address	
Erf Description As Per SG Diagram/ Title deed	
Client's Initial and Surname	
Client's Contact number	

NOTE: This document should only to be used as a guideline and not as a reference document.
SANS 10252-1 requirements, always takes preference.

SHEET 2

SIZING OF HOT WATER STORAGE

REQUIREMENT

Calculate the minimum hot water storage for the design.

ASSUMPTIONS

High volume use of hot water is for bath water at 40 °C for bathing

Amount of Baths to be used at one time	1

CALCULATIONS

Cold water Temp. (T_1)	15	°C
Hot water Temp. (T_2)	60	°C
Required Bath water Temp. (T_f)	40	°C
Final Volume Water in Bath (V_f)	120	L

Required Volume Cold Water (V_1)	53.3 L
Required Volume Hot Water (V_2)	66.7 L

FORMULAE

$$V_1 = V_f \frac{T_2 - T_f}{T_2 - T_1}$$

$$V_2 = V_f - V_1$$

CONCLUSION

To obtain 120L of bath water at 40°C, for 1 bath/s the volume of cold water is calculated at 53.34L and the volume of hot water is calculated at 66.67L. Therefor the Hot water storage is sized at minimum 66.67L

SHEET 3

Min. WATER STORAGE REQUIREMENT

TABLE 1 & Table 11 -SANS 10252-1:2012 p.33 & p.78

CATEGORY OF PREMISES (Occupancy)	QTY Population	Daily Demand	Average Storage per Category	Total Storage
Dwelling House	4	Not Listed in Table 1 or Table 11	0.00	0.00
Boarding schools, children's home, etc.	6	135-200 litre/ capita	44.58	267.50
Comercial Shops	1000	14 to 18 litres per 10m2 gross	4.17	4166.67
----------		----------	0.00	0.00
----------		----------	0.00	0.00
		Total	4434.17	Litre

CONCLUSION

The Average required water storage for purposes other than fire-fighting is 4434.17 Litre

SHEET 4

PROBABLE DAILY WATER DEMAND

TABLE 1 -SANS 10252-1:2012 p.33

Occupancy Categories *Excl Kitchen, but incl Laundry	QTY	Water Demand	Average/L	Total
Boarding schools, children's homes and residential nurseries	100	135 L to 200 L per capita	167.5	16750
Kitchens (full meal preparation)	100	8 L to 12 L per meal prepared	10	1000
Commercial premises: shops (staff only)	1000	14 L to 18 L per 10 m2 gross floor area	16	1600
-------		----------	0	0
-------		----------	0	0
		Estimate daily water demand		19350 L/Per Day

TABLE 2 -SANS 10252-1:2012 p.33

Type Building/ Appliance	Domestic appliances			
Fixture/ Fitting	QTY:Use per day	Litres/ Use	Average/L	Total
Bath (Domestic and comercial appliances)	2	80 - 90	85	170
Wash-hand basin (Domestic and comercial appliances)	4	4 – 8	6	24
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
-------		-------	0	0
		Estimate daily water demand		194 L/Per Day
		Estimate TOTAL daily water demand		19544 L/Per Day

CONCLUSION

The estimated total daily water demand for this design is 19544 L/Per Day

SHEET 5

SIZING OF SERVICE PIPE SERVING DWELLING

REQUIREMENT

Calculate the size of pipe serving a dwelling

ASSUMPTIONS

1 **Pressure in the local authority's main is**

The maximum pressure	800	kPa	
The minimum pressure (during peak demand)	700	kPa	
2 Pressure in service pipe (After Pressure reducing valve)	400	kPa	40.799 Head
3 Service Pipe size	25	mm	
4 Type of pipe	PN 12,5 polyethylene		

CALCULATIONS

TABLE 3-SANS 10252-1:2012 p.35

Terminal fitting/s	QTY	Des. flow	Σ d.flow
Wash-hand basin: 15 mm taps (plain outlet)	1	10	10
Bath: 15 mm taps (plain outlet)	1	15	15
Shower (wall mounted): Showerhead (standard) (hot and cold combined)	500	15	7500
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
----		0	0
	Total ΣQ (Σ Design Flow)		7525 L/ Per Minute

TABLE 4-SANS 10252-1:2012 p.37

Logarithm of ΣQ		3.88
Dwellings (economic)	0,5 – 0,70	0.70 (n)
log ΣQ x n		2.71
Antilogarithm (Qp)		517.08
	Probable maximum demand	517.08 L/ Per Minute

CONCLUSION

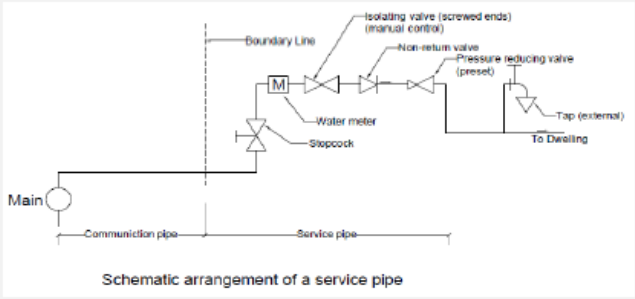
1 Probable (or design) flow demand is: 517.1 L/ Per Minute utilizing a 25mm pipe

2 Probable velocity is: 17.56 m/second utilizing a 25mm pipe
3 Local Authority maximum Flow provided is 833.06 L/ Per Minute
4 Local Authority minimum Flow provided is 721.45 L/ Per Minute

