HYDRAULIC ENGINEERING

REHABILITATION OF THE SAUDI MATERNITY HOSPITAL

KASSALA HEALTH CITADEL
SUDAN

DETAILED DESIGN

WATER SUPPLY CALCULUS

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	$\Delta_{p,\ lin}$	Geom. Height (Gh)	Local Drop Press.	Δ_{ptot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	Pressuriz. Pump	NWe0	HDPE PN10	110	110	93.6	11	3.00	14.00	3.0E-03															0	908	6.41	0.94	0.1583	3.00	4.00	7.1583	37	29.84	OK	OK	OK
Cold (20ºC)	NWe0	NWe1	HDPE PN10	63	63	53.6	17	0.00	17.00	3.0E-03															0	171.5	1.89	0.84	0.3125			0.3125	29.84	29.52	OK	OK	OK
Cold (20ºC)	NWe1	NWe2	HDPE PN10	50	50	42.6	0.5	0.00	0.50	3.0E-03															0	141.5	1.63	1.15	0.0213			0.0213	29.52	29.49	OK	OK	OK
Cold (20ºC)	NWe2	NWe3	HDPE PN10	50	50	42.6	8.5	0.00	8.50	3.0E-03															0	97.5	1.23	0.87	0.2205			0.2205	29.49	29.26	OK	OK	OK
Cold (20ºC)	NWe3	NWe4	HDPE PN10	40	40	34	8.5	0.00	8.50	3.0E-03															0	61.5	0.88	0.98	0.3591			0.3591	29.26	28.9	OK	OK	OK
Cold (20ºC)	NWe4	NWe5	HDPE PN10	32	40	34	27	0.00	27.00	3.0E-03															0	28.5	0.54	0.60	0.4783			0.4783	28.9	28.42	OK	OK	OK
Cold (20ºC)	NWe0	NWe6	HDPE PN10	90	90	76.8	15.9	0.00	15.90	3.0E-03															0	736.5	5.56	1.20	0.3534			0.3534	29.84	29.48	OK	OK	OK
Cold (20ºC)	NWe6	NWe6a	HDPE PN10	90	90	76.8	68	0.00	68.00	3.0E-03															0	636	5.05	1.10	1.2956			1.2956	29.48	28.18	OK	OK	OK
Cold (20ºC)	NWe6a	NWe7	HDPE PN10	90	90	76.8	63.8	0.00	63.80	3.0E-03															0	636	5.05	1.10	1.2155			1.2155	28.18	26.96	OK	OK	OK
Cold (20ºC)	NWe7	NWe8	HDPE PN10	75	75	64	21	0.00	21.00	3.0E-03															0	352	3.25	1.02	0.4379			0.4379	26.96	26.52	OK	OK	OK
Cold (20ºC)	NWe8	NWe9	HDPE PN10	63	63	53.6	6	0.00	6.00	3.0E-03															0	290	2.81	1.25	0.2230			0.2230	26.52	26.29	OK	OK	OK
Cold (20ºC)	NWe7	NWe10	HDPE PN10	63	63	53.6	4	0.00	4.00	3.0E-03															0	284	2.77	1.23	0.1445			0.1445	26.96	26.81	OK	OK	OK
Cold (20ºC)	NWe10	NWe11	HDPE PN10	63	63	53.6	24.4	0.00	24.40	3.0E-03															0	252.5	2.53	1.13	0.7585			0.7585	26.81	26.05	OK	OK	OK
Cold (20ºC)	NWe11	NWe12	HDPE PN10	63	63	53.6	50.3	0.00	50.30	3.0E-03															0	190	2.04	0.91	1.0654			1.0654	26.05	24.98	OK	OK	OK
Cold (20ºC)	NWe12	NWe13	HDPE PN10	63	63	53.6	4.7	0.00	4.70	3.0E-03															0	159.5	1.79	0.80	0.0792			0.0792	24.98	24.9	OK	OK	OK
Cold (20ºC)	NWe13	NWe14	HDPE PN10	50	50	42.6	41.9	0.00	41.90	3.0E-03															0	121	1.45	1.02	1.4405			1.4405	24.9	23.45	OK	OK	OK
Cold (20ºC)	NWe14	NWe15	HDPE PN10	50	50	42.6	1.7	0.00	1.70	3.0E-03															0	109	1.34	0.94	0.0506			0.0506	23.45	23.39	OK	OK	OK
Cold (20ºC)	NWe1	SV1	HDPE PN10	32	40	34	4.5	0.00	4.50	3.0E-03															0	30	0.56	0.62	0.0845		0.50	0.5845	29.52	28.93	OK	OK	OK
Cold (20ºC)	SV1	NWi83	PPR PN20	40	40	26.6	0.5	3.00	3.50	3.0E-03															0	30	0.56	1.01	0.2109	3.00		3.2109	28.93	25.71	OK	OK	OK
Cold (20ºC)	NWi83	EH1	PPR PN20	32	25	16.6	0.5	0.00	0.50	3.0E-03															0	6	0.30	1.40	0.0959			0.0959	25.71	25.61	OK	OK	OK
Cold (20ºC)	NWi83	NWi84	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	24	0.50	0.90	0.0246			0.0246	25.71	25.68	OK	OK	OK
Cold (20ºC)	NWi84	Lv1 (4x)	PPR PN20	32	25	16.6	7.7	0.00	7.70	3.0E-03	4														6	6	0.30	1.40	1.4766			1.4766	25.68	24.2	OK	OK	OK
Cold (20ºC)	NWi84	Br1 (x4)	PPR PN20	32	32	21.2	9.5	0.00	9.50	3.0E-03					4										12	18	0.43	1.23	1.0725			1.0725	25.68	24.6	OK	OK	OK
Cold (20ºC)	Br1 (x4)	Ch1C (x2)	PPR PN20	32	25	16.6	3.5	0.00	3.50	3.0E-03					2										6	6	0.30	1.40	0.6712			0.6712	24.6	23.92	OK	OK	OK
Hot (55ºC)	EH1	Ch1H (x2)	PPR PN20	32	25	16.6	12.5	0.00	12.50	3.0E-03					2										6	6	0.30	1.40	2.3971		2.00	4.3971	25.61	21.21	OK	OK	OK
Cold (20ºC)	NWe2	SV2	HDPE PN10	32	40	34	4.5	0.00	4.50	3.0E-03															0	44	0.70	0.78	0.1269		0.50	0.6269	29.49	28.86	OK	OK	OK
Cold (20ºC)	SV2	NWi13	PPR PN20	50	50	33.2	4.2	3.00	7.20	3.0E-03															0	44	0.70	0.82	0.2284	3.00		3.2284	28.86	25.63	OK	OK	OK
Cold (20ºC)	NWi13	NWi14	PPR PN20	40	40	26.6	3	0.00	3.00	3.0E-03															0	23.5	0.49	0.89	0.1445			0.1445	25.63	25.48	OK	OK	OK
Cold (20ºC)	NWi14	NWi14a	PPR PN20	32	32	21.2	1	0.00	1.00	3.0E-03															0	8	0.32	0.92	0.0675			0.0675	25.48	25.41	OK	OK	OK
Cold (20ºC)	NWi14a	Lv (E.04) (2x)	PPR PN20	25	25	16.6	1	0.00	1.00	3.0E-03	2														3	3	0.27	1.24	0.1547			0.1547	25.41	25.25	OK	OK	OK
Cold (20ºC)	NWi14a	Br (E.04)	PPR PN20	32	32	21.2	3	0.00	3.00	3.0E-03				1											2	5	0.29	0.83	0.1687			0.1687	25.41	25.24	OK	OK	OK
Cold (20ºC)	Br (E.04)	ChC (E.04)	PPR PN20	25	25	16.6	4.7	0.00	4.70	3.0E-03					1										3	3	0.27	1.24	0.7269			0.7269	25.24	24.51	OK	OK	OK
Cold (20ºC)	NWi14	NWi15	PPR PN20	32	32	21.2	1.7	0.00	1.70	3.0E-03															0	15.5	0.40	1.15	0.1704			0.1704	25.48	25.3	OK	OK	OK
Cold (20ºC)	NWi15	ChC (E.02) (2x)	PPR PN20	32	32	21.2	7.35	0.00	7.35	3.0E-03				1	1										5	8	0.32	0.92	0.4961			0.4961	25.3	24.8	OK	OK	OK
Cold (20ºC)	ChC (E.02) (2x)	Lv (E.02) (2x)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	2														3	3	0.27	1.96	2.3062			2.3062	24.8	22.49	OK	OK	OK
Cold (20ºC)	NWi15	EH1 (E)	PPR PN20	32	25	16.6	2.3	0.00	2.30	3.0E-03															0	7.5	0.32	1.47	0.4809			0.4809	25.3	24.81	OK	OK	OK
Hot (55ºC)	EH1 (E)	NHi1	PPR PN20	32	25	16.6	0.5	0.00	0.50	3.0E-03															0	7.5	0.32	1.47	0.1045		2.00	2.1045	24.81	22.7	OK	OK	OK
Hot (55ºC)	NHi1	ChH (E.02)	PPR PN20	32	25	16.6	3	0.00	3.00	3.0E-03					1										3	4.5	0.28	1.32	0.5184			0.5184	22.7	22.18	OK	OK	OK
Hot (55ºC)	NHi1	ChH (E.04)	PPR PN20	25	20	13.2	12.6	0.00	12.60	3.0E-03					1										3	3	0.27	1.96	5.8116			5.8116	22.7	16.88	OK	OK	OK
Hot (55ºC)	ChH (E.02)	Lvq (E.12)	PPR PN20	25	20	13.2	8.5	0.00	8.50	3.0E-03	1														1.5	1.5	0.25	1.84	3.5054			3.5054	22.18	18.67	OK	OK	OK
Cold (20ºC)	NWi13	NWi16	PPR PN20	40	40	26.6	4.8	0.00	4.80	3.0E-03															0	20.5	0.46	0.83	0.2043			0.2043	25.63	25.42	OK	OK	OK
Cold (20ºC)	NWi16	Ll (E.10)	PPR PN20	25	25	16.6	7.7	0.00	7.70	3.0E-03											1				3	3	0.27	1.24	1.1910			1.1910	25.42	24.22	OK	OK	OK
Cold (20ºC)	NWi16	NWi17	PPR PN20	32	32	21.2	7.7	0.00	7.70	3.0E-03															0	17.5	0.43	1.21	0.8444			0.8444	25.42	24.57	OK	OK	OK
Cold (20ºC)	NWi17	Lv (E.12)	PPR PN20	25	25	16.6	2.15	0.00	2.15	3.0E-03	1														1.5	1.5	0.25	1.17	0.3000			0.3000	24.57	24.26	OK	OK	OK
Cold (20ºC)	NWi17	NWi18	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03															0	16	0.41	1.17	0.3616			0.3616	24.57	24.2	OK	OK	OK
Cold (20ºC)	NWi18	Ll (E.30) (2x)	PPR PN20	32	25	16.6	4.1	0.00	4.10	3.0E-03										1	1				8	8	0.32	1.50	0.8885			0.8885	24.2	23.31	OK	OK	OK
Cold (20ºC)	NWi18	Ll (E.28) (2x)	PPR PN20	32	25	16.6	6.5	0.00	6.50	3.0E-03										1	1				8	8	0.32	1.50	1.4085			1.4085	24.2	22.79	OK	OK	OK
Cold (20ºC)	NWe3	SV3	HDPE PN10	32	40	34	4.5	0.00	4.50	3.0E-03															0	36	0.62	0.69	0.1021		0.50	0.6021	29.26	28.65	OK	OK	OK
Cold (20ºC)	SV3	NWi85	PPR PN20	40	40	26.6	5	3.00	8.00	3.0E-03															0	36	0.62	1.12	0.5789	3.00		3.5789	28.65	25.07	OK	OK	OK
Cold (20ºC)	NWi85	Br2 (x4)	PPR PN20	32	32	21.2	5.1	0.00	5.10	3.0E-03					4										8	14	0.39	1.10	0.4724			0.4724	25.07	24.59	OK	OK	OK
Cold (20ºC)	Br2 (x4)	Ch2C (x2)	PPR PN20	32	25	16.6	3	0.00	3.00	3.0E-03					2										6	6	0.30	1.40	0.5753			0.5753	24.59	24.01	OK	OK	OK
