Appendix A: Vacant buildings Amsterdam

Appendix B: Catalogue

Appendix C: Excel lists of materials

Appendix D: Details and technical drawings

Appendix E: Calculation R-value, Calculation Sanitary pipes (tables), calculation ventilation (tables)

Appendix F: Size calculation timber floors and ceilings per span

Appendix G: Calculations floor loads current buildings

Appendix H: Case study floor plans

Appendix I: Costs and pricing of modular elements

Appendix J: Excel file scores TPC

Appendix K: Java code

Appendix A

Vacant buildings Amsterdam

Database Structurally vacant office buildings
Amsterdam

Suitability for hotels

	General								*Location*							*Building characterstics*						
Nr	Name	Address	Building year	gFA (m2)	Years vacant	% Vacant	Str Vac?	TotVac	District	Unemployed low skilled workers	Lot of water	Major City Projects	Market focus	Total	TtlB	Grid	Material	Plan	Facade	Column	Floortype	Basement
1	de Utrecht	Damrak 28-30		2000	6	100	YES	2000	Centrum			1	1	2	1	Central core	Concrete	Open plan	Load bearing	In facade		Unusable or absent
6		Spuistraat 175		8300	4	100	YES	8300	Centrum				1	1	1	Single corridor	Brick	Open plan	Non load bearing	Inside		Unusable or absent
7	Instantia	Dam 17-21		2000	5	100	YES	2000	Centrum				1	1	1	Other	Brick	Open plan	Non load bearing	Inside		Unusable or absent
9	Mees Pierson	Rokin 17-55		14500	2	100	NO		Centrum				1	1	0	Single corridor	Concrete	Open plan	Non load bearing	Inside		Unusable or absent
12	Paleis van Justitie	Prinsengracht 432-436	1825	15000	0	100	NO		Centrum				1	1	0	Single corridor	Brick	Open plan	Load bearing	In facade		Unusable or absent
19		Keizersgracht 251		1100	5	100	YES	1100	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
20	Antonius	Keizersgracht 271-275	1955	3400	4	100	YES	3400	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
21	Lucius	Keizersgracht 277	1967	2300	4	100	YES	2300	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
22	Marcus	Keizersgracht 279-283		2800	4	100	YES	2800	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
23	Romanus	Keizersgracht 285	1975	3700	4	100	YES	3700	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
24	Titus	Keizersgracht 287	1979	4800	4	100	YES	4800	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
28		Huidekoperstraat 26-28	1975	3400	3	100	YES	3400	Centrum				1	1	1							
39	Swanenburch	Herengracht 571		1200	7	100	YES	1200	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
40		Herengracht 576	1668	2000	10	100	YES	2000	Centrum				1	1	1	Other	Brick	Interior walls	Load bearing			Unusable or absent
46		Maassluitsstraat 414-416	1965	1300	5	85	YES	1105	Nieuw-West			1	1	2	1							
48	Boudewijn	Anderlechtlaan 175	2001	3000	5	60	YES	1800	Nieuw-West			1		1	1							
50	Trivium	Derkinderenstraat 2-24	2000	9400	5	61	YES	5734	Nieuw-West			1		1	1							
51		Jan Tooropstraat 109	1962	3300	3	100	YES	3300	Nieuw-West			1	1	2	1							
53		Johan Huizingalaan 761	1976	14000	8	54	YES	7560	Nieuw-West			1	1	2	1							
54	Tiara	John M Keynesplein 12-46	2002	10500	10	100	YES	10500	Nieuw-West			1		1	1							

55	Carilon	Plein 40-45 nr 5-10	1971	5600	7	75	YES	4200	Nieuw-West	1		1		2	1									
61		Overschiestraat 178	1990	1600	5	100	YES	1600	Nieuw-West			1		1	1									
62	l'Arche Bleu	Overschiestraat 180	1990	2900	8	66	YES	1914	Nieuw-West			1		1	1									
63		Overschiestraat 182	1990	3300	0	100	NO		Nieuw-West			1	1	2	0									
64	West End	Overschiestraat 61	1991	4100	3	100	YES	4100	Nieuw-West			1		1	1									
65	Lumen	Vlaardingenlaan 15	1973	8000	6	100	YES	8000	Nieuw-West			1		1	1									
66	Rijkswaterstaete	Rijswijkstraat 175	1969	7400	7	100	YES	7400	Nieuw-West			1		1	1									
69		Prins Bernhardplein 200	1991	20400	1	100	NO		Oost					0	0									
72	Villa Frizeau	Fizeaustraat 2	1972	5100	8	100	YES	5100	Oost					0	0									
79		Weesperzijde 99		2900	3	100	YES	2900	Oost				1	1	1									
81	de Studio	Bos en Lommerplantsoen 1	1960	38600	7	100	YES	38600	Nieuw-West	1		1		2	1									
82	Bullpoint	Molenwerf 1-3	1981	14000	8	100	YES	14000	Nieuw-West	1				1	1									
83	Amsterdam Business Centre	Nieuwpoorstraat 82-98	1990	10600	7	58	YES	6148	Nieuw-West	1				1	1									
84	vml Elseviergebouw	Sara Burgerhartstraat 25	1962	9600	6	100	YES	9600	Nieuw-West	1		1		2	1									
85		Overtoom 57	1969	1500	4	100	YES	1500	Nieuw-West	1	1			2	1									
87	de Admiraal	Baarsjesweg 224	1977	11600	3	55	YES	6380	Nieuw-West	1	1	1	1	4	1									
88	Alpha Towers	Zekeringstraat 32-34	2000	4900	5	90	YES	4410	Westpoort					0	0									
89	Penta Trade Park	Zekeringstraat 33	2000	2400	10	100	YES	2400	Westpoort					0	0									
93		Basisweg 10	1974	40000	5	50	YES	20000	Westpoort				1	1	1									
97		Radarweg 50		3600	3	100	YES	3600	Westpoort					0	0									
98		Condensatorweg 54		8900	2	100	NO		Westpoort					0	0									
99	Telegate	Arlandaweg 10-28	1990	4800	7	60	YES	2880	Westpoort					0	0									
101	Telespy B	Carrascoplein 11-19	2002	3000	9	100	YES	3000	Westpoort				1	1	1									
102	Teletechcenter	Heathrowstraat 3	1990	2800	9	100	YES	2800	Westpoort					0	0									
103	Teletechcenter	Heathrowstraat 5	1990	2800	5	100	YES	2800	Westpoort					0	0									
104	Q-port	Kingsfordweg 43-117	2002	15400	10	70	YES	10780	Westpoort					0	0									
105	The Dam	La Guardiaweg 5-7	1994	38800	9	100	YES	38800	Westpoort				1	1	1									
107	Busitel 1	Orlyplein 69-97	1988	11400	9	79	YES	9006	Westpoort				1	1	1									
111	Apollo	Apollolaan 153	1960	5600	4	100	YES	5600	Zuid		1			1	1									

113	Buitenveste	Van Heenvlietlaan 220	1974	11300	10	94	YES	10622	Zuid					0	0							
114		AJ Ernststraat 3-157	1968	3300	4	100	YES	3300	Zuid					0	0							
118	Noordhollandstaete	Noordhollandstraat 71	1972	4000	4	93	YES	3720	Zuid					0	0							
119	Zwaansvliet	Zwaansvliet 20	1965	2900	5	100	YES	2900	Zuid					0	0							
120	Zwaansvliet	Zwaanslvliet 5	1966	3200	3	100	YES	3200	Zuid					0	0							
124		Karel du Jardinstraat 61-67	1916	6800	2	100	NO		Zuid		1		1	2	0							
126	Officia 3	De Klencke 10-12	1989	6800	3	100	YES	6800	Zuid				1	1	1							
127	Tripolis	Burgerweeshuispad 101-131	1993	7600	3	100	YES	7600	Zuid		1			1	1							
129		President Kennedyplantsoen 1-3	1990	3900	3	100	YES	3900	Zuid		1	1		2	1							
131		Prinses Irenestraat 31-33	1974	7800	4	100	YES	7800	Zuid		1	1	1	3	1							
135	Straman House	Burg. Stramanweg 101	1989	6600	4	73	YES	4818	Zuidoost	1				1	1							
136	Mercurius	Henkerbergweg 145-179	2004	12500	8	90	YES	11250	Zuidoost	1		1	1	3	1							
137		Hessenbergweg 73-83	1999	2800	3	100	YES	2800	Zuidoost	1		1	1	3	1							
139	Bridge Building	Hettenheuvelweg 45-47	1986	2800	10	100	YES	2800	Zuidoost	1		1	1	3	1							
140	Smith	Hogehilweg 10	1987	4200	5	67	YES	2814	Zuidoost	1		1	1	3	1							
141	La Reine	Hogehilweg 17	1985	4600	8	57	YES	2622	Zuidoost	1		1	1	3	1							
142	Prismatrium	Hogehilweg 18	1990	3100	9	100	YES	3100	Zuidoost	1		1	1	3	1							
145		Hogehilweg 21	1983	10600	0	100	NO		Zuidoost	1		1	1	3	0							
146		Hogehilweg 22	1984	15600	10	100	YES	15600	Zuidoost	1		1	1	3	1							
148	Saturnus	Hogehilweg 5	1985	3600	5	71	YES	2556	Zuidoost	1		1	1	3	1							
149	Keynes	Hogehilweg 8	1985	4900	10	57	YES	2793	Zuidoost	1		1	1	3	1							
160	Arena Tower	Hoogoorddreef 66-68	1989	26800	5	100	YES	26800	Zuidoost	1		1		2	1							
161		Hullenbergweg 109-135	2000	5900	4	100	YES	5900	Zuidoost	1		1	1	3	1							
162	Vogelstruys	Hullenbergweg 278-308	1999	8500	5	100	YES	8500	Zuidoost	1		1	1	3	1							
163		Hullenbergweg 385-411	1999	3800	3	87	YES	3306	Zuidoost	1		1	1	3	1							
164		Hullenbergweg 95-107	2000	9400	4	57	YES	5358	Zuidoost	1		1	1	3	1							
165	Waterland	Karspeldreef 2	1989	5500	1	100	NO		Zuidoost	1		1	1	3	0							
167		Kuiperbergweg 33	1989	2000	2	100	NO		Zuidoost	1		1		2	0							
169	De Poort	Paalbergweg 44-66	2000	5800	10	91	YES	5278	Zuidoost	1		1		2	1							