Do Comply: Designed demand is below provided Flow

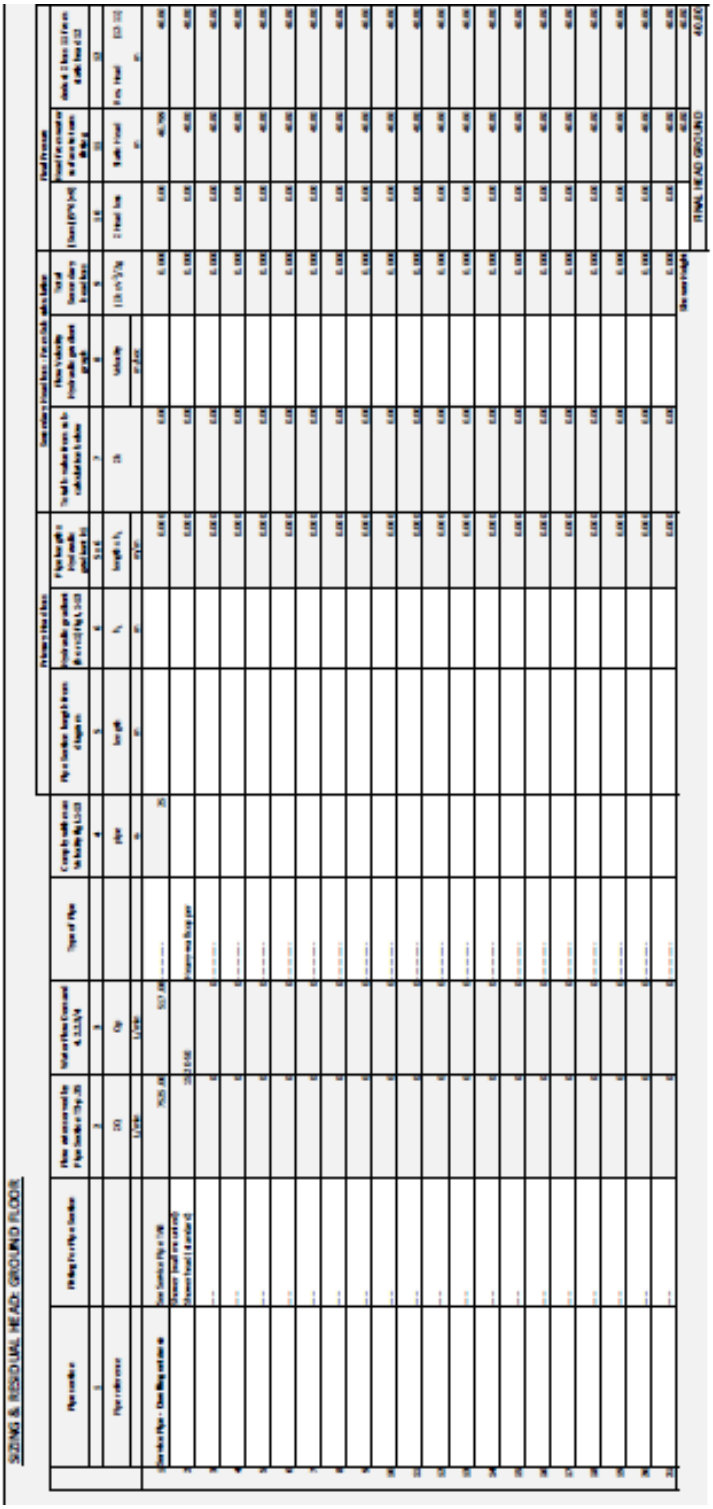
Do NOT Comply: Velocity is above limit for buried pipes: Relook design [3 m/second]

Do NOT Comply: Velocity is above limit for domestic pipes: Relook design [2 m/second]