Cold (20ºC)	NWi85	NWi86	PPR PN20	40	40	26.6	3.7	0.00	3.70	3.0E-03															0	22	0.47	0.86	0.1677			0.1677	25.07	24.9	OK	OK	OK
Cold (20ºC)	NWi86	Lv1 (4x)	PPR PN20	32	25	16.6	8.1	0.00	8.10	3.0E-03	4														6	6	0.30	1.40	1.5533			1.5533	24.9	23.34	OK	OK	OK
Cold (20ºC)	NWi86	NWi87	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	16	0.41	1.17	0.0517			0.0517	24.9	24.84	OK	OK	OK
Cold (20ºC)	NWi87	EH2	PPR PN20	32	25	16.6	0.5	0.00	0.50	3.0E-03															0	6	0.30	1.40	0.0959			0.0959	24.84	24.74	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section	Total		Vel.	$\Delta p_{,lin}$	Geom. Height (Gh)	Local Drop Press.	Δp_{tot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1	Section LU	Acum. LU	Calc. Flow		Lamont's						Velocity	Pressure	
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	NWi87	Tap1 (2x)	PPR PN20	32	25	16.6	4.6	0.00	4.60	3.0E-03									2						10	10	0.34	1.60	1.1175			1.1175	24.84	23.72	OK	OK	OK
Hot (55ºC)	EH2	Ch2H (x2)	PPR PN20	32	25	16.6	12	0.00	12.00	3.0E-03					2										6	6	0.30	1.40	2.3012		2.00	4.3012	24.74	20.43	OK	OK	OK
Cold (20ºC)	NWe4	SV4	HDPE PN10	32	40	34	1.5	0.00	1.50	3.0E-03															0	33	0.59	0.66	0.0315		0.50	0.5315	28.9	28.36	OK	OK	OK
Cold (20ºC)	SV4	NWi1	PPR PN20	40	40	26.6	1	3.00	4.00	3.0E-03															0	33	0.59	1.07	0.2670	3.00		3.2670	28.36	25.09	OK	OK	OK
Cold (20ºC)	NWi1	NWi2	PPR PN20	32	32	21.2	2.5	0.00	2.50	3.0E-03															0	9	0.33	0.95	0.1786			0.1786	25.09	24.91	OK	OK	OK
Cold (20ºC)	NWi2	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.91	22.84	OK	OK	OK
Cold (20ºC)	NWi2	NWi3	PPR PN20	32	32	21.2	3	0.00	3.00	3.0E-03															0	7.5	0.32	0.90	0.1947			0.1947	24.91	24.71	OK	OK	OK
Cold (20ºC)	NWi3	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.71	22.64	OK	OK	OK
Cold (20ºC)	NWi3	NWi4	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	6	0.30	0.86	0.0299			0.0299	24.71	24.68	OK	OK	OK
Cold (20ºC)	NWi4	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.68	22.61	OK	OK	OK
Cold (20ºC)	NWi4	NWi5	PPR PN20	32	32	21.2	5.7	0.00	5.70	3.0E-03															0	4.5	0.28	0.81	0.3070			0.3070	24.68	24.37	OK	OK	OK
Cold (20ºC)	NWi5	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.37	22.3	OK	OK	OK
Cold (20ºC)	NWi5	NWi6	PPR PN20	25	25	16.6	0.5	0.00	0.50	3.0E-03															0	3	0.27	1.24	0.0773			0.0773	24.37	24.29	OK	OK	OK
Cold (20ºC)	NWi6	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.29	22.22	OK	OK	OK
Cold (20ºC)	NWi6	Lv (A)	PPR PN20	25	20	13.2	8	0.00	8.00	3.0E-03	1														1.5	1.5	0.25	1.84	3.2992			3.2992	24.29	20.99	OK	OK	OK
Cold (20ºC)	NWi1	NWi7	PPR PN20	40	40	26.6	5.4	0.00	5.40	3.0E-03															0	24	0.50	0.90	0.2653			0.2653	25.09	24.82	OK	OK	OK
Cold (20ºC)	NWi7	NWi8	PPR PN20	32	32	21.2	4.8	0.00	4.80	3.0E-03															0	7.5	0.32	0.90	0.3116			0.3116	24.82	24.5	OK	OK	OK
Cold (20ºC)	NWi8	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.5	22.43	OK	OK	OK
Cold (20ºC)	NWi8	NWi9	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	6	0.30	0.86	0.0299			0.0299	24.5	24.47	OK	OK	OK
Cold (20ºC)	NWi9	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.47	22.4	OK	OK	OK
Cold (20ºC)	NWi9	NWi10	PPR PN20	32	32	21.2	5.7	0.00	5.70	3.0E-03															0	4.5	0.28	0.81	0.3070			0.3070	24.47	24.16	OK	OK	OK
Cold (20ºC)	NWi10	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.16	22.09	OK	OK	OK
Cold (20ºC)	NWi10	NWi11	PPR PN20	25	25	16.6	0.5	0.00	0.50	3.0E-03															0	3	0.27	1.24	0.0773			0.0773	24.16	24.08	OK	OK	OK
Cold (20ºC)	NWi11	Lv (A)	PPR PN20	25	20	13.2	5	0.00	5.00	3.0E-03	1														1.5	1.5	0.25	1.84	2.0620			2.0620	24.08	22.01	OK	OK	OK
Cold (20ºC)	NWi11	Lv (A)	PPR PN20	25	20	13.2	8	0.00	8.00	3.0E-03	1														1.5	1.5	0.25	1.84	3.2992			3.2992	24.08	20.78	OK	OK	OK
Cold (20ºC)	NWi7	NWi7a	PPR PN20	32	32	21.2	0.2	0.00	0.20	3.0E-03															0	16.5	0.42	1.18	0.0210			0.0210	24.82	24.79	OK	OK	OK
Cold (20ºC)	NWi7a	Ll (A.42) (2x)	PPR PN20	32	25	16.6	4	0.00	4.00	3.0E-03									1	1					8	8	0.32	1.50	0.8668			0.8668	24.79	23.92	OK	OK	OK
Cold (20ºC)	NWi7a	NWi12	PPR PN20	32	25	16.6	13	0.00	13.00	3.0E-03															0	8.5	0.33	1.52	2.8840			2.8840	24.79	21.9	OK	OK	OK
Cold (20ºC)	NWi12	Br (A.56) (2x)	PPR PN20	32	25	16.6	4.5	0.00	4.50	3.0E-03	1			1											3.5	3.5	0.27	1.27	0.7261			0.7261	21.9	21.17	OK	OK	OK
Cold (20ºC)	NWi12	Br (A.62) (3x)	PPR PN20	32	25	16.6	16.5	0.00	16.50	3.0E-03	2			1											5	5	0.29	1.35	2.9667			2.9667	21.9	18.93	OK	OK	OK
Cold (20ºC)	NWe5	SV5	HDPE PN10	25	25	21	6	0.00	6.00	3.0E-03															0	5.5	0.30	0.86	0.3636		0.50	0.8636	28.42	27.55	OK	OK	OK
Cold (20ºC)	SV5	Lv (A.12) (3x)	PPR PN20	32	25	16.6	6	3.00	9.00	3.0E-03	1			2											5.5	5.5	0.30	1.37	1.6609	3.00		4.6609	27.55	22.88	OK	OK	OK
Cold (20ºC)	NWe5	SV6	HDPE PN10	32	40	34	57	0.00	57.00	3.0E-03															0	23	0.48	0.54	0.8379		0.50	1.3379	28.42	27.08	OK	OK	OK
Cold (20ºC)	SV6	NWi88	PPR PN20	40	40	26.6	0.5	3.00	3.50	3.0E-03															0	23	0.48	0.88	0.1652	3.00		3.1652	27.08	23.91	OK	OK	OK
Cold (20ºC)	NWi88	Lv (C.04) (2x)	PPR PN20	32	32	21.2	6	0.00	6.00	3.0E-03	2														3	7	0.31	0.89	0.3819			0.3819	23.91	23.52	OK	OK	OK
Cold (20ºC)	Lv (C.04) (2x)	Br (C.04) (2x)	PPR PN20	32	25	16.6	5	0.00	5.00	3.0E-03				2											4	4	0.28	1.29	0.8294			0.8294	23.52	22.69	OK	OK	OK
Cold (20ºC)	NWi88	NWi89	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	16	0.41	1.17	0.0517			0.0517	23.91	23.85	OK	OK	OK
Cold (20ºC)	NWi89	Lv (ext) (4x)	PPR PN20	32	32	21.2	4	0.00	4.00	3.0E-03	6														9	9	0.33	0.95	0.2858			0.2858	23.85	23.56	OK	OK	OK
Cold (20ºC)	NWi89	Br (C.02) (2x)	PPR PN20	32	32	21.2	5.3	0.00	5.30	3.0E-03				2											4	7	0.31	0.89	0.3373			0.3373	23.85	23.51	OK	OK	OK
Cold (20ºC)	Br (C.02) (2x)	Lv (C.02) (2x)	PPR PN20	25	25	16.6	3.3	0.00	3.30	3.0E-03	2														3	3	0.27	1.24	0.5104			0.5104	23.51	22.99	OK	OK	OK
Cold (20ºC)	NWe6	SV7	HDPE PN10	32	40	34	0.5	0.00	0.50	3.0E-03															0	38.5	0.65	0.72	0.0122		0.50	0.5122	29.48	28.96	OK	OK	OK
Cold (20ºC)	SV7	NWi19	PPR PN20	40	40	26.6	0.5	3.00	3.50	3.0E-03															0	38.5	0.65	1.17	0.2737	3.00		3.2737	28.96	25.68	OK	OK	OK
Cold (20ºC)	NWi19	Ll (E.56)	PPR PN20	32	25	16.6	3	0.00	3.00	3.0E-03									1	1					8	8	0.32	1.50	0.6501			0.6501	25.68	25.02	OK	OK	OK
Cold (20ºC)	NWi19	NWi20	PPR PN20	40	40	26.6	7.6	0.00	7.60	3.0E-03															0	30.5	0.56	1.02	0.4660			0.4660	25.68	25.21	OK	OK	OK
Cold (20ºC)	NWi20	NWi21	PPR PN20	32	32	21.2	1.6	0.00	1.60	3.0E-03															0	14	0.39	1.10	0.1482			0.1482	25.21	25.06	OK	OK	OK
Cold (20ºC)	NWi21	EH2 (E)	PPR PN20	32	32	21.2	1	0.00	1.00	3.0E-03															0	7.5	0.32	0.90	0.0649			0.0649	25.06	24.99	OK	OK	OK
Hot (55ºC)	EH2 (E)	NHi1.1	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	7.5	0.32	0.90	0.0325		2.00	2.0325	24.99	22.95	OK	OK	OK
Hot (55ºC)	NHi1.1	ChH (E.60)	PPR PN20	25	20	13.2	5.3	0.00	5.30	3.0E-03					1										3	3	0.27	1.96	2.4445		2.00	4.4445	22.95	18.5	OK	OK	OK
Hot (55ºC)	NHi1.1	NHi1.2	PPR PN20	32	32	21.2	17.5	0.00	17.50	3.0E-03															0	4.5	0.28	0.81	0.9426		2.00	2.9426	22.95	20	OK	OK	OK