170	Holendrecht Centre	Paalbergweg 9-11	1982	33400	5	94	YES	31396	Zuidoost	1		1		2	1									
172		Paasheuvelweg 3	2000	4100	10	71	YES	2911	Zuidoost	1		1		2	1									
173		Paasheuvelweg 31	1989	1400	3	100	YES	1400	Zuidoost	1		1		2	1									
174		Paasheuvelweg 8	1988	2700	10	100	YES	2700	Zuidoost	1		1		2	1									
175	Aqua Plaza	Paasheuvelweg 9	2003	8800	9	55	YES	4840	Zuidoost	1		1		2	1									
177	Escher Toren	De Entree 199-273	2002	19700	1	100	NO		Zuidoost	1		1		2	0									
178	Margriettoren	Haaksbergweg 75	1994	11400	3	72	YES	8208	Zuidoost	1		1		2	1									
181		Frankemaheerd 2	1978	17100	2	100	NO		Zuidoost	1				1	0									
183		Frankemaheerd 4	1978	3500	2	100	NO		Zuidoost	1				1	0									
184		Frankemaheerd 6	1981	8700	2	100	NO		Zuidoost	1				1	0									
185		Frankemaheerd 8	1979	2500	2	100	NO		Zuidoost	1				1	0									
189	Vijverhof	Dalsteindreef 17-47	1981	10900	7	72	YES	7848	Diemen					0	0									
190	Vijverstede	Dalsteindreef 58-92	1981	9900	9	74	YES	7326	Diemen					0	0									
191	Business Point East	Eekholt 2	1986	5100	5	100	YES	5100	Diemen					0	0									
192	Quadrant	Eekholt 24-26	1980	5300	8	100	YES	5300	Diemen					0	0									
193	Quadrant	Eekholt 24-26	1981	7600	8	100	YES	7600	Diemen					0	0									
194	Cannenburgh	Eekholt 30	1982	5700	10	100	YES	5700	Diemen					0	0									
195	Wildenborch	Wildenborch 1	1979	5000	5	100	YES	5000	Diemen					0	0									
196		Wildenborch 2	1979	3400	4	100	YES	3400	Diemen					0	0									
197	Borchstaete	Wildenborch 4	1980	3600	4	100	YES	3600	Diemen					0	0									
199	Sphinxstaete	Diemerhof 20-26	1992	7700	10	64	YES	4928	Diemen					0	0									
200		Diemermere 1-7	1987	7900	5	100	YES	7900	Diemen					0	0									
201		Nieuwe Vaart 5-9		6800	0	100	NO		Centrum					0	0									
202		Weesperstraat 105a	1995	5800	0	100	NO		Centrum					0	0									
203	Metropool	Weesperstraat 61-105		14400	0	69	NO		Centrum					0	0									
206		Laan van Vlaanderen 141	2000	2100	6	67	YES	1407	Nieuw-West					0	0									
209		Grasweg 29	1928/1935	7900	3	100	YES	7900	Noord	1	1	1	1	4	1									
210		Klaprozenweg 75		7700	5	60	YES	4620	Noord	1	1			2	1									
212	Factsheet	Molenwerf 2-10	1999	21193	1	100	NO		Nieuw-West	1				1	0									

213	Haarlemmerhof	Molenwerf 12-24	2000	14000	1	63	NO		Nieuw-West	1				1	0									
214	Omega Park	Zekeringstraat 41	1991	3200	10	100	YES	3200	Westpoort					0	0									
217	DW10	Donauweg 10	1984	7700	8	51	YES	3927	Westpoort					0	0									
220	Cristal Tower	Hanedastraat 2-50	2002	23700	3	78	YES	18486	Westpoort				1	1	1									
223	Call Center 2	Naritaweg 151-161	1998	3000	4	50	YES	1500	Westpoort					0	0									
224	Busitel 2	Orlyplein 2-74	1992	14200	0	100	NO		Westpoort				1	1	0									
229		Brachthuyzerstraat 4-8	1908	1600	3	100	YES	1600	Zuid		1			1	1									
230		Hessenbergweg 8-10	1987	2300	4	100	YES	2300	Zuidoost	1		1	1	3	1									
235	Friedman	Hogehilweg 4	1987	3800	8	63	YES	2394	Zuidoost	1		1	1	3	1									
236		Hullenbergweg 413-439	1999	3800	3	92	YES	3496	Zuidoost	1		1	1	3	1									
239	White Hill	Paalbergweg 26-36	1991	3400	8	94	YES	3196	Zuidoost	1		1		2	1									
240		Paalbergweg 21-23	2001	15700	1	100	NO		Zuidoost	1		1		2	0									
244		De Entree 202-226	2001	16000	1	100	NO		Zuidoost	1		1		2	0									
245	Oval Tower	De Entree 99-197	2001	26400	1	53	NO		Zuidoost	1		1		2	0									
248		Reigersbos 89-107	1994	4800	1	100	NO		Zuidoost	1				1	0									
249		Wilhelminaplantsoen 1		1300	3	100	YES	1300	Diemen					0	0									
250	Vijverhage	Dalsteindreeg 2-52	1981	10800	8	60	YES	6480	Diemen					0	0									
251	Vijverdam	Dalsteindreeg 53-99	1981	7500	9	100	YES	7500	Diemen					0	0									
252	Vijverpoort	Dalsteindreeg 79-139	1981	12000	9	96	YES	11520	Diemen					0	0									
253	Cannenburgh	Eekholt 32	1982	4300	10	100	YES	4300	Diemen					0	0									
254	Diemer Circle Zuid	Eekholt 40	2000	11000	3	75	YES	8250	Diemen					0	0									
260		Van der Madeweg 41		3400	10	100	YES	3400	Diemen					0	0									
261	Entrada Gebouw D	Entrada 101-164	1989	5400	7	63	YES	3402	Diemen				1	1	1									
262	Barcelona	Entrada 501	1999	3600	8	100	YES	3600	Diemen				1	1	1									
268		De Parelvisserslaan 1	1989	2400	4	100	YES	2400	Amstelveen					0	0									
272		Laan van Kroonenburg 2	1970	20400	8	75	YES	15300	Amstelveen					0	0									
277	Park Plaza	Groen v Prinstererlaan 114-114a		3100	6	100	YES	3100	Amstelveen					0	0									
281		Maalderij 21		2800	8	100	YES	2800	Amstelveen					0	0									
282	Ten Thirty	Burgemeester Rijnderslaan 20-30	1990	50000	2	100	NO		Amstelveen					0	0									

283	World Wide Building	Bouwerij 14-44	1990	7200	10	72	YES	5184	Amstelveen					0	0									
284		Bouwerij 88	1992	1900	10	100	YES	1900	Amstelveen					0	0									
286		Zanderij 29-31		3800	6	100	YES	3800	Amstelveen					0	0									
287		Doctor Willem Dreesweg 6-8	1988	2800	4	100	YES	2800	Amstelveen					0	0									
		140		1144793			115	696873		49	10	52	50		72									
							25	447920		66	105	63	65		43									
						Structurally vacant																		
						Not structurally vacant				0,42608696														

Appendix C

Excel lists of materials

Room	Beams in ceiling				Beams in floor				Column in Wall		
	span (m)	b (mm)	h (mm)	A (m2)	span (m)	b (mm)	h (mm)	A (m2)	b (mm)	d (mm)	A (m2)
1A	6,8	55	340	0,01870	3,0	55	150	0,00825	90	40	0,00360
2A	3,4	55	170	0,00935	1,7	55	85	0,00468	90	40	0,00360
2B	3,4	55	170	0,00935	1,7	55	85	0,00468	90	40	0,00360
3A	2,5	55	125	0,00688	2,5	55	125	0,00688	90	40	0,00360
3B	2,5	55	125	0,00688	2,5	55	125	0,00688	90	40	0,00360
4A	5,0	55	250	0,01375	2,5	55	125	0,00688	90	40	0,00360
5A	3,4	55	170	0,00935	1,7	55	85	0,00468	90	40	0,00360
5B	3,4	55	170	0,00935	1,7	55	85	0,00468	90	40	0,00360
6A	2,5	55	125	0,00688	2,5	55	125	0,00688	90	40	0,00360
6B	2,5	55	125	0,00688	2,5	55	125	0,00688	90	40	0,00360
7A	5,0	55	250	0,01375	2,5	55	125	0,00688	90	40	0,00360

Room 1A	Density (kg/m3)	Amount (#)	Amount (m3)	Weight (kg)	Weight (N)
Timber C18	320		3,05	976,00	9574,56
Rock wool	70		9,72	680,40	6674,72
Staal	7800	4	0,01	48,30	473,82
Plasterboard	1300		1,35	1755,00	17216,55
Timber Door	500	2	0,20	99,00	971,19
OSB	600		3,50	2101,86	20619,23
Gypsum anhydrite	2000		1,41	2819,30	27657,28
Bathroom		1		500,00	4905,00
Total				8979,85	88092,36

Room 2A/B	Density (kg/m3)	Amount (#)	Amount (m3)	Weight (kg)	Weight (N)
Timber C18	320		1,06	339,20	3327,55
Rock wool	70		8,19	573,30	5624,07
Staal	7800	4	0,01	48,30	473,82
Plasterboard	1300		1,14	1478,75	14506,54
Timber Door	500	2	0,20	99,00	971,19
OSB	600		1,71	1023,39	10039,47
Gypsum anhydrite	2000		0,67	1333,16	13078,25
Bathroom		1		500,00	4905,00
Total				5395,10	52925,90