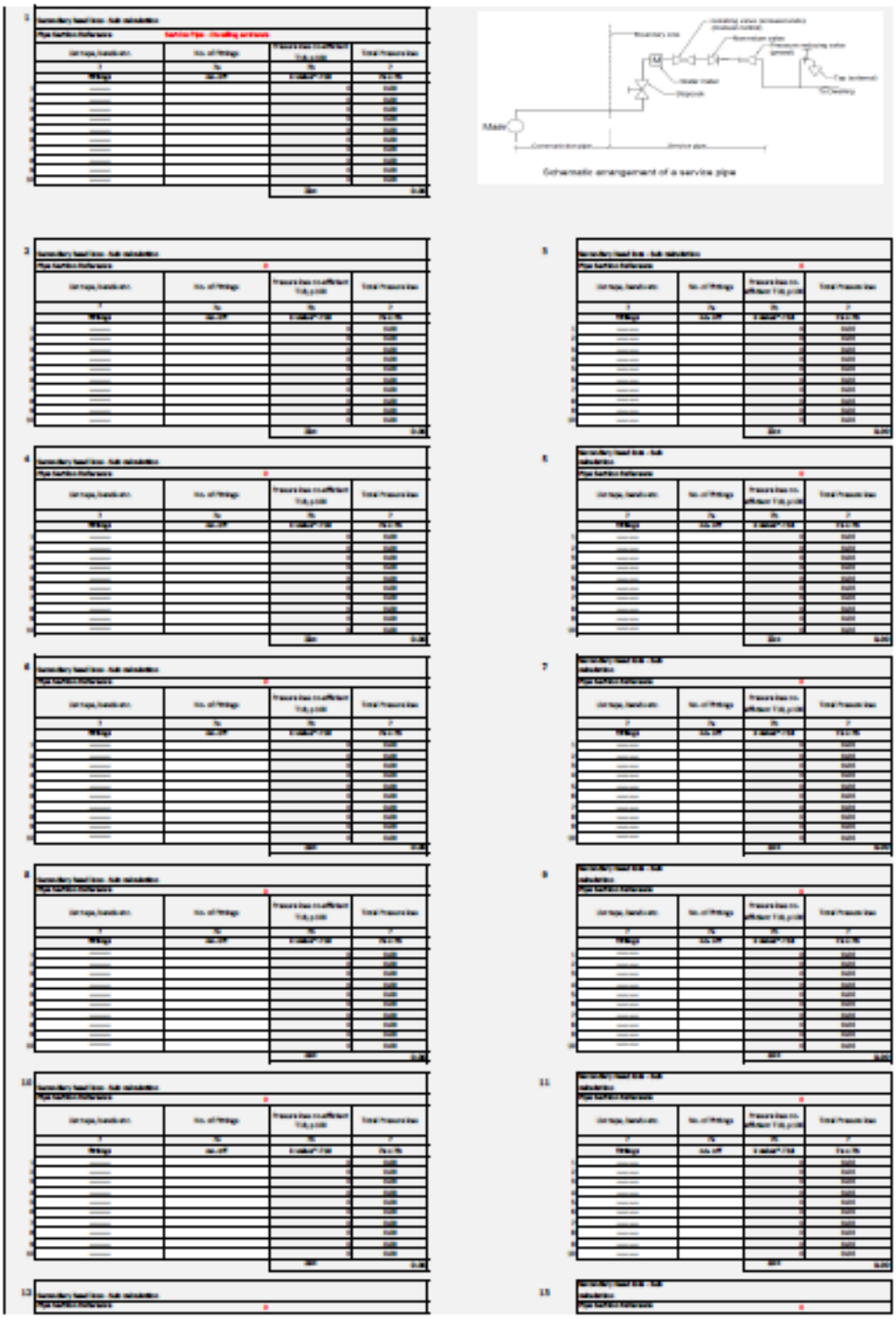


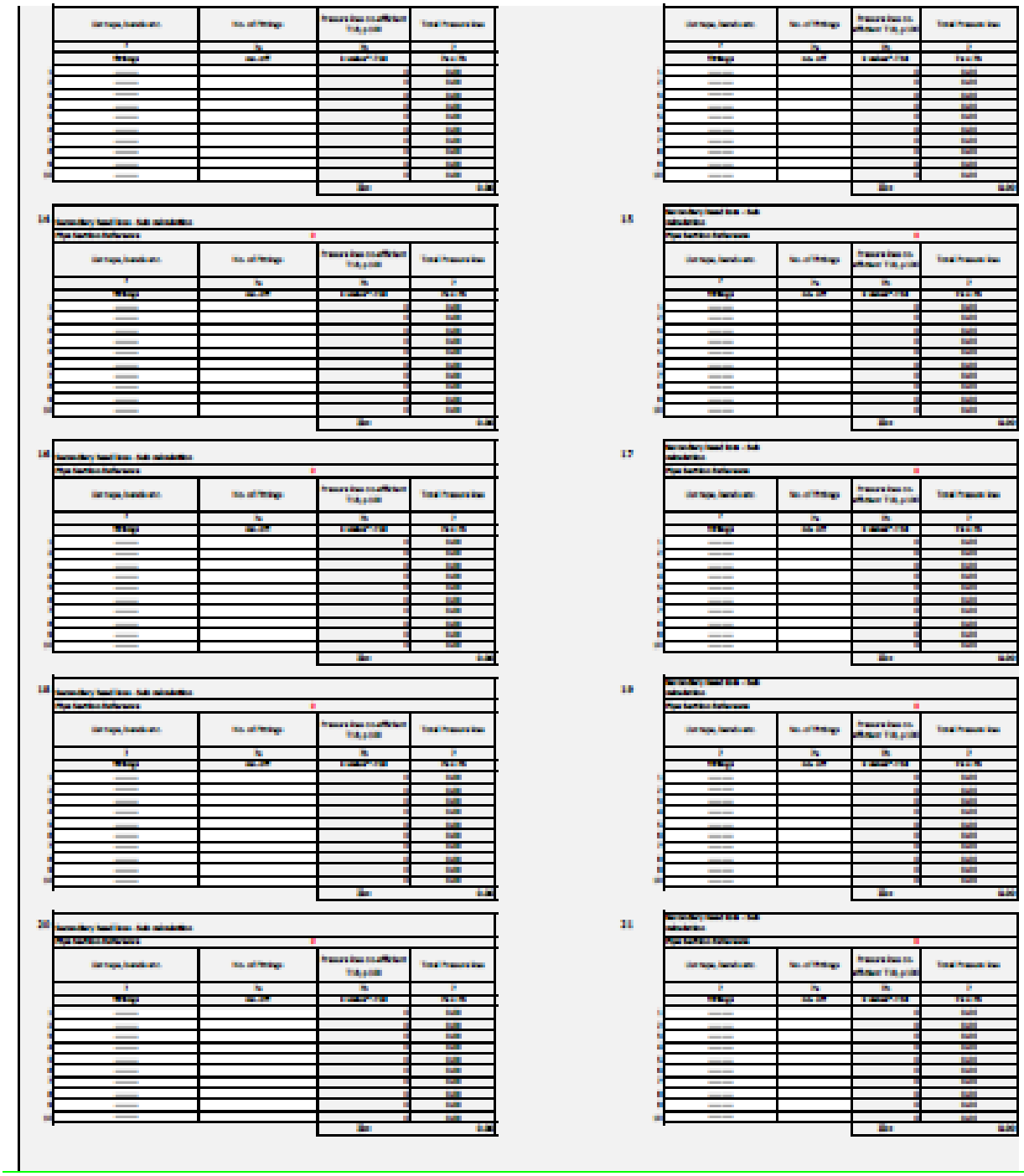
Schematic arrangement of a service pipe

SHEET 6: Sizing & Res Head Ground



SHEET 6: Sub Calculations





SHEET 7

HOTWATER PIPE LENGTHS

	Sanitary fixture or fitting, Requiring Hot water	Pipe Length	Tipe of Pipe & Nominal ø	Litre of water	Max Length	Max Litre	
1	Sink: 15 mm taps (plain outlet)	3	Galvanized mild steel (medium) 15mm	0.588	20.4	4	Do Comply: SANS 10252-1 7.7.1.3
2	Shower (wall mounted): Showerhead (standard)	5	Galvanized mild steel (medium) 15mm	0.98	20.4	4	Do Comply: SANS 10252-1 7.7.1.3
3	Bath: 15 mm taps (plain outlet)	25	Galvanized mild steel (medium) 15mm	4.9	20.4	4	Do NOT Comply: re-route piping OR alternative SANS 10253-1 7.7
4	——		——	0	0	0	
5	——		——	0	0	0	
6	——		——	0	0	0	
7	——		——	0	0	0	
8	——		——	0	0	0	
9	——		——	0	0	0	
10	——		——	0	0	0	
11	——		——	0	0	0	
12	——		——	0	0	0	
13	——		——	0	0	0	
14	——		——	0	0	0	
15	——		——	0	0	0	
16	——		——	0	0	0	
17	——		——	0	0	0	
18	——		——	0	0	0	
19	——		——	0	0	0	
20	——		——	0	0	0	
21	——		——	0	0	0	
22	——		——	0	0	0	
23	——		——	0	0	0	
24	——		——	0	0	0	
25	——		——	0	0	0	
26	——		——	0	0	0	
27	——		——	0	0	0	
28	——		——	0	0	0	
29	——		——	0	0	0	
30	——		——	0	0	0	

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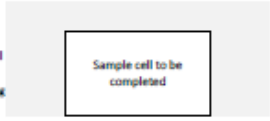