Hot (55ºC)	NHi1.2	Lv1q (E.46)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03	1														1.5	1.5	0.25	1.84	0.4124		2.00	2.4124	20	17.58	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	Δ_{p_lin}	Geom. Height (Gh)	Local Drop Press.	Δ_{ptot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Hot (55ºC)	NHi1.2	NHi1.3	PPR PN20	25	25	16.6	6	0.00	6.00	3.0E-03															0	3	0.27	1.24	0.9280		2.00	2.9280	20	17.07	OK	OK	OK
Hot (55ºC)	NHi1.3	Lv2q (E.46)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03	1														1.5	1.5	0.25	1.84	0.4124		2.00	2.4124	17.07	14.65	OK	OK	OK
Hot (55ºC)	NHi1.3	Lv3q (E.46)	PPR PN20	25	20	13.2	6.5	0.00	6.50	3.0E-03	1														1.5	1.5	0.25	1.84	2.6806		2.00	4.6806	17.07	12.38	OK	OK	OK
Cold (20ºC)	NWi21	Br (E.60) (2x)	PPR PN20	32	25	16.6	4	0.00	4.00	3.0E-03	1			1											3.5	6.5	0.31	1.42	0.7866			0.7866	25.06	24.27	OK	OK	OK
Cold (20ºC)	Br (E.60) (2x)	ChC (E.60)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03					1										3	3	0.27	1.96	0.5074			0.5074	24.27	23.76	OK	OK	OK
Cold (20ºC)	NWi20	NWi22	PPR PN20	32	32	21.2	3.9	0.00	3.90	3.0E-03															0	16.5	0.42	1.18	0.4091			0.4091	25.21	24.8	OK	OK	OK
Cold (20ºC)	NWi22	Tap1 (E.64) (2x)	PPR PN20	32	32	21.2	4.3	0.00	4.30	3.0E-03										2					6	12	0.37	1.04	0.3606			0.3606	24.8	24.43	OK	OK	OK
Cold (20ºC)	Tap1 (E.64) (2x)	Tap2 (E.64) (2x)	PPR PN20	32	25	16.6	3.4	0.00	3.40	3.0E-03										2					6	6	0.30	1.40	0.6520			0.6520	24.43	23.77	OK	OK	OK
Cold (20ºC)	NWi22	NWi23	PPR PN20	32	32	21.2	11.9	0.00	11.90	3.0E-03															0	4.5	0.28	0.81	0.6410			0.6410	24.8	24.15	OK	OK	OK
Cold (20ºC)	NWi23	Lv1 (E.46)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03	1														1.5	1.5	0.25	1.84	0.4124			0.4124	24.15	23.73	OK	OK	OK
Cold (20ºC)	NWi23	NWi24	PPR PN20	25	25	16.6	6	0.00	6.00	3.0E-03															0	3	0.27	1.24	0.9280			0.9280	24.15	23.22	OK	OK	OK
Cold (20ºC)	NWi24	Lv2 (E.46)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03	1														1.5	1.5	0.25	1.84	0.4124			0.4124	23.22	22.8	OK	OK	OK
Cold (20ºC)	NWi24	Lv3 (E.46)	PPR PN20	25	20	13.2	6.5	0.00	6.50	3.0E-03	1														1.5	1.5	0.25	1.84	2.6806			2.6806	23.22	20.53	OK	OK	OK
Cold (20ºC)	NWe6	SV8	HDPE PN10	40	50	42.6	1	0.00	1.00	3.0E-03															0	62	0.89	0.63	0.0146		0.50	0.5146	29.48	28.96	OK	OK	OK
Cold (20ºC)	SV8	NWi25	PPR PN20	50	50	33.2	2.5	3.00	5.50	3.0E-03															0	62	0.89	1.03	0.2613	3.00		3.2613	28.96	25.69	OK	OK	OK
Cold (20ºC)	NWi25	NWi26	PPR PN20	40	40	26.6	11.5	0.00	11.50	3.0E-03															0	37.5	0.64	1.15	0.8721			0.8721	25.69	24.81	OK	OK	OK
Cold (20ºC)	NWi26	ChC (J.28) (2x)	PPR PN20	32	32	21.2	2.7	0.00	2.70	3.0E-03					2										6	16.5	0.42	1.18	0.2832			0.2832	24.81	24.52	OK	OK	OK
Cold (20ºC)	ChC (J.28) (2x)	Toilet (J.30) (2x)	PPR PN20	32	32	21.2	2	0.00	2.00	3.0E-03	1			1											3.5	10.5	0.35	1.00	0.1565			0.1565	24.52	24.36	OK	OK	OK
Cold (20ºC)	Toilet (J.30) (2x)	Toilet (J.32) (2x)	PPR PN20	32	32	21.2	1.5	0.00	1.50	3.0E-03	1			1											3.5	7	0.31	0.89	0.0955			0.0955	24.36	24.26	OK	OK	OK
Cold (20ºC)	Toilet (J.32) (2x)	Toilet (J.34) (2x)	PPR PN20	32	25	16.6	1.5	0.00	1.50	3.0E-03	1			1											3.5	3.5	0.27	1.27	0.2420			0.2420	24.26	24.01	OK	OK	OK
Cold (20ºC)	NWi26	NWi27	PPR PN20	40	40	26.6	10.7	0.00	10.70	3.0E-03															0	21	0.46	0.84	0.4651			0.4651	24.81	24.34	OK	OK	OK
Cold (20ºC)	NWi27	EH1 (J)	PPR PN20	32	32	21.2	1	0.00	1.00	3.0E-03															0	12	0.37	1.04	0.0839			0.0839	24.34	24.25	OK	OK	OK
Hot (55ºC)	EH1 (J)	NHi2	PPR PN20	32	32	21.2	1.1	0.00	1.10	3.0E-03															0	12	0.37	1.04	0.0923		2.00	2.0923	24.25	22.15	OK	OK	OK
Hot (55ºC)	NHi2	ChH (J.26) (2x)	PPR PN20	32	25	16.6	8	0.00	8.00	3.0E-03					2										6	6	0.30	1.40	1.5341			1.5341	22.15	20.61	OK	OK	OK
Hot (55ºC)	NHi2	ChH (J.20) (2x)	PPR PN20	32	25	16.6	12	0.00	12.00	3.0E-03					2										6	6	0.30	1.40	2.3012			2.3012	22.15	19.84	OK	OK	OK
Cold (20ºC)	NWi27	Mll (J.44) (3x)	PPR PN20	32	32	21.2	8	0.00	8.00	3.0E-03		3													9	9	0.33	0.95	0.5715			0.5715	24.34	23.76	OK	OK	OK
Cold (20ºC)	NWi25	NWi28	PPR PN20	40	40	26.6	3.1	0.00	3.10	3.0E-03															0	24.5	0.50	0.91	0.1553			0.1553	25.69	25.53	OK	OK	OK
Cold (20ºC)	NWi28	ChC (J.20)	PPR PN20	32	32	21.2	1	0.00	1.00	3.0E-03					1										3	13	0.38	1.07	0.0882			0.0882	25.53	25.44	OK	OK	OK
Cold (20ºC)	ChC (J.20)	Lv (J.20) (2x)	PPR PN20	32	32	21.2	1.6	0.00	1.60	3.0E-03	1			1											3.5	10	0.34	0.98	0.1208			0.1208	25.44	25.31	OK	OK	OK
Cold (20ºC)	Lv (J.20) (2x)	Br (J.22) (2x)	PPR PN20	32	25	16.6	2.2	0.00	2.20	3.0E-03	1			1											3.5	6.5	0.31	1.42	0.4326			0.4326	25.31	24.87	OK	OK	OK
Cold (20ºC)	Br (J.22) (2x)	ChC (J.22)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	24.87	24.4	OK	OK	OK
Cold (20ºC)	NWi28	NWi29	PPR PN20	32	32	21.2	16.1	0.00	16.10	3.0E-03															0	11.5	0.36	1.03	1.3273			1.3273	25.53	24.2	OK	OK	OK
Cold (20ºC)	NWi29	Ll (J.06) (2x)	PPR PN20	32	32	21.2	4.2	0.00	4.20	3.0E-03									1	1					8	8	0.32	0.92	0.2835			0.2835	24.2	23.91	OK	OK	OK
Cold (20ºC)	NWi29	Br (J.02) (2x)	PPR PN20	32	25	16.6	7.3	0.00	7.30	3.0E-03	1			1											3.5	3.5	0.27	1.27	1.1779			1.1779	24.2	23.02	OK	OK	OK
Cold (20ºC)	NWe8	SV9	HDPE PN10	40	50	42.6	13.5	0.00	13.50	3.0E-03															0	62	0.89	0.63	0.1977		0.50	0.6977	26.52	25.82	OK	OK	OK
Cold (20ºC)	SV9	NWi90	PPR PN20	50	50	33.2	0.5	3.00	3.50	3.0E-03															0	62	0.89	1.03	0.1663	3.00		3.1663	25.82	22.65	OK	OK	OK
Cold (20ºC)	NWi90	Br1 (I.04) (4x)	PPR PN20	40	32	21.2	4.2	0.00	4.20	3.0E-03				4											8	22	0.47	1.35	0.5592			0.5592	22.65	22.09	OK	OK	OK
Cold (20ºC)	Br1 (I.04) (4x)	NWi90a	PPR PN20	32	32	21.2	4.1	0.00	4.10	3.0E-03															0	14	0.39	1.10	0.3798			0.3798	22.09	21.71	OK	OK	OK
Cold (20ºC)	NWi90a	Br2 (I.04) (4x)	PPR PN20	32	32	21.2	7.2	0.00	7.20	3.0E-03				4											8	8	0.32	0.92	0.4859			0.4859	21.71	21.22	OK	OK	OK
Cold (20ºC)	NWi90a	Lv (I.04) (4x)	PPR PN20	32	25	16.6	3.2	0.00	3.20	3.0E-03	4														6	6	0.30	1.40	0.6137			0.6137	21.71	21.09	OK	OK	OK
Cold (20ºC)	NWi90	NWi91	PPR PN20	40	40	26.6	4.4	0.00	4.40	3.0E-03															0	40	0.66	1.20	0.3598			0.3598	22.65	22.29	OK	OK	OK
Cold (20ºC)	NWi91	NWi92	PPR PN20	32	32	21.2	7	0.00	7.00	3.0E-03															0	18	0.43	1.23	0.7903			0.7903	22.29	21.49	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	$\Delta p_{\_lin}$	Geom. Height (Gh)	Local Drop Press.	Δp_{tot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	NWi92	Ch (I.02) (4x)	PPR PN20	32	32	21.2	4.6	0.00	4.60	3.0E-03	2				2										9	9	0.33	0.95	0.3286			0.3286	21.49	21.16	OK	OK	OK
Cold (20ºC)	NWi92	Ch (I.04) (4x)	PPR PN20	32	32	21.2	4.6	0.00	4.60	3.0E-03	2				2										9	9	0.33	0.95	0.3286			0.3286	21.49	21.16	OK	OK	OK
Cold (20ºC)	NWi91	NWi93	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	22	0.47	0.86	0.0227			0.0227	22.29	22.26	OK	OK	OK
Cold (20ºC)	NWi93	Br1 (I.02) (4x)	PPR PN20	32	32	21.2	3.6	0.00	3.60	3.0E-03				4											8	8	0.32	0.92	0.2430			0.2430	22.26	22.01	OK	OK	OK
Cold (20ºC)	NWi93	NWi93a	PPR PN20	32	32	21.2	3.9	0.00	3.90	3.0E-03															0	14	0.39	1.10	0.3612			0.3612	22.26	21.89	OK	OK	OK
Cold (20ºC)	NWi93a	Lv (I.02) (4x)	PPR PN20	32	32	21.2	3.2	0.00	3.20	3.0E-03	4														6	6	0.30	0.86	0.1917			0.1917	21.89	21.69	OK	OK	OK
Cold (20ºC)	NWi93a	Br2 (I.02) (4x)	PPR PN20	32	32	21.2	7.2	0.00	7.20	3.0E-03				4											8	8	0.32	0.92	0.4859			0.4859	21.89	21.4	OK	OK	OK