Room 3A	Density (kg/m3)	Amount (#)	Amount (m3)	Weight (kg)	Weight (N)
Timber C18	320		0,63	201,60	1977,70
Rock wool	70		6,17	431,55	4233,51
Staal	7800	4	0,00	36,37	356,75
Plasterboard	1300		0,86	1113,13	10919,76
Timber Door	500	2	0,20	99,00	971,19
OSB	600		0,93	557,12	5465,38
Gypsum anhydrite	2000		0,35	707,57	6941,21
Bathroom		1		50,00	490,50
Total				3196,33	31355,99

Room 3B	*Density (kg/m3)*	*Amount (#)*	*Amount (m3)*	*Weight (kg)*	*Weight (N)*
Timber C18	320		0,63	201,60	1977,70
Rock wool	70		6,17	431,55	4233,51
Staal	7800	4	0,00	36,37	356,75
Plasterboard	1300		0,86	1113,13	10919,76
Timber Door	500	2	0,20	99,00	971,19
OSB	600		0,93	557,12	5465,38
Gypsum anhydrite	2000		0,35	707,57	6941,21
Bathroom		1		500,00	4905,00
Total				3646,33	35770,49

Room 4A	*Density (kg/m3)*	*Amount (#)*	*Amount (m3)*	*Weight (kg)*	*Weight (N)*
Timber C18	320		1,50	480,00	4708,80
Rock wool	70		7,29	510,30	5006,04
Staal	7800	4	0,00	36,37	356,75
Plasterboard	1300		1,01	1316,25	12912,41
Timber Door	500	2	0,20	99,00	971,19
OSB	600		1,93	1155,71	11337,55
Gypsum anhydrite	2000		0,77	1530,32	15012,39
Bathroom		1		500,00	4905,00
Total				5627,94	55210,13

Room 5A/B	*Density (kg/m3)*	*Amount (#)*	*Amount (m3)*	*Weight (kg)*	*Weight (N)*
Timber C18	320		0,87	278,40	2731,10
Rock wool	70		6,57	459,90	4511,62
Staal	7800	4	0,00	36,37	356,75
Plasterboard	1300		0,91	1186,25	11637,11
Timber Door	500	2	0,20	99,00	971,19
OSB	600		1,29	772,62	7579,36
Gypsum anhydrite	2000		0,50	1003,76	9846,84
Bathroom		1		500,00	4905,00
Total				4336,29	42538,97

Room 6A	*Density (kg/m3)*	*Amount (#)*	*Amount (m3)*	*Weight (kg)*	*Weight (N)*
Timber C18	320		0,79	252,80	2479,97
Rock wool	70		7,79	544,95	5345,96
Staal	7800	4	0,01	48,30	473,82
Plasterboard	1300		1,08	1405,63	13789,18
Timber Door	500	2	0,20	99,00	971,19
OSB	600		1,23	737,92	7238,95
Gypsum anhydrite	2000		0,47	939,77	9219,09
Bathroom		1		50,00	490,50
Total				4078,35	40008,66

Room 6B	*Density (kg/m3)*	*Amount (#)*	*Amount (m3)*	*Weight (kg)*	*Weight (N)*
Timber C18	320		0,79	252,80	2479,97
Rock wool	70		7,79	544,95	5345,96
Staal	7800	4	0,01	48,30	473,82
Plasterboard	1300		1,08	1405,63	13789,18
Timber Door	500	2	0,20	99,00	971,19
OSB	600		1,23	737,92	7238,95
Gypsum anhydrite	2000		0,47	939,77	9219,09
Bathroom		1		500,00	4905,00
Total				4528,35	44423,16

Room 7A	*Density (kg/m3)*	*Amount (#)*	*Amount (m3)*	*Weight (kg)*	*Weight (N)*
Timber C18	320		1,88	601,60	5901,70
Rock wool	70		8,91	623,70	6118,50
Staal	7800	4	0,01	48,30	473,82
Plasterboard	1300		1,24	1608,75	15781,84
Timber Door	500	2	0,20	99,00	971,19
OSB	600		2,55	1530,91	15018,18
Gypsum anhydrite	2000		1,02	2032,52	19938,97
Bathroom		1		500,00	4905,00
Total				7044,77	69109,19

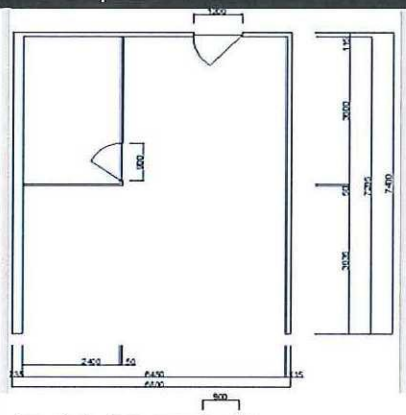
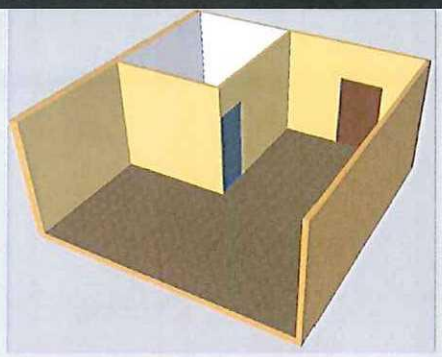
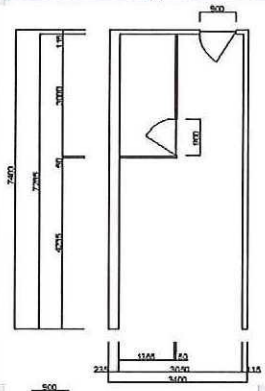
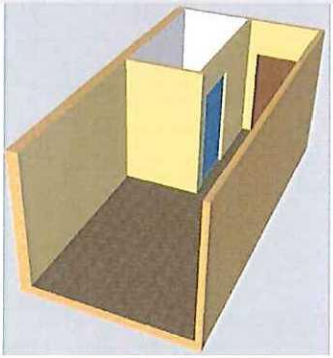
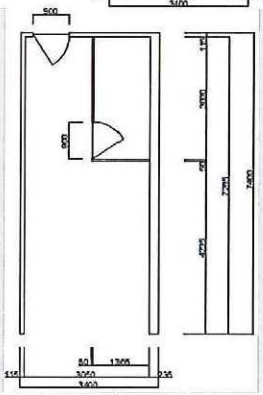
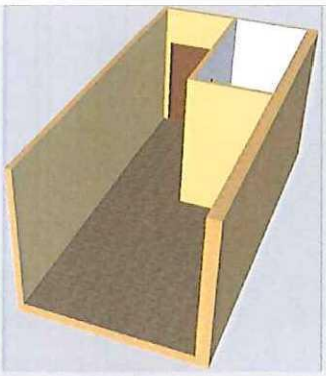
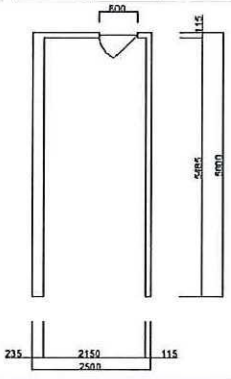
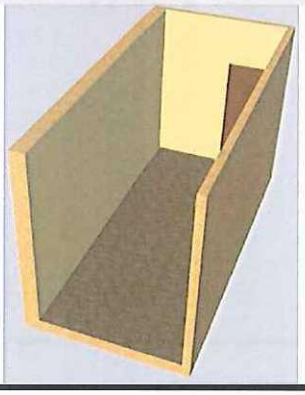
Appendix B

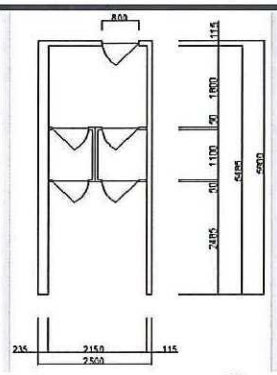
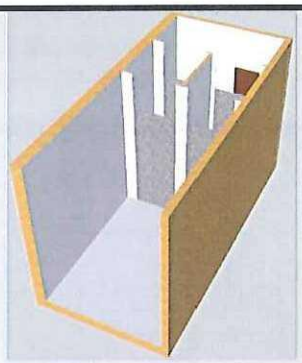
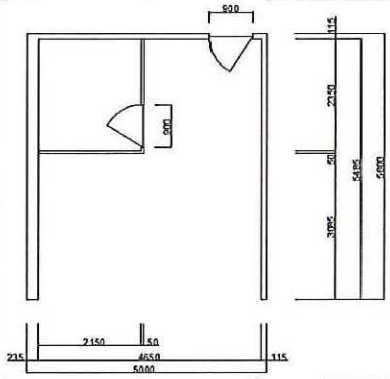
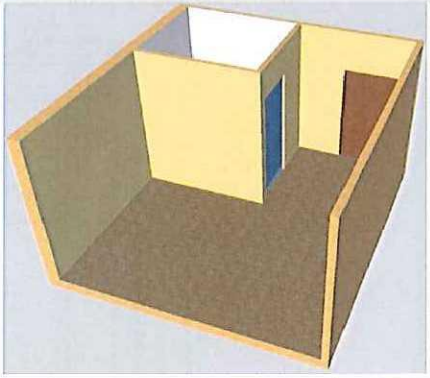
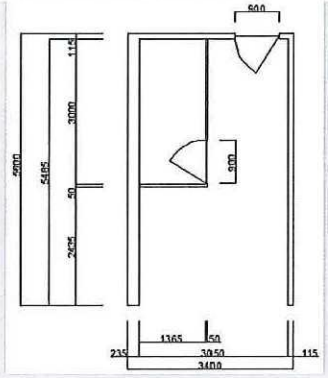
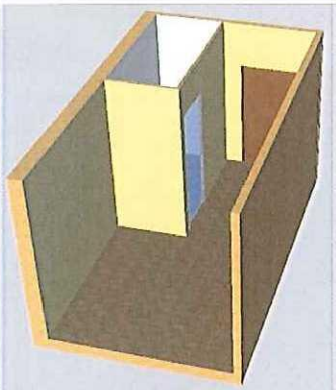
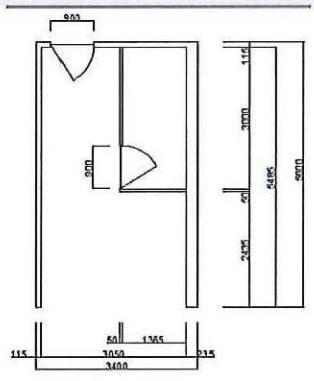
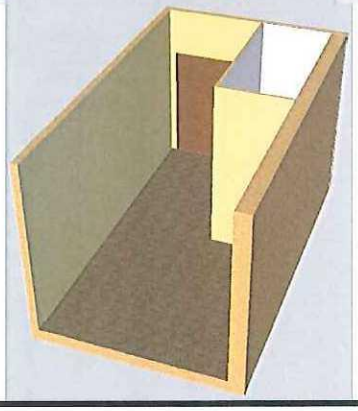
Catalogue