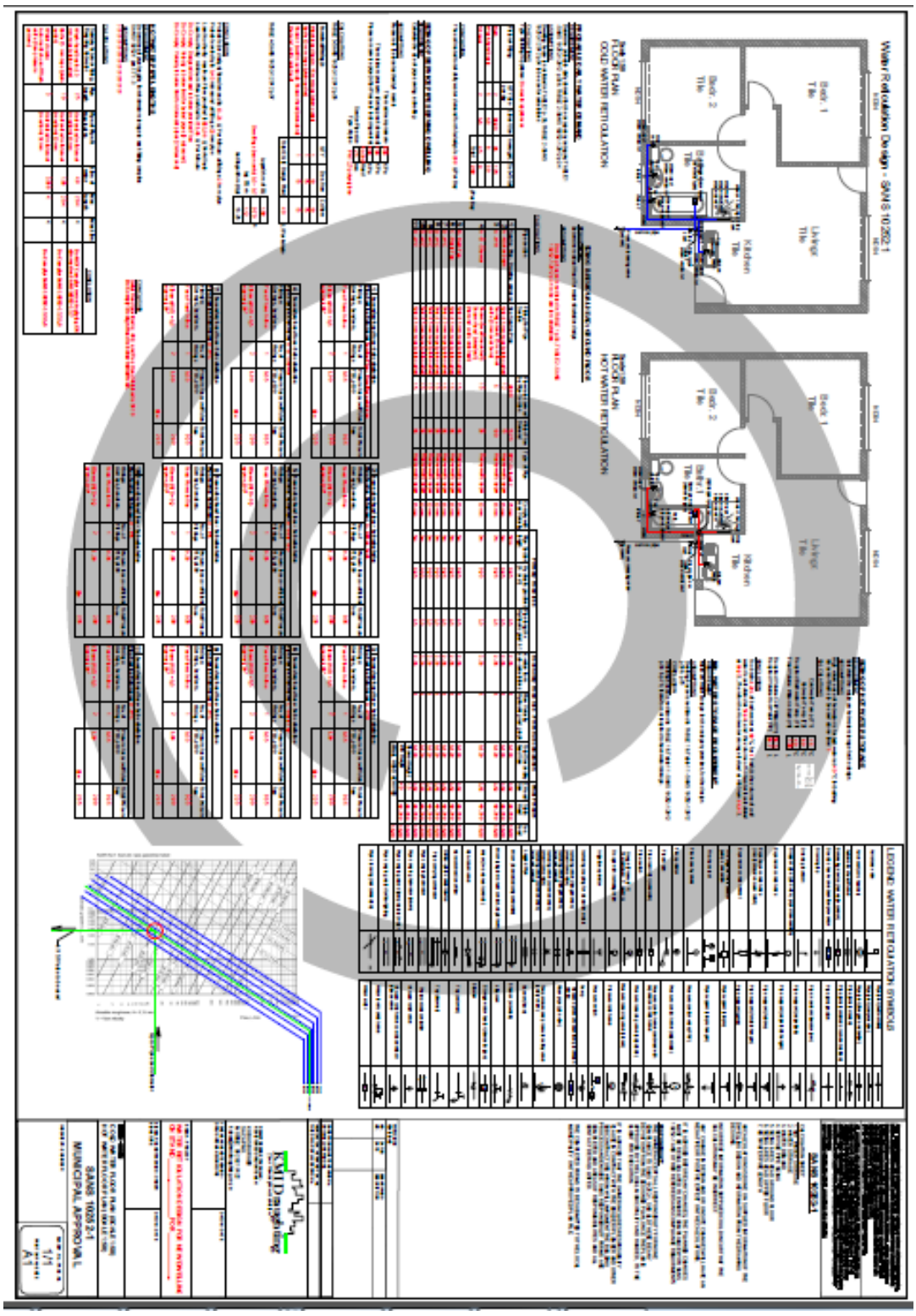
Some cells has "comments" to asist/ guide you on how to complete or where to obtain the information required for that cell.

Results will be visible as "red" colored text

DO NOT COMPLY: Where the total area of the glazing elements of a storey is greater than 15% of the nett floor area of the storey the requirements contained in SANS 204 shall be complied with.

The Sheet/ Tabs at the bottom of the Workbook is color coded for your convenience

PAGE 0



Water Reticulation
SANS 10252 - Part 1

SANS Competant Person

SACAP Reg. No.

Project Details

Type of Project	
Street Address	
Erf Description As Per SG Diagram/ Title deed	
Client's Initial and Surname	
Client's Contact number	

NOTE: This document should only to be used as a guideline and not as a reference document. SANS 10252-1 requirements, always takes preference.

SIZING OF HOT WATER STORAGE

REQUIREMENT

Calculate the minimum hot water storage for the design.

ASSUMPTIONS

High volume use of hot water is for bath water at 40 °C for bathing

Amount of Baths to be used at one time	1

CALCULATIONS

Cold water Temp. (T_1)	15	°C
Hot water Temp. (T_2)	60	°C
Required Bath water Temp. (T_f)	40	°C
Final Volume Water in Bath (V_f)	120	L

Required Volume Cold Water (V_1)	53.3	L
Required Volume Hot Water (V_2)	66.7	L

FORMULAE

$$V_1 = V_f \frac{T_2 - T_f}{T_2 - T_1}$$

$$V_2 = V_f - V_1$$

CONCLUSION

To obtain 120L of bath water at 40°C, for 1 bath/s the volume of cold water is calculated at 53.34L and the volume of hot water is calculated at 66.67L. Therefor the Hot water storage is sized at minimum 66.67L

Min. WATER STORAGE REQUIREMENT

TABLE 1 & Table 11 -SANS 10252-1:2012 p.33 & p.78

CATEGORY OF PREMISES (Occupancy)	QTY Population	Daily Demand	Average Storage per Category	Total Storage
Dwelling House	4	Not Listed in Table 1 or Table 11	0.00	0.00
Boarding schools, children's home, etc.	6	135-200 litre/ capita	44.58	267.50
Comercial Shops	1000	14 to 18 litres per 10m2 gross	4.17	4166.67
----------		----------	0.00	0.00
----------		----------	0.00	0.00
			Total	**4434.17** **Litre**

CONCLUSION

The Average required water storage for purposes other than fire-fighting is 4434.17 Litre

PROBABLE DAILY WATER DEMAND

TABLE 1 -SANS 10252-1:2012 p.33

Occupancy Categories *Excl Kitchen, but Incl Laundry	QTY	Water Demand	Average/L	Total
Boarding schoolsa, children's homes and residential nurseries	100	135 L to 200 L per capita	167.5	16750
Kitchens (full meal preparation)	100	8 L to 12 L per meal prepared	10	1000
Commercial premises: shops (staff only)	1000	14 L to 18 L per 10 m2 gross floor area	16	1600
----------		----------	0	0
----------		----------	0	0
		Estimate daily water demand		**19350** **L/Per Day**

TABLE 2 -SANS 10252-1:2012 p.33

Type Building/ Appliance	Domestic appliances			
Fixture/ Fitting	**QTY:Use per day**	**Litres/ Use**	**Average/L**	**Total**
Bath (Domestic and comercial appliances)	2	80 - 90	85	170
Wash-hand basin (Domestic and comercial appliances)	4	4 – 8	6	24
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
----------		----------	0	0
		Estimate daily water demand		**194** **L/Per Day**
		Estimate TOTAL daily water demand		**19544** **L/Per Day**

CONCLUSION

The estimated total daily water demand for this design is 19544 L/Per Day

SIZING OF SERVICE PIPE SERVING DWELLING

REQUIREMENT

Calculate the size of pipe serving a dwelling

ASSUMPTIONS

1 **Pressure in the local authority's main is**

The maximum pressure	800	KPa	
The minimum pressure (during peak demand)	700	KPa	
2 Pressure in service pipe (After Pressure reducing valve)	400	KPa	40.799 Head
3 Service Pipe size	25	mm	
4 Type of pipe	PN 12,5 polyetylene		

CALCULATIONS

TABLE 3-SANS 10252-1:2012 p.35

Terminal fitting/s	QTY	Des. flow	Σ d.flow
Wash-hand basin: 15 mm taps (plain outlet)	1	10	10
Bath: 15 mm taps (plain outlet)	1	15	15
Shower (wall mounted): Showerhead (standard) (hot and cold combined)	500	15	7500
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
-----		0	0
	Total ΣQ (Σ Design Flow)		**7525** **L/ Per Minute**

TABLE 4-SANS 10252-1:2012 p.37

Logarithm of ΣQ		3.88
Dwellings (economic)	0,5 – 0,70	0.70 (n)
log ΣQ x n		2.71
Antilogarithm (Qp)		**517.08**
Probable maximum demand		**517.08** **L/ Per Minute**