Cold (20ºC)	NWe9	SV10	HDPE PN10	50	63	53.6	1	0.00	1.00	3.0E-03															0	145	1.66	0.74	0.0147		0.50	0.5147	26.29	25.77	OK	OK	OK
Cold (20ºC)	SV10	NWi44	PPR PN20	63	50	33.2	2.5	3.00	5.50	3.0E-03															0	87.5	1.14	1.32	0.4055	3.00		3.4055	25.77	22.36	OK	OK	OK
Cold (20ºC)	NWi44	EH (L.06)	PPR PN20	32	25	16.6	2.2	0.00	2.20	3.0E-03															0	6	0.30	1.40	0.4219			0.4219	22.36	21.93	OK	OK	OK
Hot (55ºC)	EH (L.06)	ChH (L.06)	PPR PN20	25	20	13.2	2.3	0.00	2.30	3.0E-03					1										3	3	0.27	1.96	1.0608		2.00	3.0608	22.075	19.01	OK	OK	OK
Cold (20ºC)	NWi44	NWi45	PPR PN20	50	50	33.2	0.5	0.00	0.50	3.0E-03															0	81.5	1.08	1.25	0.0335			0.0335	22.36	22.32	OK	OK	OK
Cold (20ºC)	NWi45	NWi45a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	22.32	22.27	OK	OK	OK
Cold (20ºC)	NWi45a	Lv (L.06)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	22.27	21.81	OK	OK	OK
Cold (20ºC)	NWi45a	Br (L.06) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	22.27	21.83	OK	OK	OK
Cold (20ºC)	Br (L.06) (2x)	ChC (L.06)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	21.975	21.19	OK	OK	OK
Cold (20ºC)	NWi45	NWi46	PPR PN20	50	50	33.2	4.6	0.00	4.60	3.0E-03															0	70	0.97	1.12	0.2535			0.2535	22.32	22.06	OK	OK	OK
Cold (20ºC)	NWi46	NWi46a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	22.06	22.01	OK	OK	OK
Cold (20ºC)	NWi46a	Lv (L.10)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	22.01	21.55	OK	OK	OK
Cold (20ºC)	NWi46a	Br (L.10) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	22.01	21.57	OK	OK	OK
Cold (20ºC)	Br (L.10) (2x)	ChC (L.10)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	21.715	20.93	OK	OK	OK
Cold (20ºC)	NWi46	NWi47	PPR PN20	50	40	26.6	4.5	0.00	4.50	3.0E-03															0	58.5	0.85	1.54	0.5725			0.5725	22.06	21.48	OK	OK	OK
Cold (20ºC)	NWi47	NWi47a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	21.48	21.43	OK	OK	OK
Cold (20ºC)	NWi47a	Lv (L.14)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	21.43	20.97	OK	OK	OK
Cold (20ºC)	NWi47a	Br (L.14) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	21.43	20.99	OK	OK	OK
Cold (20ºC)	Br (L.14) (2x)	ChC (L.14)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	21.135	20.35	OK	OK	OK
Cold (20ºC)	NWi47	NWi48	PPR PN20	50	40	26.6	0.5	0.00	0.50	3.0E-03															0	47	0.74	1.33	0.0491			0.0491	21.48	21.43	OK	OK	OK
Cold (20ºC)	NWi48	EH (L.14)	PPR PN20	32	25	16.6	1.9	0.00	1.90	3.0E-03															0	12	0.37	1.70	0.5139			0.5139	21.43	20.91	OK	OK	OK
Hot (55ºC)	EH (L.14)	Nhi.7	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	21.055	18.84	OK	OK	OK
Hot (55ºC)	Nhi.7	ChH (L.14)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	18.84	18.6	OK	OK	OK
Hot (55ºC)	Nhi.7	ChH (L.10)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	18.84	18.37	OK	OK	OK
Cold (20ºC)	NWi48	NWi49	PPR PN20	40	40	26.6	4.1	0.00	4.10	3.0E-03															0	35	0.61	1.11	0.2920			0.2920	21.43	21.13	OK	OK	OK
Cold (20ºC)	NWi49	NWi49a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	21.13	21.08	OK	OK	OK
Cold (20ºC)	NWi49a	Lv (L.18)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	21.08	20.62	OK	OK	OK
Cold (20ºC)	NWi49a	Br (L.18) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	21.08	20.64	OK	OK	OK
Cold (20ºC)	Br (L.18) (2x)	ChC (L.18)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	20.785	20	OK	OK	OK
Cold (20ºC)	NWi49	NWi50	PPR PN20	40	40	26.6	4.6	0.00	4.60	3.0E-03															0	23.5	0.49	0.89	0.2215			0.2215	21.13	20.9	OK	OK	OK
Cold (20ºC)	NWi50	NWi50a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	20.9	20.85	OK	OK	OK
Cold (20ºC)	NWi50a	Lv (L.22)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	20.85	20.39	OK	OK	OK
Cold (20ºC)	NWi50a	Br (L.22) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	20.85	20.41	OK	OK	OK
Cold (20ºC)	Br (L.22) (2x)	ChC (L.22)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	20.555	19.77	OK	OK	OK
Cold (20ºC)	NWi50	EH (L.22)	PPR PN20	32	32	21.2		0.00	0.00	3.0E-03															0	12	0.37	1.04	0.0000			0.0000	20.9	20.9	OK	OK	OK
Hot (55ºC)	EH (L.22)	Nhi.8	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	21.045	18.83	OK	OK	OK
Hot (55ºC)	Nhi.8	ChH (L.22)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	18.83	18.59	OK	OK	OK
Hot (55ºC)	Nhi.8	ChH (L.18)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	18.83	18.36	OK	OK	OK
Cold (20ºC)	SV10	NWi51	PPR PN20	50	50	33.2	2.5	6.00	8.50	3.0E-03															0	57.5	0.84	0.98	0.3698	6.00		6.3698	25.77	19.4	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	$\Delta p_{\_lin}$	Geom. Height (Gh)	Local Drop Press.	Δp_{tot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	NWi51	EH (L1.06)	PPR PN20	25	20	13.2	2.2	0.00	2.20	3.0E-03															0	3	0.27	1.96	1.0147			1.0147	19.4	18.38	OK	OK	OK
Hot (55ºC)	EH (L1.06)	ChH (L1.06)	PPR PN20	25	20	13.2	2.3	0.00	2.30	3.0E-03					1										3	3	0.27	1.96	1.0608		2.00	3.0608	18.38	15.31	OK	OK	OK
Cold (20ºC)	NWi51	NWi52	PPR PN20	50	50	33.2	0.5	0.00	0.50	3.0E-03															0	54.5	0.81	0.94	0.0202			0.0202	19.4	19.37	OK	OK	OK
Cold (20ºC)	NWi52	NWi52a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	19.37	19.33	OK	OK	OK
Cold (20ºC)	NWi52a	Lv (L1.06)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	19.33	18.87	OK	OK	OK
Cold (20ºC)	NWi52a	Br (L1.06) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	19.33	18.96	OK	OK	OK
Cold (20ºC)	Br (L1.06) (2x)	ChC (L1.06)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.96	18.17	OK	OK	OK
Cold (20ºC)	NWi52	NWi53	PPR PN20	50	50	33.2	4.6	0.00	4.60	3.0E-03															0	46	0.73	0.84	0.1523			0.1523	19.37	19.21	OK	OK	OK
Cold (20ºC)	NWi53	NWi53a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	19.21	19.17	OK	OK	OK
Cold (20ºC)	NWi53a	Lv (L1.10)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	19.17	18.71	OK	OK	OK
Cold (20ºC)	NWi53a	Br (L1.10) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	19.17	18.8	OK	OK	OK
Cold (20ºC)	Br (L1.10) (2x)	ChC (L1.10)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.8	18.01	OK	OK	OK
Cold (20ºC)	NWi53	NWi54	PPR PN20	40	40	26.6	4.5	0.00	4.50	3.0E-03															0	37.5	0.64	1.15	0.3413			0.3413	19.21	18.86	OK	OK	OK
Cold (20ºC)	NWi54	NWi54a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	18.86	18.82	OK	OK	OK
Cold (20ºC)	NWi54a	Lv (L1.14)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	18.82	18.36	OK	OK	OK
Cold (20ºC)	NWi54a	Br (L1.14) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	18.82	18.45	OK	OK	OK
Cold (20ºC)	Br (L1.14) (2x)	ChC (L1.14)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.45	17.66	OK	OK	OK
Cold (20ºC)	NWi54	NWi55	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	29	0.55	0.99	0.0291			0.0291	18.86	18.83	OK	OK	OK
Cold (20ºC)	NWi55	EH (L1.14)	PPR PN20	32	25	16.6	1.9	0.00	1.90	3.0E-03															0	6	0.30	1.40	0.3644			0.3644	18.83	18.46	OK	OK	OK
Hot (55ºC)	EH (L1.14)	NHi1.7	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	18.46	16.24	OK	OK	OK
Hot (55ºC)	NHi1.7	ChH (L1.14)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	16.24	16	OK	OK	OK
Hot (55ºC)	NHi1.7	ChH (L1.10)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	16.24	15.77	OK	OK	OK