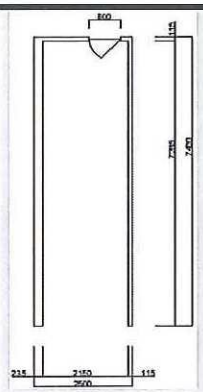
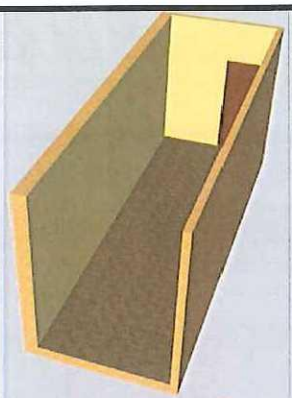
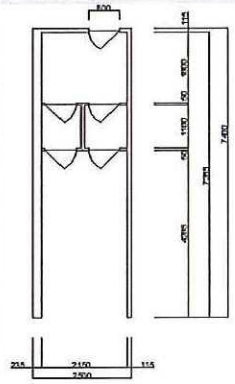
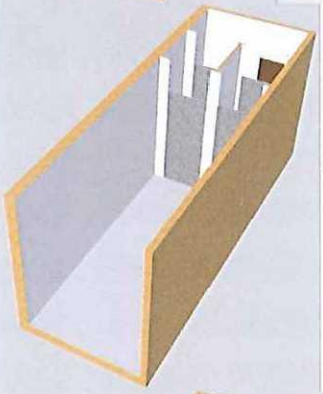
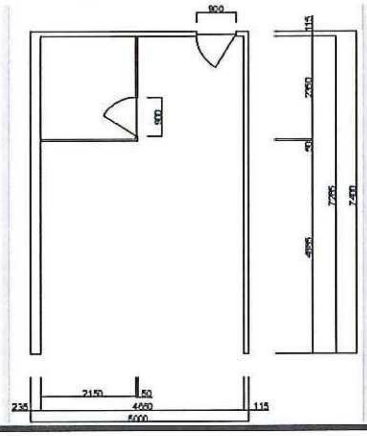
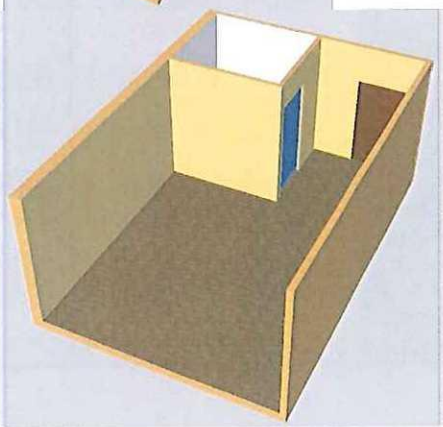
Catalog Modular Hotel

Content

Modular rooms

Type		Grid (m)	Floor plan	3D overview
1	A	7.2x7.2		
2	A	7.2x3.6		
	B			
3	A	5.4x2.7		

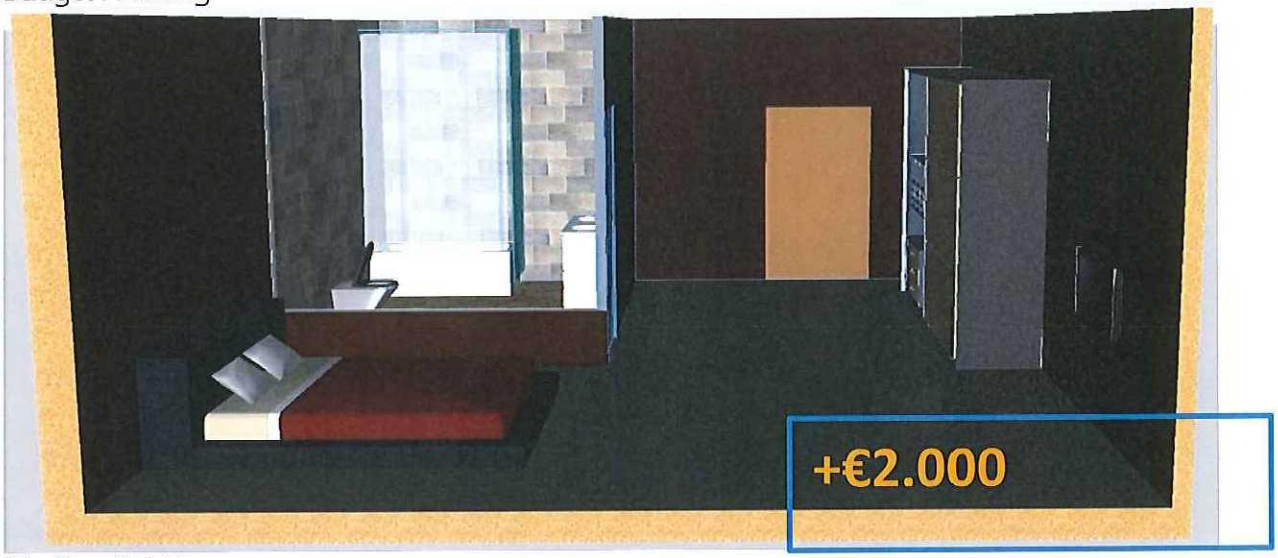
	B			
4	A	5.4x5.4		
5	A	5.4x3.6		
	B			

6	A	7.2x2.7		
	B			
7	A	7.2x5.4		

Finishing levels of rooms

Finishing		Style	Star class eligibility					Room eligibility										
			1	2	3	4	5	1A	2A	2B	3A	3B	4A	5A	5B	6A	6B	7A
Bath-room	Walls	Linoleum	V	V	X	X	X	V	V	V	X	V	V	V	V	X	V	V
		Tiles	V	V	V	V	X	V	V	V	X	V	V	V	V	X	V	V
		Stone shiny black	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
		Stone yellow mat	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
	Floors	Linoleum	V	V	X	X	X	V	V	V	X	V	V	V	V	X	V	V
		Tiles	V	V	V	V	X	V	V	V	X	V	V	V	V	X	V	V
		Stone	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
	Appliances	Shower	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
		Single bath	X	X	V	V	X	V	V	V	X	X	V	V	V	X	X	V
		Double bath	X	X	X	X	V	V	X	X	X	X	V	X	X	X	X	V
		Water closet	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
		Single sink	V	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V
		Double sink	V	V	V	V	V	V	X	X	X	X	V	X	X	X	X	V
Room	Walls	Wallpaper	V	V	V	X	X	V	V	V	X	V	V	V	V	X	V	V
		Stucco	V	V	V	V	X	V	V	V	X	V	V	V	V	X	V	V
		Paint	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
		Vinyl with brick	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
	Floors	Vinyl	V	V	X	X	X	V	V	V	X	V	V	V	V	X	V	V
		Carpet	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
		Laminate	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V
Door	Outside	Wood light	V	V	V	X	X	V	V	V	V	V	V	V	V	V	V	V
		Wood heavy	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
		Steel	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	Bathroom	Wood painted	V	V	V	X	X	V	V	V	X	V	V	V	V	X	V	V
		Wood	V	V	V	V	X	V	V	V	X	V	V	V	V	X	V	V
		Glass	V	V	V	V	V	V	V	V	X	V	V	V	V	X	V	V

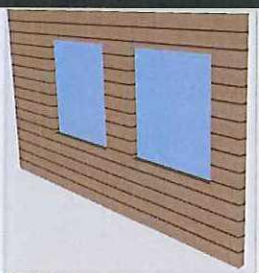
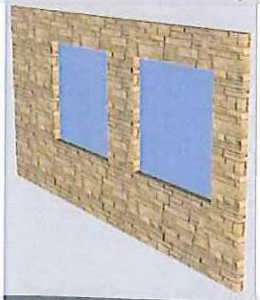
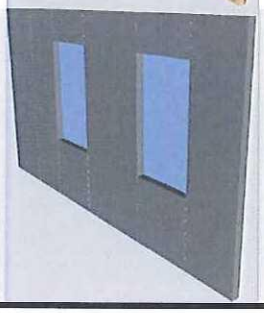
Budget Finishing



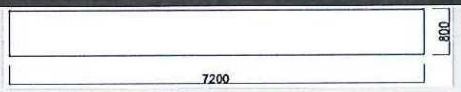
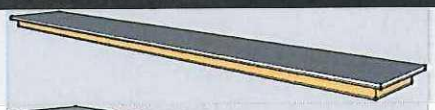
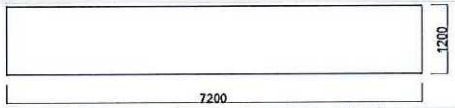
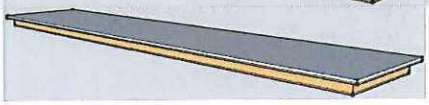
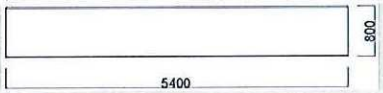
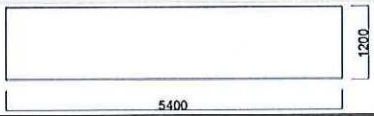
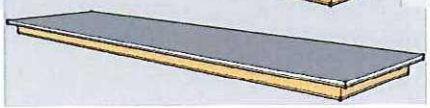
Medium finishing