CONCLUSION

1 Probable (or design) flow demand is: 517.1 L/ Per Minute utilizing a 25mm pipe

2 Probable velocity is: 17.56 m/second utilizing a 25mm pipe

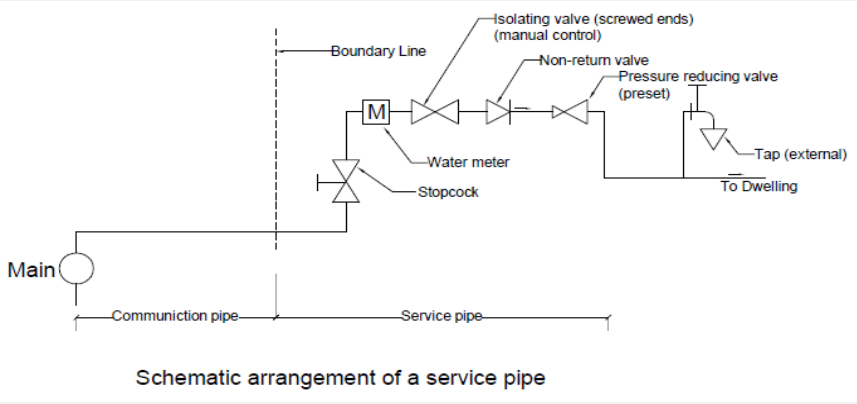
3 Local Authority maximum Flow provided is 833.06 L/ Per Minute

4 Local Authority minimum Flow provided is 721.45 L/ Per Minute

Do Comply: Designed demand is below provided Flow

Do NOT Comply: Velocity is above limit for buried pipes: Relook design **[3 m/second]**

Do NOT Comply: Velocity is above limit for domestic pipes: Relook design **[2 m/second]**



Schematic arrangement of a service pipe

SIZING & RESIDUAL HEAD: GROUND FLOOR

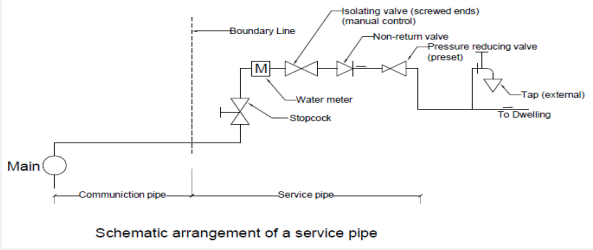
							Primary Head loss			Secondary Head loss - From Sub calculation			Final Presure		
	Pipe section	Fitting For Pipe Section	Flow rates served by Pipe Section T3-p.35	Water Flow Demand 4.2.2.3/4	Type of Pipe	Comply with max Velocity figi.1-13	Pipe Section length from diagram	Hydraulic gradient (h or s1) fig I, 1-13	Pipe length x Hydraulic gradient h1	Total k-value from sub-calculation below	Flow Velocity Hydraulic gradient graph	Total Secondary head loss	[Sum [(5*6)+9]	Head from water surface to term fitting	deduct Σ loss 11 from static head 12
	1		2	3		4	5	6	5 x 6	7	8	9	10	11	12
	Pipe reference		ΣQ	Qp		pipe	length	h_1	length x h_1	Σk	Velocity	($\Sigma k \times V^2$)/2g	Σ Head loss	Static Head	Res. Head (12-11)
			L/min	L/min		s	m	m	m/m		m/sec			m	m
1	**Service Pipe - Dwelling entrance**	See Service Pipe TAB	7525.00	517.08	----------	25			0.000	0.00		0.000	0.00	40.799	40.80
2		Shower (wall mounted): Showerhead (standard)	15	20-50	Heavy-wall copper				0.000	0.00		0.000	0.00	40.80	40.80
3		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
4		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
5		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
6		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
7		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
8		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
9		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
10		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
11		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
12		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
13		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
14		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
15		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
16		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
17		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
18		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
19		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
20		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
21		-----	0	0	----------				0.000	0.00		0.000	0.00	40.80	40.80
												Shower Height		40.80	40.80
													FINAL HEAD GROUND		**40.80**

1

Secondary head loss - Sub calculation

Pipe Section Reference Service Pipe - Dwelling entrance

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**



Schematic arrangement of a service pipe

2

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

3

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

4

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

5

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

6

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

7

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

8

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

9

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

10

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

11

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

12

Secondary head loss - Sub calculation

Pipe Section Reference 0

13

Secondary head loss - Sub calculation

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

14 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

15 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

16 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

17 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

18 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

19 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

20 **Secondary head loss - Sub calculation**

Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

21 **Secondary head loss - Sub calculation**

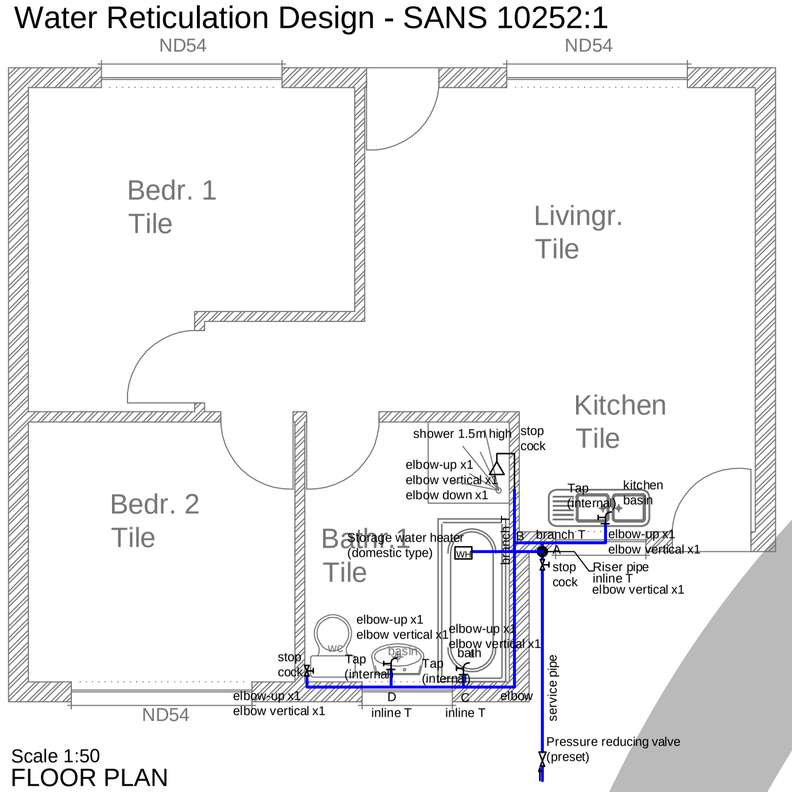
Pipe Section Reference 0

	List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
	7	7a	7b	7
	fittings	**no. off**	**k value*-T18**	**7a x 7b**
1	---------		0	0.00
2	---------		0	0.00
3	---------		0	0.00
4	---------		0	0.00
5	---------		0	0.00
6	---------		0	0.00
7	---------		0	0.00
8	---------		0	0.00
9	---------		0	0.00
10	---------		0	0.00
			Σk=	**0.00**