Cold (20ºC)	NWi55	NWi56	PPR PN20	40	40	26.6	4.1	0.00	4.10	3.0E-03															0	23	0.48	0.88	0.1935			0.1935	18.83	18.63	OK	OK	OK
Cold (20ºC)	NWi56	NWi56a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	18.63	18.59	OK	OK	OK
Cold (20ºC)	NWi56a	Lv (L1.18)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	18.59	18.13	OK	OK	OK
Cold (20ºC)	NWi56a	Br (L1.18) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	18.59	18.22	OK	OK	OK
Cold (20ºC)	Br (L1.18) (2x)	ChC (L1.18)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.22	17.43	OK	OK	OK
Cold (20ºC)	NWi56	NWi57	PPR PN20	32	32	21.2	4.6	0.00	4.60	3.0E-03															0	14.5	0.39	1.12	0.4399			0.4399	18.63	18.19	OK	OK	OK
Cold (20ºC)	NWi57	NWi57a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	18.19	18.15	OK	OK	OK
Cold (20ºC)	NWi57a	Lv (L1.22)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	18.15	17.69	OK	OK	OK
Cold (20ºC)	NWi57a	Br (L1.22) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	18.15	17.78	OK	OK	OK
Cold (20ºC)	Br (L1.22) (2x)	ChC (L1.22)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	17.78	16.99	OK	OK	OK
Cold (20ºC)	NWi57	EH (L1.22)	PPR PN20	32	25	16.6		0.00	0.00	3.0E-03															0	6	0.30	1.40	0.0000			0.0000	18.19	18.19	OK	OK	OK
Hot (55ºC)	EH (L1.22)	NHi1.8	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	18.19	15.97	OK	OK	OK
Hot (55ºC)	NHi1.8	ChH (L1.22)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	15.97	15.73	OK	OK	OK
Hot (55ºC)	NHi1.8	ChH (L1.18)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	15.97	15.5	OK	OK	OK
Cold (20ºC)	NWe9	SV11	PPR PN20	63	63	42		0.00	0.00	3.0E-03															0	145	1.66	1.20	0.0000		0.50	0.5000	26.29	25.79	OK	OK	OK
Cold (20ºC)	SV11	NWi30	PPR PN20	63	63	42	2.5	3.00	5.50	3.0E-03															0	87.5	1.14	0.82	0.1307	3.00		3.1307	25.79	22.65	OK	OK	OK
Cold (20ºC)	NWi30	EH (L.06)	PPR PN20	32	25	16.6	2.2	0.00	2.20	3.0E-03															0	6	0.30	1.40	0.4219			0.4219	22.65	22.22	OK	OK	OK
Hot (55ºC)	EH (L.06)	ChH (L.06)	PPR PN20	25	20	13.2	2.3	0.00	2.30	3.0E-03					1										3	3	0.27	1.96	1.0608		2.00	3.0608	22.075	19.01	OK	OK	OK
Cold (20ºC)	NWi30	NWi31	PPR PN20	50	50	33.2	0.5	0.00	0.50	3.0E-03															0	81.5	1.08	1.25	0.0335			0.0335	22.65	22.61	OK	OK	OK
Cold (20ºC)	NWi31	NWi31a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	22.61	22.56	OK	OK	OK
Cold (20ºC)	NWi31a	Lv (L.06)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	22.56	22.1	OK	OK	OK
Cold (20ºC)	NWi31a	Br (L.06) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	22.56	22.12	OK	OK	OK
Cold (20ºC)	Br (L.06) (2x)	ChC (L.06)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	21.975	21.19	OK	OK	OK
Cold (20ºC)	NWi31	NWi32	PPR PN20	50	50	33.2	4.6	0.00	4.60	3.0E-03															0	70	0.97	1.12	0.2535			0.2535	22.61	22.35	OK	OK	OK
Cold (20ºC)	NWi32	NWi32a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	22.35	22.3	OK	OK	OK
Cold (20ºC)	NWi32a	Lv (L.10)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	22.3	21.84	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	Δ_{p_lin}	Geom. Height (Gh)	Local Drop Press.	Δ_{ptot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	NWi32a	Br (L.10) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	22.3	21.86	OK	OK	OK
Cold (20ºC)	Br (L.10) (2x)	ChC (L.10)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	21.715	20.93	OK	OK	OK
Cold (20ºC)	NWi32	NWi33	PPR PN20	50	40	26.6	4.5	0.00	4.50	3.0E-03															0	58.5	0.85	1.54	0.5725			0.5725	22.35	21.77	OK	OK	OK
Cold (20ºC)	NWi33	NWi33a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	21.77	21.72	OK	OK	OK
Cold (20ºC)	NWi33a	Lv (L.14)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	21.72	21.26	OK	OK	OK
Cold (20ºC)	NWi33a	Br (L.14) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	21.72	21.28	OK	OK	OK
Cold (20ºC)	Br (L.14) (2x)	ChC (L.14)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	21.135	20.35	OK	OK	OK
Cold (20ºC)	NWi33	NWi34	PPR PN20	50	40	26.6	0.5	0.00	0.50	3.0E-03															0	47	0.74	1.33	0.0491			0.0491	21.77	21.72	OK	OK	OK
Cold (20ºC)	NWi34	EH (L.14)	PPR PN20	32	25	16.6	1.9	0.00	1.90	3.0E-03															0	12	0.37	1.70	0.5139			0.5139	21.72	21.2	OK	OK	OK
Hot (55ºC)	EH (L.14)	Nhi.9	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	21.055	18.84	OK	OK	OK
Hot (55ºC)	Nhi.9	ChH (L.14)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	18.84	18.6	OK	OK	OK
Hot (55ºC)	Nhi.9	ChH (L.10)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	18.84	18.37	OK	OK	OK
Cold (20ºC)	NWi34	NWi35	PPR PN20	40	40	26.6	4.1	0.00	4.10	3.0E-03															0	35	0.61	1.11	0.2920			0.2920	21.72	21.42	OK	OK	OK
Cold (20ºC)	NWi35	NWi35a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	21.42	21.37	OK	OK	OK
Cold (20ºC)	NWi35a	Lv (L.18)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	21.37	20.91	OK	OK	OK
Cold (20ºC)	NWi35a	Br (L.18) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	21.37	20.93	OK	OK	OK
Cold (20ºC)	Br (L.18) (2x)	ChC (L.18)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	20.785	20	OK	OK	OK
Cold (20ºC)	NWi35	NWi36	PPR PN20	40	40	26.6	4.6	0.00	4.60	3.0E-03															0	23.5	0.49	0.89	0.2215			0.2215	21.42	21.19	OK	OK	OK
Cold (20ºC)	NWi36	NWi36a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	11.5	0.36	1.03	0.0412			0.0412	21.19	21.14	OK	OK	OK
Cold (20ºC)	NWi36a	Lv (L.22)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	21.14	20.68	OK	OK	OK
Cold (20ºC)	NWi36a	Br (L.22) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	10	0.34	1.60	0.4373			0.4373	21.14	20.7	OK	OK	OK
Cold (20ºC)	Br (L.22) (2x)	ChC (L.22)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	20.555	19.77	OK	OK	OK
Cold (20ºC)	NWi36	EH (L.22)	PPR PN20	32	25	16.6		0.00	0.00	3.0E-03															0	12	0.37	1.70	0.0000			0.0000	21.19	21.19	OK	OK	OK
Hot (55ºC)	EH (L.22)	Nhi.10	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	21.045	18.83	OK	OK	OK
Hot (55ºC)	Nhi.10	ChH (L.22)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	18.83	18.59	OK	OK	OK
Hot (55ºC)	Nhi.10	ChH (L.18)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	18.83	18.36	OK	OK	OK
Cold (20ºC)	SV11	NWi37	PPR PN20	50	50	33.2	2.5	6.00	8.50	3.0E-03															0	57.5	0.84	0.98	0.3698	6.00		6.3698	25.79	19.42	OK	OK	OK
Cold (20ºC)	NWi37	EH (L1.32)	PPR PN20	25	20	13.2	2.2	0.00	2.20	3.0E-03															0	3	0.27	1.96	1.0147			1.0147	19.42	18.4	OK	OK	OK
Hot (55ºC)	EH (L1.32)	ChH (L1.32)	PPR PN20	25	20	13.2	2.3	0.00	2.30	3.0E-03					1										3	3	0.27	1.96	1.0608		2.00	3.0608	18.4	15.33	OK	OK	OK
Cold (20ºC)	NWi37	NWi38	PPR PN20	50	50	33.2	0.5	0.00	0.50	3.0E-03															0	54.5	0.81	0.94	0.0202			0.0202	19.42	19.39	OK	OK	OK
Cold (20ºC)	NWi38	NWi38a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	19.39	19.35	OK	OK	OK
Cold (20ºC)	NWi38a	Lv (L1.32)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	19.35	18.89	OK	OK	OK
Cold (20ºC)	NWi38a	Br (L1.32) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	19.35	18.98	OK	OK	OK
Cold (20ºC)	Br (L1.32) (2x)	ChC (L1.32)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.98	18.19	OK	OK	OK
Cold (20ºC)	NWi38	NWi39	PPR PN20	50	50	33.2	4.6	0.00	4.60	3.0E-03															0	46	0.73	0.84	0.1523			0.1523	19.39	19.23	OK	OK	OK
Cold (20ºC)	NWi39	NWi39a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	19.23	19.19	OK	OK	OK