Luxury finishing

Façade types

Façade type	Material of facade	Material exterior	3D Overview	R-value
1	Timber frame	Timber		4,96 m^2K/W
2	Timber frame	Brick		5,00 m^2K/W
3	Timber frame	Aluminum		4,89 m^2K/W

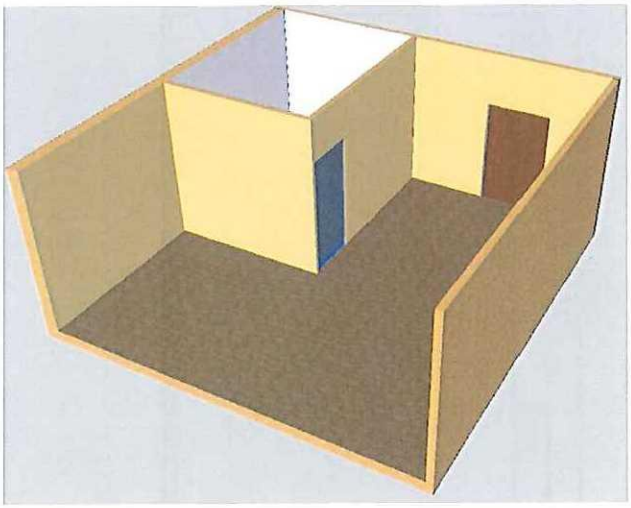
Hallways

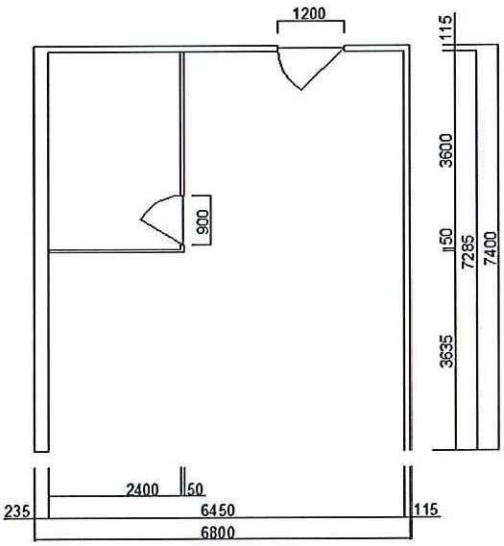
Type		Size (m)	Frame size	3D overview
1	A	7.2x0.8		
	B	7.2x1.2		
2	A	5.4x0.8		
	B	5.4x1.2		

Modular room extended information cards

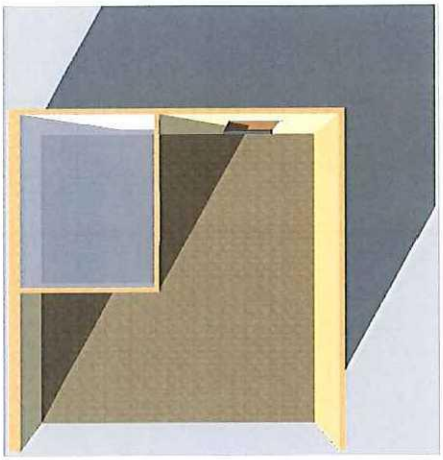
1A	7.2x7.2
2A	7.2x3.6
2B	7.2x3.6
3A	5.4x2.7
3B	5.4x2.7
4A	5.4x5.4
5A	5.4x3.6
5B	5.4x3.6
6A	7.2x2.7
6B	7.2x2.7
7A	7.2x5.4

Room 1A



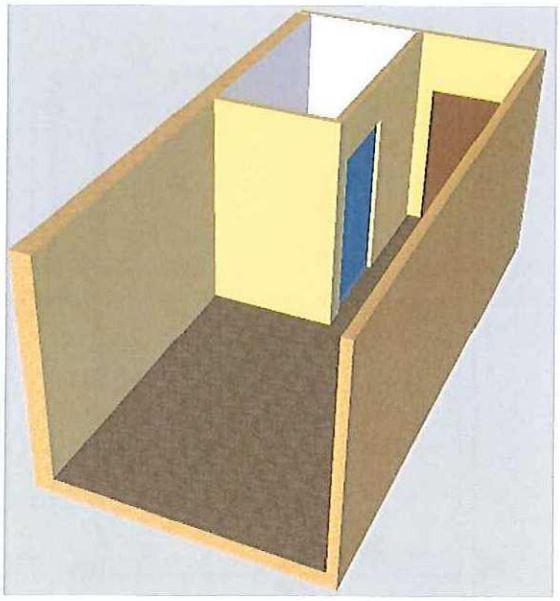


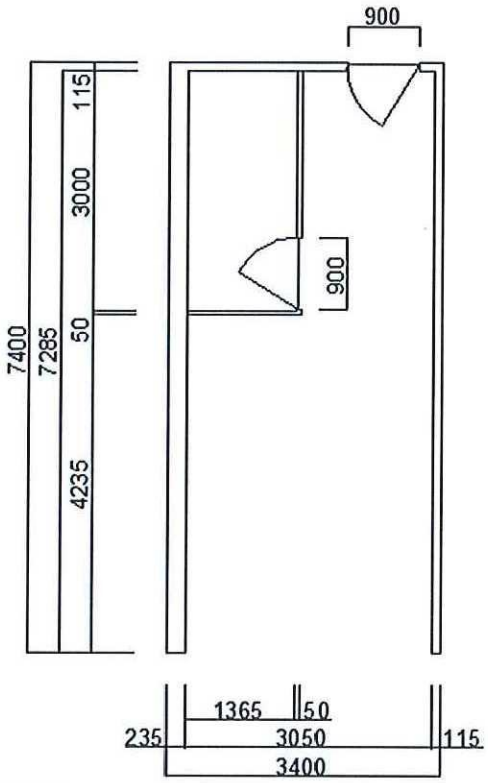
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
						1	2	3	4	5
Room 1A	50,3	47,0	117,5	8938	87,68	V	V	V	V	V



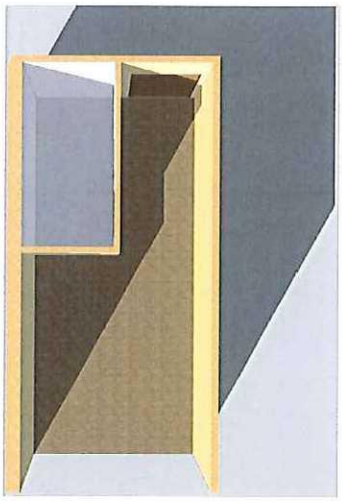
€26.000

Room 2A



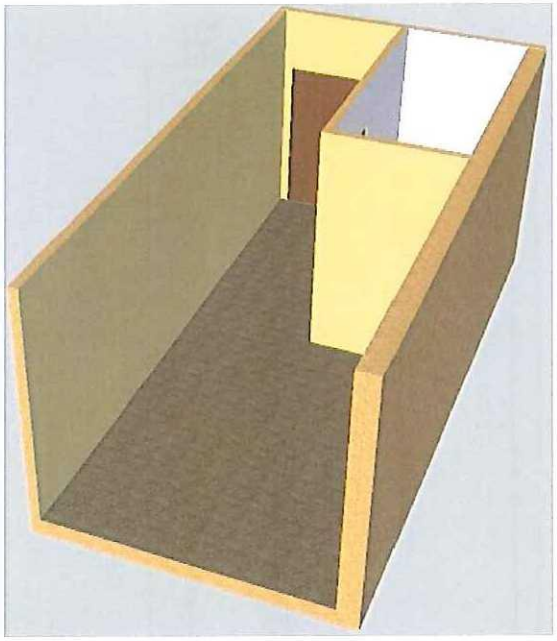


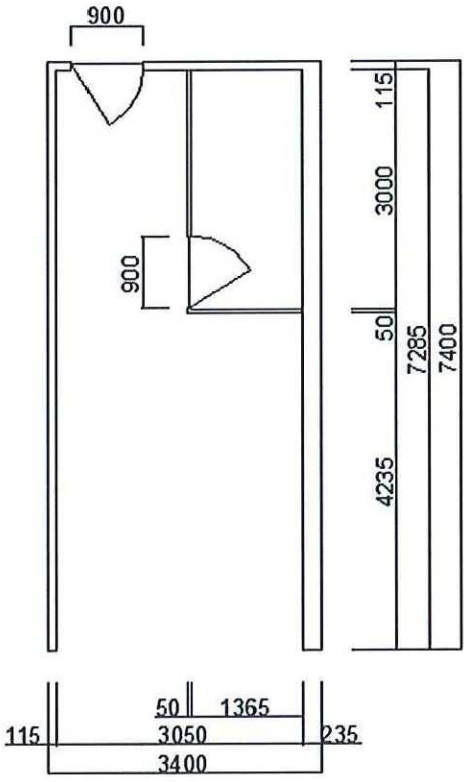
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 2A						1	2	3	4	5
	25,2	22,2	55,5	5395	52,93	V	V	V	V	X