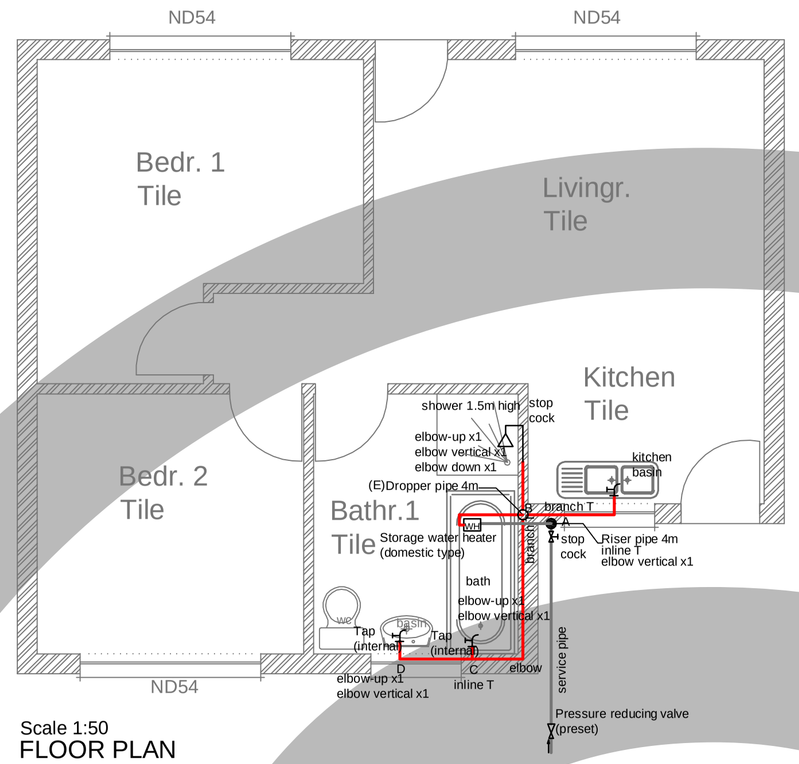
HOTWATER PIPE LENGTHS

	Sanitary fixture or fitting, Requiring Hot water	Pipe Length	Tipe of Pipe & Nominal	Litre of water	Max Length	Max Litre	
1	Sink: 15 mm taps (plain outlet)	3	Galvanized mild steel (medium) 15mm	0.588	20.4	4	Do Comply: SANS 10252-1 7.7.1.3
2	Shower (wall mounted): Showerhead (standard)	5	Galvanized mild steel (medium) 15mm	0.98	20.4	4	Do Comply: SANS 10252-1 7.7.1.3
3	Bath: 15 mm taps (plain outlet)	25	Galvanized mild steel (medium) 15mm	4.9	20.4	4	Do NOT Comply: re-route piping OR alternative SANS 10252-1 7.7
4	-----		-------	0	0	0	
5	-----		-------	0	0	0	
6	-----		-------	0	0	0	
7	-----		-------	0	0	0	
8	-----		-------	0	0	0	
9	-----		-------	0	0	0	
10	-----		-------	0	0	0	
11	-----		-------	0	0	0	
12	-----		-------	0	0	0	
13	-----		-------	0	0	0	
14	-----		-------	0	0	0	
15	-----		-------	0	0	0	
16	-----		-------	0	0	0	
17	-----		-------	0	0	0	
18	-----		-------	0	0	0	
19	-----		-------	0	0	0	
20	-----		-------	0	0	0	
21	-----		-------	0	0	0	
22	-----		-------	0	0	0	
23	-----		-------	0	0	0	
24	-----		-------	0	0	0	
25	-----		-------	0	0	0	
26	-----		-------	0	0	0	
27	-----		-------	0	0	0	
28	-----		-------	0	0	0	
29	-----		-------	0	0	0	
30	-----		-------	0	0	0	

Water Reticulation Design - SANS 10252:1



Scale 1:50
FLOOR PLAN
COLD WATER RETICULATION



Scale 1:50
FLOOR PLAN
HOT WATER RETICULATION

SIZING OF HOT WATER STORAGE

REQUIREMENT
Calculate the minimum hot water storage for the design.

ASSUMPTIONS
High volume use of hot water is for bath water at 40 °C for bathing
Amount of Baths to be used at one time: 1

CALCULATIONS

Cold water Temp. (T1)	15	°C	$V_1 = V_f \frac{T_2 - T_f}{T_2 - T_1}$
Hot water Temp. (T2)	60	°C	
Required Bath water Temp. (Tf)	40	°C	$V_2 = V_f - V_1$
Final Volume Water in Bath (Vf)	120	L	
Required Volume Cold Water (V1)	53.3	L	
Required Volume Hot Water (V2)	66.7	L	

CONCLUSION
To obtain 120L of bath water at 40°C, for 1 bath/s the volume of cold water is calculated at 53.34L and the volume of hot water is calculated at 66.67L. Therefor the Hot water storage is sized at minimum 66.67L

Min. WATER STORAGE REQUIREMENT

REQUIREMENT
Minimum water storage for the category premises, for the design.

ASSUMPTIONS
Dwelling house is not listed in TABLE 1 & Table 11 -SANS 10252-1:2012 p.33 & p.78

CONCLUSION
Dwelling house is not listed in TABLE 1 & Table 11 -SANS 10252-1:2012 p.33 & p.78, there-for not required to have water storage.

PROBABLE DAILY WATER DEMAND

REQUIREMENT
Determine probable daily demand for the occupancy category: TABLE 1 -SANS 10252-1:2012 p.33 & TABLE 2 -SANS 10252-1:2012 p.34

ASSUMPTIONS
Dwelling house is not listed in TABLE 1 p.33, TABLE 2 -SANS 10252-1:2012 p.34 to be use for calculations

CALCULATIONS
Type Building/ Appliance: Domestic appliances

Fixture/ Fitting	QTYUse per day	Litres/ Use	Average/L	Sub-Total
Bath	2	80-90	85	170
Wash-hand basin	5	4-8	6	30
Shower	2	3-6	4.5	9
			Total	209 L/Per Day

CONCLUSION
The estimated total daily water demand for this design is 209 L/Per Day

SIZING OF SERVICE PIPE SERVING DWELLING

REQUIREMENT
Calculate the size of pipe serving a dwelling

ASSUMPTIONS
Pressure in the local authority's main is

The maximum pressure	800	KPa
The minimum pressure (during peak demand)	700	KPa
Pressure in service pipe (After Pressure reducing valve)	400	KPa
	40.799	Head
Service Pipe size	25	mm
Type of pipe	PN 12,5 polyetylene	