Cold (20ºC)	NWi39a	Lv (L1.36)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	19.19	18.73	OK	OK	OK
Cold (20ºC)	NWi39a	Br (L1.36) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	19.19	18.82	OK	OK	OK
Cold (20ºC)	Br (L1.36) (2x)	ChC (L1.36)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.82	18.03	OK	OK	OK
Cold (20ºC)	NWi39	NWi40	PPR PN20	40	40	26.6	4.5	0.00	4.50	3.0E-03															0	37.5	0.64	1.15	0.3413			0.3413	19.23	18.88	OK	OK	OK
Cold (20ºC)	NWi40	NWi40a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	18.88	18.84	OK	OK	OK
Cold (20ºC)	NWi40a	Lv (L1.40)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	18.84	18.38	OK	OK	OK
Cold (20ºC)	NWi40a	Br (L1.40) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	18.84	18.47	OK	OK	OK
Cold (20ºC)	Br (L1.40) (2x)	ChC (L1.40)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.47	17.68	OK	OK	OK
Cold (20ºC)	NWi40	NWi41	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	29	0.55	0.99	0.0291			0.0291	18.88	18.85	OK	OK	OK
Cold (20ºC)	NWi41	EH (L1.40)	PPR PN20	32	25	16.6	1.9	0.00	1.90	3.0E-03															0	6	0.30	1.40	0.3644			0.3644	18.85	18.48	OK	OK	OK
Hot (55ºC)	EH (L1.40)	NHi1.9	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	18.48	16.26	OK	OK	OK

Water type	Section		Pipe							Equipments													Flow				Head Loss				Pressure		Verifications		
																							Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	$\Delta p_{\_lin}$	Geom. Height (Gh)	Local Drop Press.	Δp_{tot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Hot (55ºC)	NHi1.9	ChH (L1.40)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	16.26	16.02	OK	OK	OK
Hot (55ºC)	NHi1.9	ChH (L1.36)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	16.26	15.79	OK	OK	OK
Cold (20ºC)	NWi41	NWi42	PPR PN20	40	40	26.6	4.1	0.00	4.10	3.0E-03															0	23	0.48	0.88	0.1935			0.1935	18.85	18.65	OK	OK	OK
Cold (20ºC)	NWi42	NWi42a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	18.65	18.61	OK	OK	OK
Cold (20ºC)	NWi42a	Lv (L1.44)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	18.61	18.15	OK	OK	OK
Cold (20ºC)	NWi42a	Br (L1.44) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	18.61	18.24	OK	OK	OK
Cold (20ºC)	Br (L1.44) (2x)	ChC (L1.44)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	18.24	17.45	OK	OK	OK
Cold (20ºC)	NWi42	NWi43	PPR PN20	32	32	21.2	4.6	0.00	4.60	3.0E-03															0	14.5	0.39	1.12	0.4399			0.4399	18.65	18.21	OK	OK	OK
Cold (20ºC)	NWi43	NWi43a	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	8.5	0.33	0.94	0.0351			0.0351	18.21	18.17	OK	OK	OK
Cold (20ºC)	NWi43a	Lv (L1.48)	PPR PN20	25	20	13.2	1.1	0.00	1.10	3.0E-03	1														1.5	1.5	0.25	1.84	0.4536			0.4536	18.17	17.71	OK	OK	OK
Cold (20ºC)	NWi43a	Br (L1.48) (2x)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03				2											4	7	0.31	1.45	0.3673			0.3673	18.17	17.8	OK	OK	OK
Cold (20ºC)	Br (L1.48) (2x)	ChC (L1.48)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	17.8	17.01	OK	OK	OK
Cold (20ºC)	NWi43	EH (L1.48)	PPR PN20	32	25	16.6		0.00	0.00	3.0E-03															0	6	0.30	1.40	0.0000			0.0000	18.21	18.21	OK	OK	OK
Hot (55ºC)	EH (L1.48)	NHi1.10	PPR PN20	32	25	16.6	1.1	0.00	1.10	3.0E-03															0	6	0.30	1.40	0.2109		2.00	2.2109	18.21	15.99	OK	OK	OK
Hot (55ºC)	NHi1.10	ChH (L1.48)	PPR PN20	25	20	13.2	0.5	0.00	0.50	3.0E-03					1										3	3	0.27	1.96	0.2306			0.2306	15.99	15.75	OK	OK	OK
Hot (55ºC)	NHi1.10	ChH (L1.44)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	15.99	15.52	OK	OK	OK
Cold (20ºC)	NWe10	SV12	HDPE PN10	32	40	34	1	0.00	1.00	3.0E-03															0	31.5	0.57	0.64	0.0199		0.50	0.5199	26.81	26.29	OK	OK	OK
Cold (20ºC)	SV12	NWi58	PPR PN20	40	40	26.6	2	3.00	5.00	3.0E-03															0	31.5	0.57	1.04	0.3173	3.00		3.3173	26.29	22.97	OK	OK	OK
Cold (20ºC)	NWi58	ChC (H.30) (2x)	PPR PN20	32	25	16.6	4	0.00	4.00	3.0E-03	1				1										4.5	8	0.32	1.50	0.8668			0.8668	22.97	22.1	OK	OK	OK
Cold (20ºC)	ChC (H.30) (2x)	Lv (H.30) (2x)	PPR PN20	32	25	16.6	5.1	0.00	5.10	3.0E-03	1			1											3.5	3.5	0.27	1.27	0.8229			0.8229	22.1	21.27	OK	OK	OK
Cold (20ºC)	NWi58	NWi59	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	23.5	0.49	0.89	0.0241			0.0241	22.97	22.94	OK	OK	OK
Cold (20ºC)	NWi59	EH (H.30)	PPR PN20	25	20	13.2	1.9	0.00	1.90	3.0E-03															0	3	0.27	1.96	0.8763			0.8763	22.94	22.06	OK	OK	OK
Hot (55ºC)	EH (H.30)	ChH (H.30)	PPR PN20	25	20	13.2	2	0.00	2.00	3.0E-03					1										3	3	0.27	1.96	0.9225		2.00	2.9225	22.06	19.13	OK	OK	OK
Cold (20ºC)	NWi59	NWi60	PPR PN20	40	40	26.6	10.4	0.00	10.40	3.0E-03															0	20.5	0.46	0.83	0.4426			0.4426	22.94	22.49	OK	OK	OK
Cold (20ºC)	NWi60	ChC (H.38) (2x)	PPR PN20	32	25	16.6	4	0.00	4.00	3.0E-03	1				1										4.5	8	0.32	1.50	0.8668			0.8668	22.49	21.62	OK	OK	OK
Cold (20ºC)	ChC (H.38) (2x)	Lv (H.38) (2x)	PPR PN20	32	20	13.2	5.1	0.00	5.10	3.0E-03	1			1											3.5	3.5	0.27	2.00	2.4380			2.4380	21.62	19.18	OK	OK	OK
Cold (20ºC)	NWi60	NWi61	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	12.5	0.37	1.06	0.0434			0.0434	22.49	22.44	OK	OK	OK
Cold (20ºC)	NWi61	EH (H.38)	PPR PN20	25	20	13.2	1.9	0.00	1.90	3.0E-03															0	3	0.27	1.96	0.8763			0.8763	22.44	21.56	OK	OK	OK
Hot (55ºC)	EH (H.38)	ChH (H.38)	PPR PN20	25	20	13.2	2	0.00	2.00	3.0E-03					1										3	3	0.27	1.96	0.9225		2.00	2.9225	21.56	18.63	OK	OK	OK
Cold (20ºC)	NWi61	NWi62	PPR PN20	32	32	21.2	8.4	0.00	8.40	3.0E-03															0	9.5	0.34	0.97	0.6227			0.6227	22.44	21.81	OK	OK	OK
Cold (20ºC)	NWi62	Br (H.44) (3x)	PPR PN20	32	32	21.2	3.9	0.00	3.90	3.0E-03	1			1	1										6.5	6.5	0.31	0.87	0.2384			0.2384	21.81	21.57	OK	OK	OK
Cold (20ºC)	NWi62	EH (H.44)	PPR PN20	25	20	13.2	1.5	0.00	1.50	3.0E-03															0	3	0.27	1.96	0.6919			0.6919	21.81	21.11	OK	OK	OK
Hot (55ºC)	EH (H.44)	ChH (H.44)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841		2.00	2.7841	21.11	18.32	OK	OK	OK
Cold (20ºC)	NWe11	SV13	HDPE PN10	40	50	42.6	1	0.00	1.00	3.0E-03															0	62.5	0.89	0.63	0.0146		0.50	0.5146	26.05	25.53	OK	OK	OK
Cold (20ºC)	SV13	NWi63	PPR PN20	50	50	33.2	1	3.00	4.00	3.0E-03															0	62.5	0.89	1.03	0.1901	3.00		3.1901	25.53	22.33	OK	OK	OK
Cold (20ºC)	NWi63	Ll (H.24) (2x)	PPR PN20	32	25	16.6	12	0.00	12.00	3.0E-03									1	1					8	8	0.32	1.50	2.6004			2.6004	22.33	19.72	OK	OK	OK
Cold (20ºC)	NWi63	NWi64	PPR PN20	50	50	33.2	2.5	0.00	2.50	3.0E-03															0	54.5	0.81	0.94	0.1010			0.1010	22.33	22.22	OK	OK	OK
Cold (20ºC)	NWi64	EH (H.20)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03															0	6	0.30	1.40	0.3452			0.3452	22.22	21.87	OK	OK	OK
Hot (55ºC)	EH (H.20)	NHi11	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03															0	6	0.30	1.40	0.3452		2.00	2.3452	21.87	19.52	OK	OK	OK
Hot (55ºC)	NHi11	ChH (H.20)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	19.52	19.05	OK	OK	OK
Hot (55ºC)	NHi11	ChH (H.16)	PPR PN20	25	20	13.2	1.5	0.00	1.50	3.0E-03					1										3	3	0.27	1.96	0.6919			0.6919	19.52	18.82	OK	OK	OK
Cold (20ºC)	NWi64	NWi65	PPR PN20	50	50	33.2	0.5	0.00	0.50	3.0E-03															0	48.5	0.75	0.87	0.0176			0.0176	22.22	22.2	OK	OK	OK
Cold (20ºC)	NWi65	ChC (H.20) (2x)	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03	1				1										4.5	6.5	0.31	0.87	0.2140			0.2140	22.2	21.98	OK	OK	OK