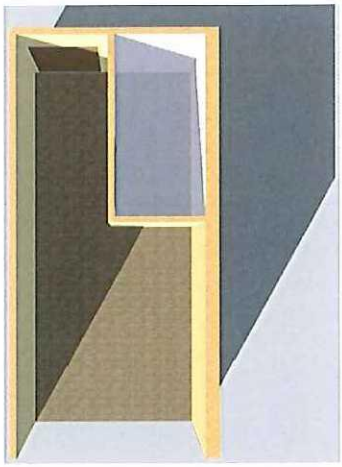
€16.500

Room 2B



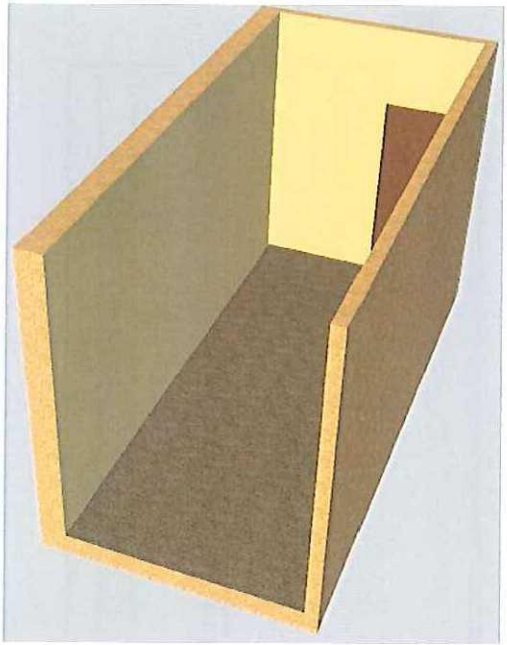


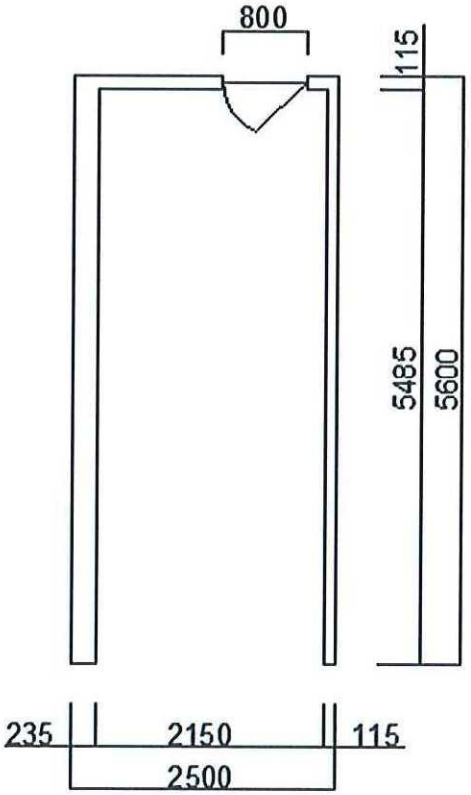
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
						1	2	3	4	5
Room 2B	25,2	22,2	55,5	5395	52,93	V	V	V	V	X



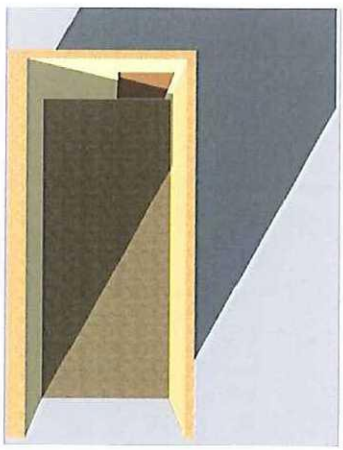
€16.500

Room 3A



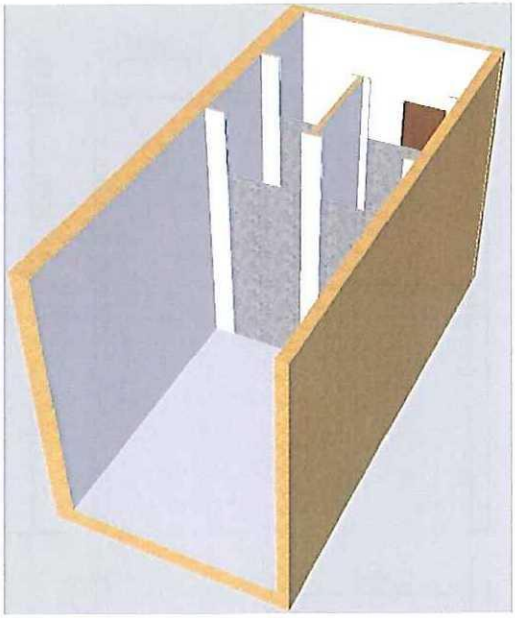


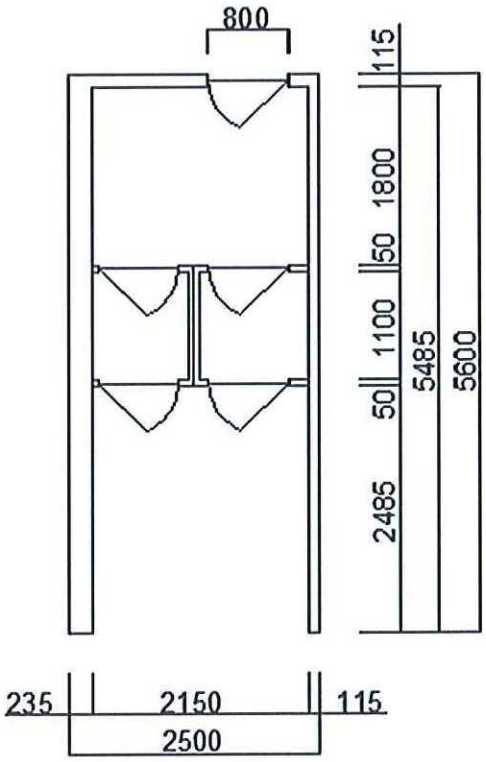
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 3A						1	2	3	4	5
	14,0	11,8	29,5	3196	31,36	V	V	X	X	X



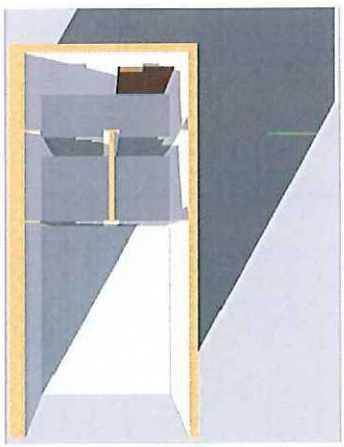
€10.500

Room 3B



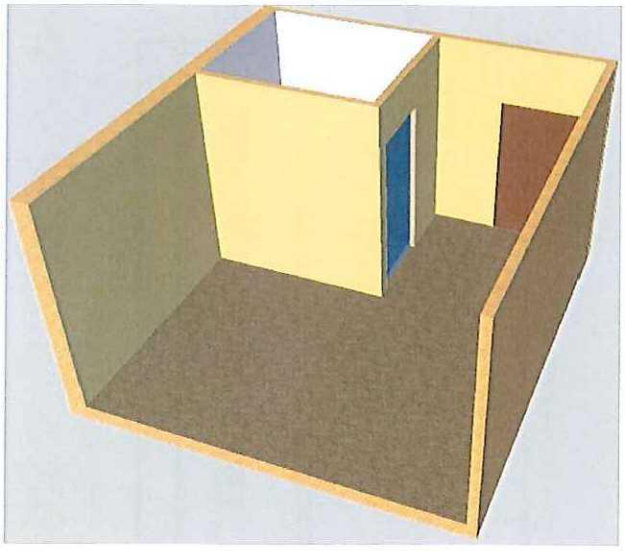


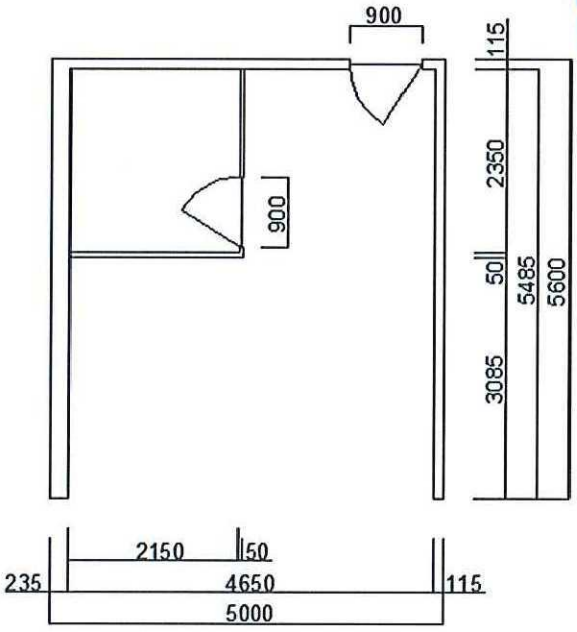
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 3B						1	2	3	4	5
	14,0	11,8	29,5	3646	35,77	V	V	X	X	X