CALCULATIONS
TABLE 3-SANS 10252-1:2012 p.35

Terminal fitting/s	QTY	Des. flow	Σ d.flow
Wash-hand basin: 15 mm taps (plain outlet)	1	10	10
Bath: 15 mm taps (plain outlet)	1	15	15
Shower (wall mounted): Showerhead (standard) (hot and cold combined)	1	15	15
Total ΣQ (Σ Design Flow)		40	L/ Per Minute

TABLE 4-SANS 10252-1:2012 p.37

Logarithm of ΣQ	1.60	
Dwellings (economic) 0.5 - 0.7	0.70	n
Log ΣQ x n	1.12	
Antilogarithm (Qp)	13.23	

CONCLUSION
Probable (or design) flow demand is: 13.23 L/ Per Minute utilizing a 25mm pipe
Probable velocity is: 0.45 m/second utilizing a 25mm pipe
Local Authority maximum Flow provided is 833.06 L/ Per Minute
Local Authority minimum Flow provided is 721.45 L/ Per Minute
Do Comply: Designed demand is below provided Flow
Do Comply: Velocity is below limit for buried pipes [3 m/second]
Do Comply: Velocity is below limit for domestic pipes [2 m/second]

HOTWATER PIPE LENGTHS

REQUIREMENT
Determine all pipe lengths from hotwater storage to each fitting complies SANS 10252-1 par.7.7.1.3

ASSUMPTIONS
??????????????????????????

CALCULATIONS

Sanitary fixture or fitting, Requiring Hot water	Pipe Length	Tipe of Pipe & Nominal ⌀	Litre of water	Max Length	Max Litre	CONCLUSION
Wash-hand basin: 15 mm taps (plain outlet)	25	Galvanized mild steel (medium) 15mm	4.9	20.4	4	**Do NOT Comply: re-route piping OR alternative SANS 10252-1 7.7**
Bath: 15 mm taps (plain outlet)	10	Galvanized mild steel (medium) 15mm	1.96	20.4	4	**Do Comply: SANS 10252-1 7.7.1.3**
Water closetc: Automatic shut-off flush valve (low-pressure pattern)	3	Galvanized mild steel (medium) 32mm	3.036	4	4	**Do Comply: SANS 10252-1 7.7.1.3**

SIZING & RESIDUAL HEAD: GROUND FLOOR

REQUIREMENT
Determine residual Head for water riticulation design

ASSUMPTIONS
Dwelling house is not listed in TABLE 1 p.33, TABLE 2 -SANS 10252-1:2012 p.34 to be use for calculations

CALCULATIONS

	Pipe section	Fitting For Pipe Section	Flow rates served by Pipe Section	Water Flow Demand	Type of Pipe	Comply with max Velocity	Primary Head loss: Pipe Section length	Primary Head loss: Hydraulic gradient (h or s1)	Primary Head loss: Pipe length x Hydraulic grad. h1	Secondary Head loss - From Sub calculation: k-value from sub-calculations	Secondary Head loss - From Sub calculation: Flow Velocity Hydraulic grad. graph	Secondary Head loss - From Sub calculation: Total Secondary head loss	Final Presure: Σ Head loss	Final Presure: Static Head	Final Presure: Res. Head
1	Service Pipe - Dwelling entrance	See Service Pipe	40.00	13.23	PVC-U class 12	25mm	50m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
2	A - kitchen basin	Sink: 15 mm taps (plain outlet)	12	15	Heavy-wall copper	15mm	3m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
3	A - WH	Storage tank: 15 mm float valve (3 mm seat bore)	5	100	Heavy-wall copper	15mm	7m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
4	A - B - Shower	Shower (wall mounted): Showerhead (standard) (hot and cold combined)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
5	B - Bath Tap	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
6	C - Basin Tap	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
7	D - WC	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
8	D - WC	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
9	D - WC	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
10	D - WC	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
11	D - WC	Sink: 15 mm taps (plain outlet)	15	35	Heavy-wall copper	15mm	5m	0.05	2.5	2.35	1	0.120	2.62	40.799	38.18
												Shower Height	1.5	40.799	38.18
												WH Height	4.0	40.799	38.18
												FINAL HEAD ACHIVED			38.18

1 Secondary head loss - Sub calculation
Pipe Section Reference: Service Pipe - Dwelling entrance

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

2 Secondary head loss - Sub calculation
Pipe Section Reference: A - kitchen basin

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

3 Secondary head loss - Sub calculation
Pipe Section Reference: A - WH

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

4 Secondary head loss - Sub calculation
Pipe Section Reference: A - B - Shower

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

5 Secondary head loss - Sub calculation
Pipe Section Reference: B - Bath Tap

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

6 Secondary head loss - Sub calculation
Pipe Section Reference: C - Basin Tap

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

7 Secondary head loss - Sub calculation
Pipe Section Reference: D - WC

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

8 Secondary head loss - Sub calculation
Pipe Section Reference: D - WC

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

9 Secondary head loss - Sub calculation
Pipe Section Reference: D - WC

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

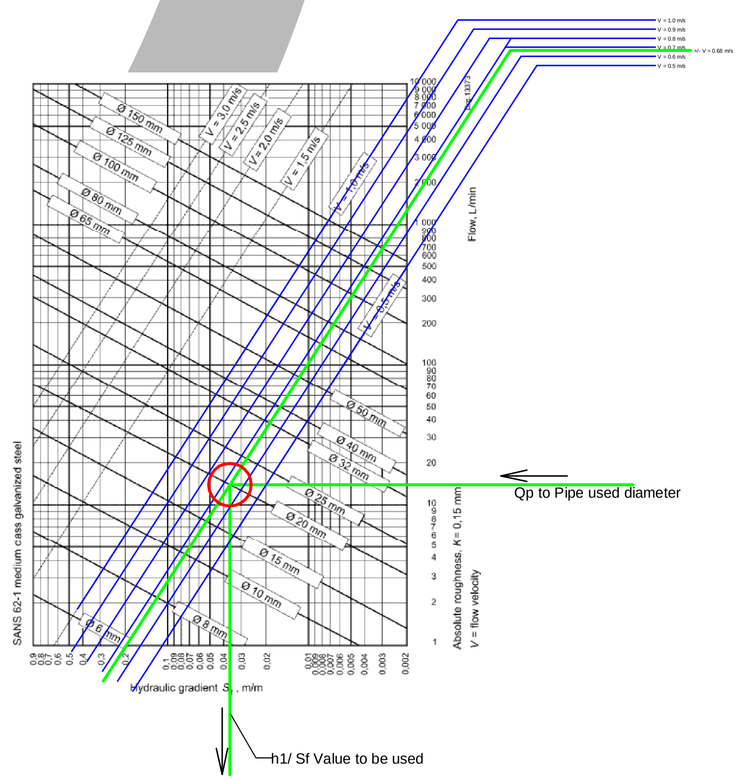
10 Secondary head loss - Sub calculation
Pipe Section Reference: D - WC

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

11 Secondary head loss - Sub calculation
Pipe Section Reference: D - WC

Fittings: List taps, bends etc.	No. of Fittings	Presure loss co-efficiant T18, p100	Total Presure loss
Tees: Flows in line	1	0.35	0.35
Elbows (R/D = 0,5 approx.) 90°	2	1.00	2.00
		Σk=	2.35

CONCLUSION
Initial Head provided is: 40.8 and Res Head obtained is 38.18
Do Comply: Design Head is below Initial Head.