Cold (20ºC)	ChC (H.20) (2x)	Br (H.20)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03				1											2	2	0.26	1.88	0.4284			0.4284	21.98	21.55	OK	OK	OK
Cold (20ºC)	NWi65	NWi66	PPR PN20	40	40	26.6	1	0.00	1.00	3.0E-03															0	42	0.68	1.24	0.0867			0.0867	22.2	22.11	OK	OK	OK
Cold (20ºC)	NWi66	ChC (H.16) (2x)	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03	1				1										4.5	6.5	0.31	0.87	0.2140			0.2140	22.11	21.89	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	Δ_{p_lin}	Geom. Height (Gh)	Local Drop Press.	Δ_{ptot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	ChC (H.16) (2x)	Br (H.16)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03				1											2	2	0.26	1.88	0.4284			0.4284	21.89	21.46	OK	OK	OK
Cold (20ºC)	NWi66	NWi67	PPR PN20	40	40	26.6		0.00	0.00	3.0E-03															0	35.5	0.62	1.11	0.0000			0.0000	22.11	22.11	OK	OK	OK
Cold (20ºC)	NWi67	EH (H.12)	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03															0	6	0.30	1.40	0.3452			0.3452	22.11	21.76	OK	OK	OK
Hot (55ºC)	EH (H.12)	NHi12	PPR PN20	32	25	16.6	1.8	0.00	1.80	3.0E-03															0	6	0.30	1.40	0.3452		2.00	2.3452	21.76	19.41	OK	OK	OK
Hot (55ºC)	NHi12	ChH (H.12)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03					1										3	3	0.27	1.96	0.4612			0.4612	19.41	18.94	OK	OK	OK
Hot (55ºC)	NHi12	ChH (H.08)	PPR PN20	25	20	13.2	1.5	0.00	1.50	3.0E-03					1										3	3	0.27	1.96	0.6919			0.6919	19.41	18.71	OK	OK	OK
Cold (20ºC)	NWi67	NWi68	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	29.5	0.55	1.00	0.0296			0.0296	22.11	22.08	OK	OK	OK
Cold (20ºC)	NWi68	ChC (H.12) (2x)	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03	1				1										4.5	6.5	0.31	0.87	0.2140			0.2140	22.08	21.86	OK	OK	OK
Cold (20ºC)	ChC (H.12) (2x)	Br (H.12)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03				1											2	2	0.26	1.88	0.4284			0.4284	21.86	21.43	OK	OK	OK
Cold (20ºC)	NWi68	NWi69	PPR PN20	40	40	26.6	1	0.00	1.00	3.0E-03															0	23	0.48	0.88	0.0472			0.0472	22.08	22.03	OK	OK	OK
Cold (20ºC)	NWi69	ChC (H.08) (2x)	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03	1				1										4.5	6.5	0.31	0.87	0.2140			0.2140	22.03	21.81	OK	OK	OK
Cold (20ºC)	ChC (H.08) (2x)	Br (H.08)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03				1											2	2	0.26	1.88	0.4284			0.4284	21.81	21.38	OK	OK	OK
Cold (20ºC)	NWi69	NWi70	PPR PN20	32	32	21.2	6.5	0.00	6.50	3.0E-03															0	16.5	0.42	1.18	0.6818			0.6818	22.03	21.34	OK	OK	OK
Cold (20ºC)	NWi70	ChC (H.04) (2x)	PPR PN20	32	32	21.2	3.7	0.00	3.70	3.0E-03	1				1										4.5	6.5	0.31	0.87	0.2262			0.2262	21.34	21.11	OK	OK	OK
Cold (20ºC)	ChC (H.04) (2x)	Br (H.04)	PPR PN20	25	20	13.2	1	0.00	1.00	3.0E-03				1											2	2	0.26	1.88	0.4284			0.4284	21.11	20.68	OK	OK	OK
Cold (20ºC)	NWi70	NWi71	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	10	0.34	0.98	0.0377			0.0377	21.34	21.3	OK	OK	OK
Cold (20ºC)	NWi71	EH (H.04)	PPR PN20	25	20	13.2	2.1	0.00	2.10	3.0E-03															0	3	0.27	1.96	0.9686			0.9686	21.3	20.33	OK	OK	OK
Hot (55ºC)	EH (H.04)	ChQ (H.04)	PPR PN20	25	20	13.2	1.7	0.00	1.70	3.0E-03					1										3	3	0.27	1.96	0.7841			0.7841	20.33	19.54	OK	OK	OK
Cold (20ºC)	NWi71	NWi96	PPR PN20	32	32	21.2	17	0.00	17.00	3.0E-03															0	7	0.31	0.89	1.0819			1.0819	21.3	20.21	OK	OK	OK
Cold (20ºC)	NWi96	Br (D.44) (2x)	PPR PN20	32	32	21.2	2	0.00	2.00	3.0E-03				2											4	4	0.28	0.80	0.1054			0.1054	20.21	20.1	OK	OK	OK
Cold (20ºC)	NWi96	Lv (D.44) (2x)	PPR PN20	25	25	16.6	5	0.00	5.00	3.0E-03	2														3	3	0.27	1.24	0.7734			0.7734	20.21	19.43	OK	OK	OK
Cold (20ºC)	NWe12	SV14	HDPE PN10	32	40	34	1	0.00	1.00	3.0E-03															0	30.5	0.56	0.63	0.0193		0.50	0.5193	24.98	24.46	OK	OK	OK
Cold (20ºC)	SV14	NWi72	PPR PN20	40	40	26.6	1.5	3.00	4.50	3.0E-03															0	30.5	0.56	1.02	0.2759	3.00		3.2759	24.46	21.18	OK	OK	OK
Cold (20ºC)	NWi72	EH (D.26)	PPR PN20	32	32	21.2	11.5	0.00	11.50	3.0E-03															0	12	0.37	1.04	0.9644			0.9644	21.18	20.21	OK	OK	OK
Hot (55ºC)	EH (D.26)	ChH (D.26) (3x)	PPR PN20	32	32	21.2	8.6	0.00	8.60	3.0E-03					3										9	12	0.37	1.04	0.7212		2.00	2.7212	20.21	17.48	OK	OK	OK
Hot (55ºC)	ChH (D.26) (3x)	ChH (D.26) (1x)	PPR PN20	25	20	13.2	10.5	0.00	10.50	3.0E-03					1										3	3	0.27	1.96	4.8430			4.8430	17.48	12.63	OK	OK	OK
Cold (20ºC)	NWi72	NWi73	PPR PN20	32	32	21.2	0.5	0.00	0.50	3.0E-03															0	18.5	0.44	1.24	0.0573			0.0573	21.18	21.12	OK	OK	OK
Cold (20ºC)	NWi73	ChC (D.26) (1x)	PPR PN20	32	32	21.2	1	0.00	1.00	3.0E-03					1										3	5	0.29	0.83	0.0562			0.0562	21.12	21.06	OK	OK	OK
Cold (20ºC)	ChC (D.26) (1x)	Br (D.26) (5x)	PPR PN20	25	25	16.6	8	0.00	8.00	3.0E-03				1											2	2	0.26	1.19	1.1504			1.1504	21.06	19.9	OK	OK	OK
Cold (20ºC)	NWi73	Lv (D.26) (3x)	PPR PN20	32	32	21.2	9	0.00	9.00	3.0E-03	3														4.5	13.5	0.38	1.09	0.8203			0.8203	21.12	20.29	OK	OK	OK
Cold (20ºC)	Lv (D.26) (3x)	ChC (D.26) (3x)	PPR PN20	32	25	16.6	6	0.00	6.00	3.0E-03					3										9	9	0.33	1.55	1.3780			1.3780	20.29	18.91	OK	OK	OK
Cold (20ºC)	NWe13	SV15	HDPE PN10	32	40	34	23	0.00	23.00	3.0E-03															0	38.5	0.65	0.72	0.5628		0.50	1.0628	24.9	23.83	OK	OK	OK
Cold (20ºC)	SV15	NWi74	PPR PN20	40	40	26.6	1	3.00	4.00	3.0E-03															0	38.5	0.65	1.17	0.3127	3.00		3.3127	23.83	20.51	OK	OK	OK
Cold (20ºC)	NWi74	EH (D.20)	PPR PN20	32	32	21.2	11.5	0.00	11.50	3.0E-03															0	12	0.37	1.04	0.9644			0.9644	20.51	19.54	OK	OK	OK
Hot (55ºC)	EH (D.20)	ChH (D.20) (3x)	PPR PN20	32	32	21.2	8.6	0.00	8.60	3.0E-03					3										9	12	0.37	1.04	0.7212		2.00	2.7212	19.54	16.81	OK	OK	OK
Hot (55ºC)	ChH (D.20) (3x)	ChH (D.20) (1x)	PPR PN20	25	20	13.2	10.5	0.00	10.50	3.0E-03					1										3	3	0.27	1.96	4.8430			4.8430	16.81	11.96	OK	OK	OK
Cold (20ºC)	NWi74	NWi75	PPR PN20	40	40	26.6	0.5	0.00	0.50	3.0E-03															0	26.5	0.52	0.94	0.0265			0.0265	20.51	20.48	OK	OK	OK
Cold (20ºC)	NWi75	ChC (D.20) (1x)	PPR PN20	32	32	21.2	1	0.00	1.00	3.0E-03					1										3	5	0.29	0.83	0.0562			0.0562	20.48	20.42	OK	OK	OK
Cold (20ºC)	ChC (D.20) (1x)	Br (D.20) (5x)	PPR PN20	25	25	16.6	8	0.00	8.00	3.0E-03				1											2	2	0.26	1.19	1.1504			1.1504	20.42	19.26	OK	OK	OK
Cold (20ºC)	NWi75	NWi76	PPR PN20	40	40	26.6	5.2	0.00	5.20	3.0E-03															0	21.5	0.47	0.85	0.2308			0.2308	20.48	20.24	OK	OK	OK

Water type	Section		Pipe							Equipments												Flow				Head Loss				Pressure		Verifications		
																						Section	Total									Velocity	Pressure	
	Upstream node	Downstream node	Material	recommended DN	DN	Di	Horizontal Length (Lh)	Vertical Length (Lv)	Length	k	Domestic basin 1/2" - DN15	Washing or Dishwashing machine	Non domestic Wash Basin	WC cistern	Shower	Urinal Flush valve	Bath Tap 3/4" - DN20	Bath Tap 1" - DN25	Taps/ garden/ garage	Sink Tap 1/2" - DN15	Sink Tap 3/4" - DN20	Others (LU)	Shower	Others 100% (l/s)	Section LU	Acum. LU	Calc. Flow	Vel.	Δ_{p_lin}	Geom. Height (Gh)	Local Drop Press.	Δ_{ptot}	Upstream node	Downstream node	Vsection < Vmax	Minimum Pressure	Maxi mum Pressure
				Vmax							1.5	3	3	2	3	3	10	22	5	3	5	1	0.2	1					Lamont's								
				1.25	mm	mm	m	m	m														100%				l/s	m/s	15%	m/m	m/m	m	m.H2O	m.H2O		Verif.	Verif.