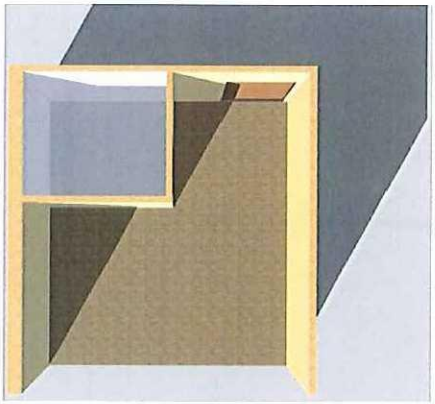
€12.500

Room 4A



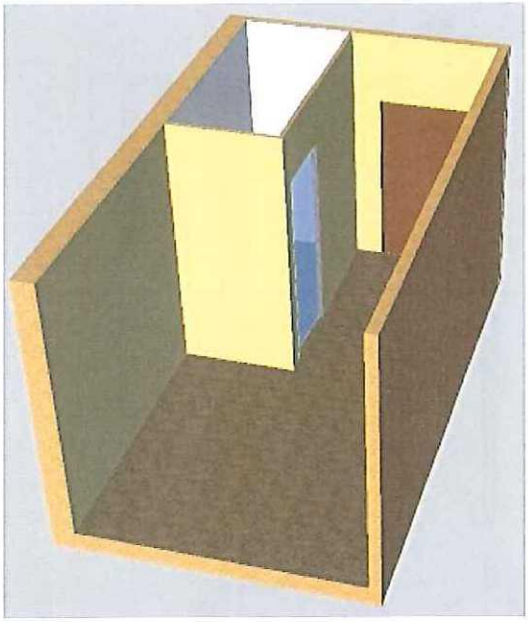


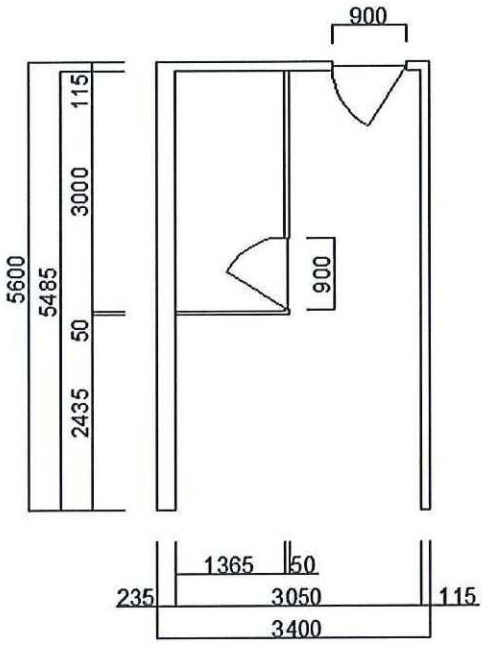
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 4A						1	2	3	4	5
	28,0	25,5	63,8	5628	55,21	V	V	V	V	V



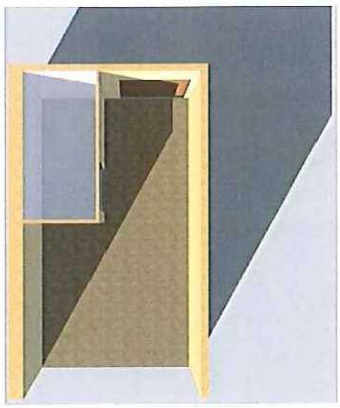
€17.000

Room 5A



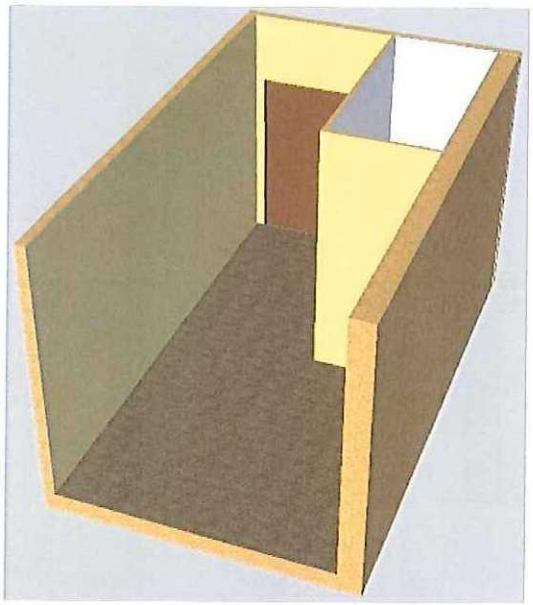


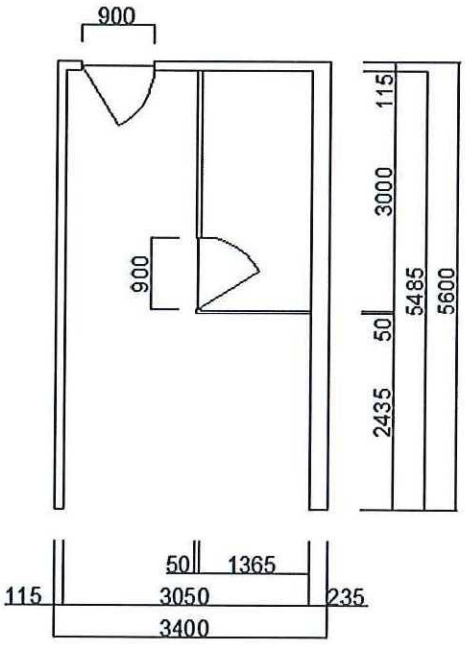
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
						1	2	3	4	5
Room 5A	19,0	17,0	41,8	4336	42,54	X	V	V	V	V



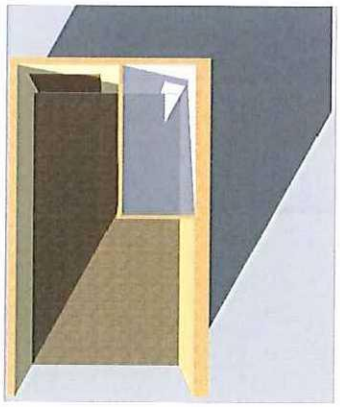
€13.500

Room 5B



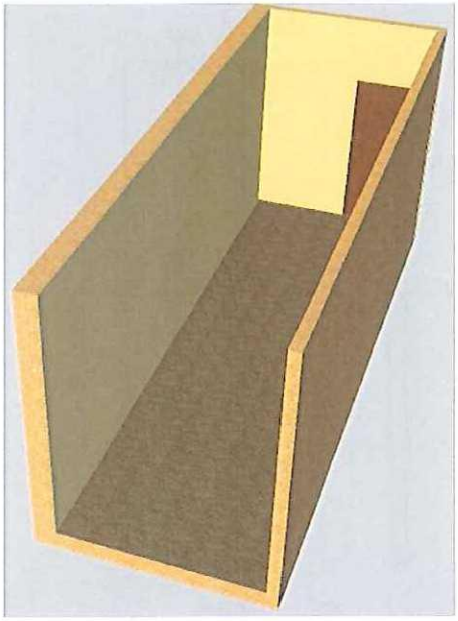


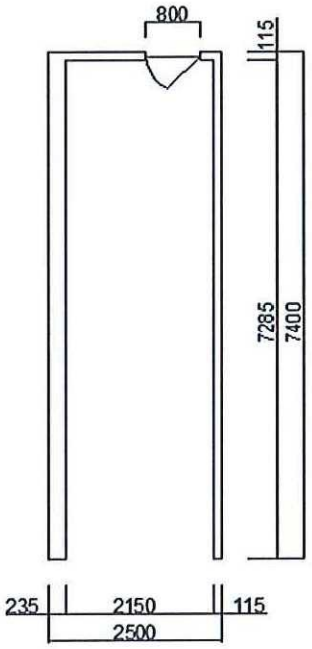
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 5B						1	2	3	4	5
	19,0	17,0	41,8	4336	42,54	X	V	V	V	V



€13.500

Room 6A

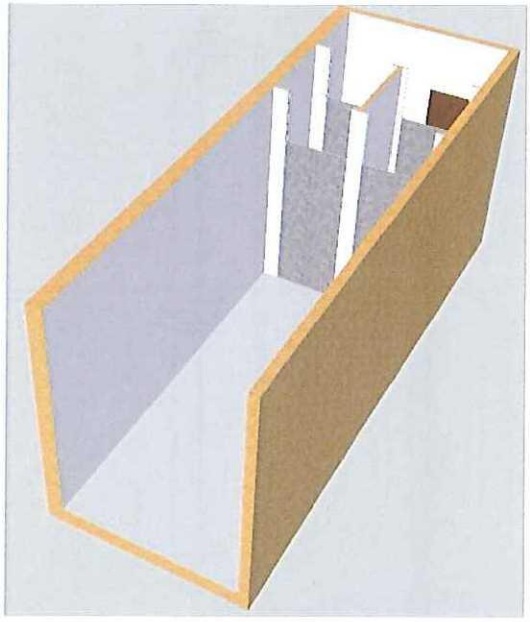


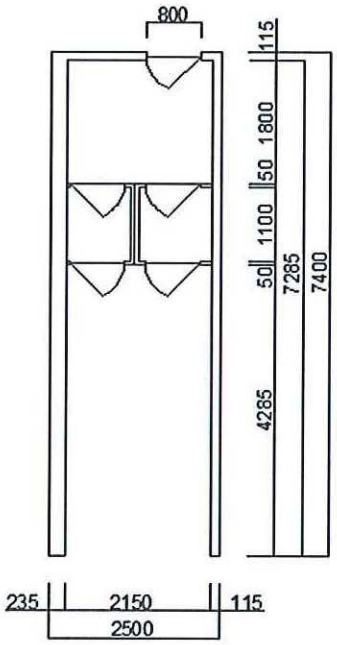


	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 6A						1	2	3	4	5
	18,5	15,6	39,0	4078	40,01	V	V	X	X	X