LEGEND: WATER RETICUIATION SYMBOLS

- Air release valve
- Air vessel (air chamber)
- Automatic shut-off valve
- Balancing device (hot water control)
- Double check valve backflow preventer
- Draining tap
- Drinking fountain
- Dropper pipe (plan view, pipe cross-section)
- Expansion control valve
- Expansion control valve (incorporated vacuum relief)
- Expansion control vessel
- Fire brigade inlet/ booster pump connection
- Fire-hose reel
- Fire-hose hydrant
- Fire sprinkler
- Float valve
- Flow restrictor (controller)
- Flow switch
- Gauge (Pressure: P; Temperature: T; Level: L)
- Gauge with isolating valve
- Irrigation sprinkler
- Isolating coupling for dissimilar metals
- Isolating valve (flanged ends) (electrical control)
- Isolating valve (flanged ends) (manual control)
- Isolating valve (screwed ends) (electrical control)
- Isolating valve (screwed ends) (manual control)
- Lagged Pipe
- Mixer (themostatically controlled)
- Mixer (single manual control, single lever)
- Mixer (two manual controls)
- Non-return valve
- Normal direction of flow
- Orifice-plate control device
- Pipe carrying cold water
- Pipe carrying hot water
- Pipe carrying hot water (return)
- Pipe carrying mixed (temperature) water
- Pipe carrying water for fire-fighting
- Pipe crossing (not connected)
- Pipe joint (butt welded)
- Pipe joint (compression)
- Pipe joint (flanged and bolted)
- Pipe joint (screwed)
- Pipe joint (soldered or solvent welded)
- Pipe joint junction
- Pipe: nominal diameter (mm)
- Pipe support (adjustable)
- Pipe support (adjustable hanger)
- Pipe support (felxible)
- Pipe support (felxible hanger)
- Pipe support (guide)
- Pipe support (simple)
- Pipe support (simple hanger)
- Pressure control valve (PRV)
- Pressure control valve (adjustable)
- Pressure control valve combined with expansion control valve
- Pressure reducing valve (adjustable)
- Pressure reducing valve (preset)
- Pressure relief valve
- Pressure switch
- Pump
- Reduced pressure backflow prevention device
- Riser pipe (plan view)
- Temperature and pressure saftey valve (safety valve)
- Shower (fixed)
- Shower (movable)
- stopcock
- Storage water heater (domestic type)
- Strainer
- Tap (external)
- Tap (internal)
- Thermostatic controller
- Vacuum relief valve
- Vacuum relief valve combined with air release valve
- Water level control valve
- Water meter

SANS 10252-1

CALCULATION SHEET:
1. HOT WATER STORAGE
2. WATER STORAGE
3. WATER DEMAND
4. SERVICE PIPE SIZING
5. SIZING & RES HEAD: GROUND FLOOR
6. SIZING & RES HEAD: UPPER FLOOR
7. HOTWATER PIPE LENGTH

All CALCULATIONS IS DONE ON SUPPLIED INFORMATION OF THE DWELLING DESIGN AND INFORMATION FROM THE DRAWING DESIGNS.

INCORRECT INFORMATION SUPPLIED COULD INCUR THAT THE CALCULATIONS MAY BE INCORRECT.

ANY CHANGE IN DESIGN AND OR ON SITE CHANGES WILL HAVE AN NEGATIVE OR POSITIVE EFFECT ON THE CALCULATIONS.

IT IS ADVISED BEFORE ANY CHANGES, THE PLANNED CHANGES MUST BE RECALCULATED TO ENSURE COMPLIANCE WITH SANS 10252-1 AND OTHER REFERED SANS COMPLIANCE REQUIRMENTS

RESPONSIBILITY
THE OWNER ACCEPTS ALL RESPONSIBILITY FOR NONE COMPLIANCE TO SANS 10252-1, SHOULD THERE BE ANY DEVIATION FROM THE DESIGNED PLAN, ONCE THE PLAN IS APPROVED BY THE LOCAL MUNICIPALITY AND HANDED, TO THE CLIENT FOR EXECUTION.

IT IS ADVICED THAT THE OWNER INCLUDES RESPOSIBILITY CLAUSE IN CONTRACT WITH THE BUILDER/ PLUMBER AND OTHER SUBCONTRACTORS WHOM WILL IMPLIMENT THE BUILDING PROCESS AND ENSURE SANS RESPONSIBILITY FORMS ARE COMPLETED AND AREAS OF RESPONISIBILITIES AND ALL CONTACT DETAILS LISTED.

THE COMPLETED FORMS TO BE SUBMITTED TO THE LOCAL MUNICIPALITY ON THE APPROVED PLAN FILE.

WYSIGINGS
REVISIONS

NO. NR.	DATUM DATE	BESKRYWING DESCRIPTION

OORSPRONKLIKE TEKENING No.
ORIGINAL DRAWING No.

HIERDIE TEK. VERVANG TEK. No.
THIS DWG. REPLACES DWG No.

KMI Draughting
Your House plan Solution
REGISTREERDE TEKENAAR-
REGISTERED DRAUGHTSMAN
KOBUS BURGER
SACAP NO.
MOBILE: 082 821 7422
kobus@kmidraughting.co.za

TEKENAAR HANDTEKENING - DRAUGHTSMAN SIGNATURE
DATUM - DATE

SKEMA - PROJECT
WATER RETICULATION DESIGN FOR NEW DWELLING ON STAND_____FOR _____

EIENAAR HANDTEKENING - OWNER SIGNATURE
DATUM - DATE

TEKENING - DRAWING
COLD WATER FLOOR PLAN (SCALE 1:50)
HOT WATER FLOOR PLAN (SCALE 1:50)

SANS 10252-1
MUNICIPAL APPROVAL

INGENIEUR - ENGINEER

BLADSY. No. - PAGE. No.
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Sample cell to be completed

Some cells has "comments" to asist/ guide you on how to complete or where to obtain the information required for that cell.

Results will be visible as "red" colored text

DO NOT COMPLY: Where the total area of the glazing elements of a storey is greater than 15% of the nett floor area of the storey the requirements contained in SANS 204 shall be complied with.

The Sheet/ Tabs at the bottom of the Workbook is color coded for your conveniance