Cold (20ºC)	NWi76	Lv (D.20) (3x)	PPR PN20	32	32	21.2	9	0.00	9.00	3.0E-03	3														4.5	13.5	0.38	1.09	0.8203			0.8203	20.24	19.41	OK	OK	OK
Cold (20ºC)	Lv (D.20) (3x)	ChC (D.20) (3x)	PPR PN20	32	25	16.6	6	0.00	6.00	3.0E-03					3										9	9	0.33	1.55	1.3780			1.3780	19.41	18.03	OK	OK	OK
Cold (20ºC)	NWi76	Ll (D.22) (2x)	PPR PN20	32	25	16.6	3.75	0.00	3.75	3.0E-03									1	1					8	8	0.32	1.50	0.8126			0.8126	20.24	19.42	OK	OK	OK
Cold (20ºC)	NWe14	SV16	HDPE PN10	25	32	27.2	2	0.00	2.00	3.0E-03															0	12	0.37	0.64	0.0523		0.50	0.5523	23.45	22.89	OK	OK	OK
Cold (20ºC)	SV16	Ll1 (K.24) (2x)	PPR PN20	32	32	21.2	2	3.00	5.00	3.0E-03										2					6	12	0.37	1.04	0.4193	3.00		3.4193	22.89	19.47	OK	OK	OK
Cold (20ºC)	Ll1 (K.24) (2x)	Ll2 (K.24) (2x)	PPR PN20	32	32	21.2	3	0.00	3.00	3.0E-03										2					6	6	0.30	0.86	0.1797			0.1797	19.47	19.29	OK	OK	OK
Cold (20ºC)	NWe15	SV17	HDPE PN10	40	50	42.6	1	0.00	1.00	3.0E-03															0	68	0.95	0.67	0.0163		0.50	0.5163	23.39	22.87	OK	OK	OK
Cold (20ºC)	SV17	NWi77	PPR PN20	50	50	33.2	0.5	3.00	3.50	3.0E-03															0	68	0.95	1.10	0.1868	3.00		3.1868	22.87	19.68	OK	OK	OK
Cold (20ºC)	NWi77	NWi78	PPR PN20	40	40	26.6	12	0.00	12.00	3.0E-03															0	34	0.60	1.09	0.8276			0.8276	19.68	18.85	OK	OK	OK
Cold (20ºC)	NWi78	Ch (k.22) (4x)	PPR PN20	32	32	21.2	4.2	0.00	4.20	3.0E-03					4										12	12	0.37	1.04	0.3522			0.3522	18.85	18.49	OK	OK	OK
Cold (20ºC)	NWi78	Br1 (k.22) (4x)	PPR PN20	40	40	26.6	4.6	0.00	4.60	3.0E-03				4											8	22	0.47	0.86	0.2085			0.2085	18.85	18.64	OK	OK	OK
Cold (20ºC)	Br1 (k.22) (4x)	NWi78a	PPR PN20	32	32	21.2	4.5	0.00	4.50	3.0E-03															0	14	0.39	1.10	0.4168			0.4168	18.64	18.22	OK	OK	OK
Cold (20ºC)	NWi78a	Br2 (k.22) (4x)	PPR PN20	32	32	21.2	7	0.00	7.00	3.0E-03				4											8	8	0.32	0.92	0.4724			0.4724	18.22	17.74	OK	OK	OK
Cold (20ºC)	NWi78a	Lv (k.22) (4x)	PPR PN20	32	25	16.6	4.7	0.00	4.70	3.0E-03	4														6	6	0.30	1.40	0.9013			0.9013	18.22	17.31	OK	OK	OK
Cold (20ºC)	NWi77	NWi79	PPR PN20	40	40	26.6	12	0.00	12.00	3.0E-03															0	34	0.60	1.09	0.8276			0.8276	19.68	18.85	OK	OK	OK
Cold (20ºC)	NWi79	Ch (k.20) (4x)	PPR PN20	32	32	21.2	4.2	0.00	4.20	3.0E-03					4										12	12	0.37	1.04	0.3522			0.3522	18.85	18.49	OK	OK	OK
Cold (20ºC)	NWi79	Br1 (k.20) (4x)	PPR PN20	40	40	26.6	4.6	0.00	4.60	3.0E-03				4											8	22	0.47	0.86	0.2085			0.2085	18.85	18.64	OK	OK	OK
Cold (20ºC)	Br1 (k.20) (4x)	NWi79a	PPR PN20	32	32	21.2	4.5	0.00	4.50	3.0E-03															0	14	0.39	1.10	0.4168			0.4168	18.64	18.22	OK	OK	OK
Cold (20ºC)	NWi79a	Br2 (k.20) (4x)	PPR PN20	32	32	21.2	7	0.00	7.00	3.0E-03				4											8	8	0.32	0.92	0.4724			0.4724	18.22	17.74	OK	OK	OK
Cold (20ºC)	NWi79a	Lv (k.20) (4x)	PPR PN20	32	25	16.6	4.7	0.00	4.70	3.0E-03	4														6	6	0.30	1.40	0.9013			0.9013	18.22	17.31	OK	OK	OK
Cold (20ºC)	NWe15	SV18	HDPE PN10	32	40	34	21	0.00	21.00	3.0E-03															0	41	0.67	0.75	0.5524		0.50	1.0524	23.39	22.33	OK	OK	OK
Cold (20ºC)	SV18	NWi80	PPR PN20	40	40	26.6	1	3.00	4.00	3.0E-03															0	41	0.67	1.22	0.3368	3.00		3.3368	22.33	18.99	OK	OK	OK
Cold (20ºC)	NWi80	EH (K.12)	PPR PN20	32	32	21.2	6	0.00	6.00	3.0E-03															0	18	0.43	1.23	0.6774			0.6774	18.99	18.31	OK	OK	OK
Hot (55ºC)	EH (K.12)	NHi13	PPR PN20	32	32	21.2	4	0.00	4.00	3.0E-03															0	18	0.43	1.23	0.4516		2.00	2.4516	18.31	15.85	OK	OK	OK
Hot (55ºC)	NHi13	LIH (K.12)	PPR PN20	25	25	16.6	1	0.00	1.00	3.0E-03										1					3	3	0.27	1.24	0.1547			0.1547	15.85	15.69	OK	OK	OK
Hot (55ºC)	NHi13	LIH1 (K.04) (3x)	PPR PN20	32	32	21.2	25	0.00	25.00	3.0E-03										3					9	15	0.40	1.14	2.4669			2.4669	15.85	13.38	OK	OK	OK
Hot (55ºC)	LIH1 (K.04) (3x)	LIH1 (K.04) (2x)	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03										2					6	6	0.30	0.86	0.2096			0.2096	13.38	13.17	OK	OK	OK
Cold (20ºC)	NWi80	NWi81	PPR PN20	40	32	21.2	1	0.00	1.00	3.0E-03															0	23	0.48	1.38	0.1384			0.1384	18.99	18.85	OK	OK	OK
Cold (20ºC)	NWi81	LIC (K.12)	PPR PN20	25	25	16.6	1.5	0.00	1.50	3.0E-03										1					3	3	0.27	1.24	0.2320			0.2320	18.85	18.61	OK	OK	OK
Cold (20ºC)	NWi81	NWi82	PPR PN20	40	32	21.2	2.9	0.00	2.90	3.0E-03															0	20	0.45	1.29	0.3562			0.3562	18.85	18.49	OK	OK	OK
Cold (20ºC)	NWi82	Tap	PPR PN20	32	25	16.6	1.5	0.00	1.50	3.0E-03									1						5	5	0.29	1.35	0.2697			0.2697	18.49	18.22	OK	OK	OK
Cold (20ºC)	NWi82	LIC1 (K.04) (3x)	PPR PN20	32	32	21.2	22	0.00	22.00	3.0E-03										3					9	15	0.40	1.14	2.1709			2.1709	18.49	16.31	OK	OK	OK
Cold (20ºC)	LIC1 (K.04) (3x)	LIC1 (K.04) (2x)	PPR PN20	32	32	21.2	3.5	0.00	3.50	3.0E-03										2					6	6	0.30	0.86	0.2096			0.2096	16.31	16.1	OK	OK	OK