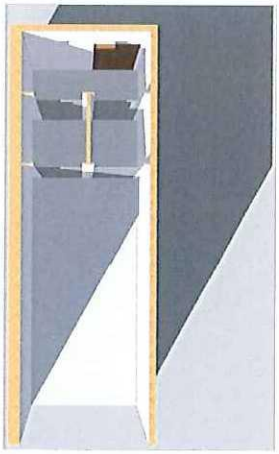
€13.500

Room 6B



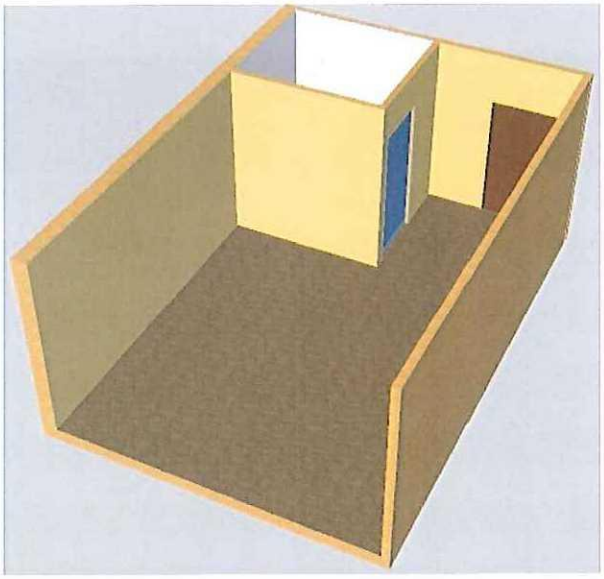


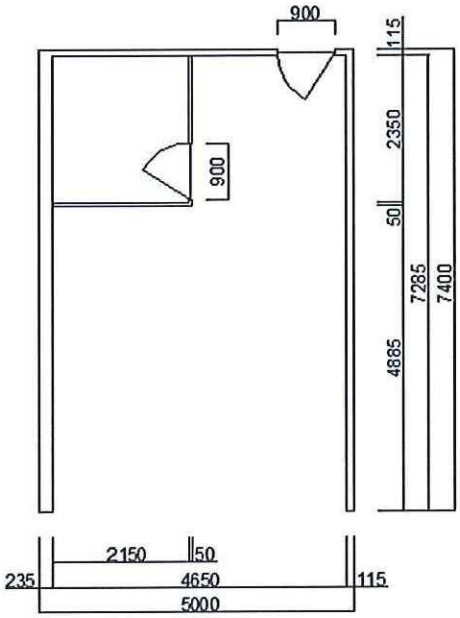
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 6B						1	2	3	4	5
	18,5	15,6	39,0	4528	44,42	V	V	X	X	X



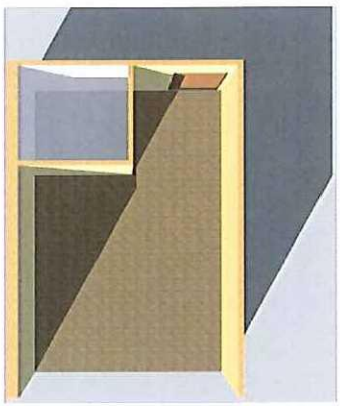
€15.500

Room 7A





	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room 7A						1	2	3	4	5
	37,0	33,9	84,8	7045	69,11	V	V	V	V	V



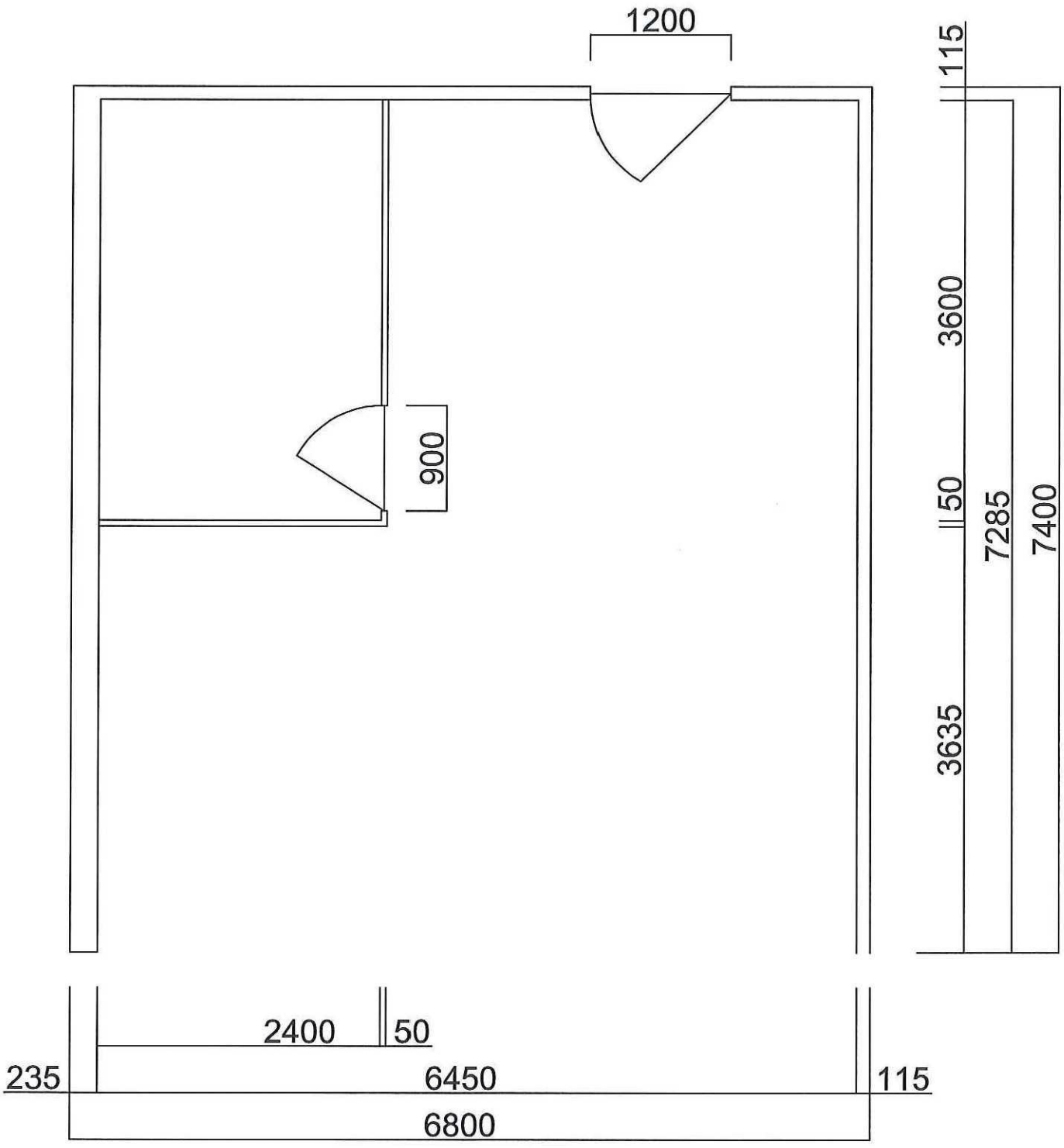
€21.500

Summary Table

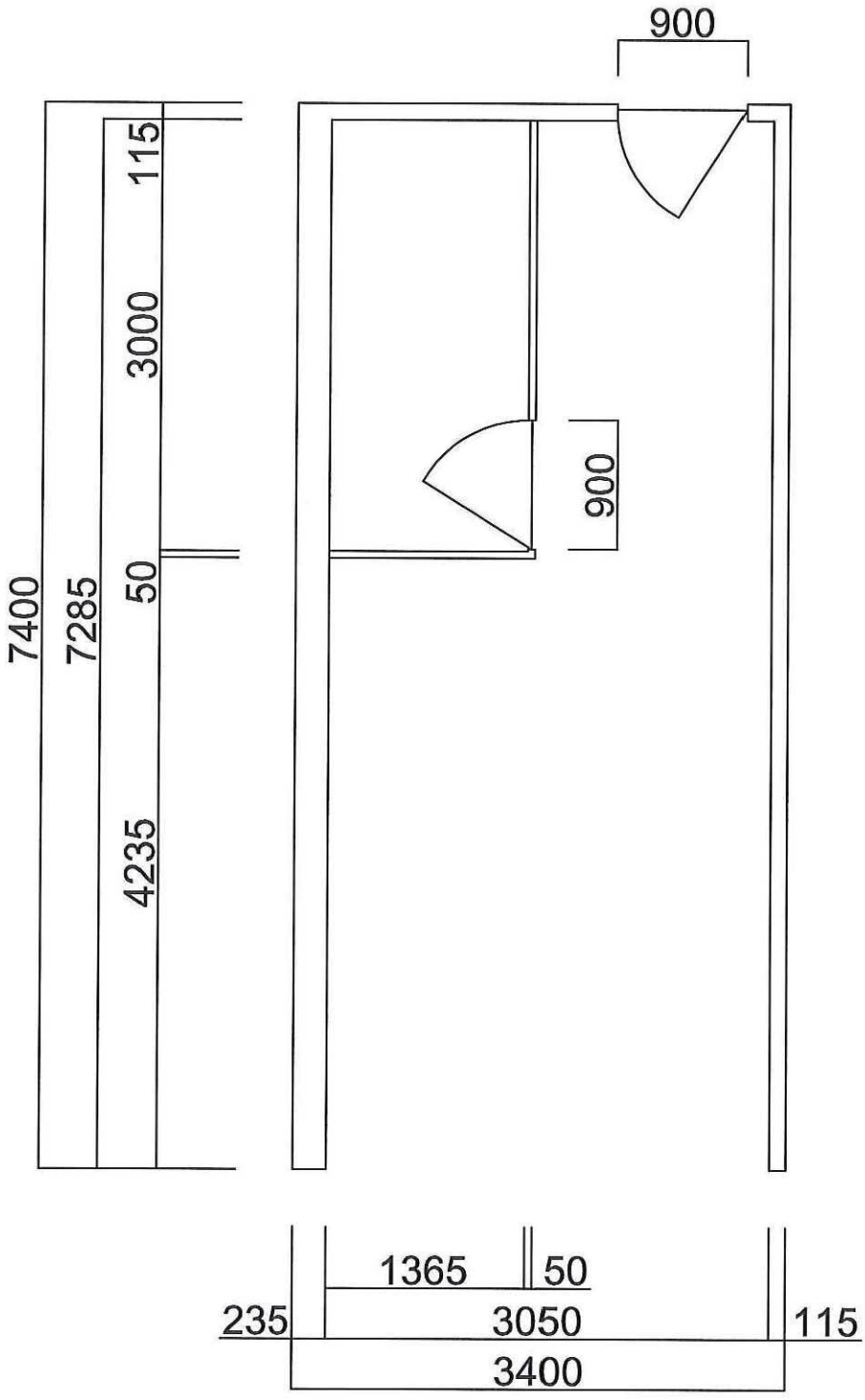
	Area (m^2)	Room area (m^2) (functional)	Room volume (m^3)	Weight (kg)	Weight (kN)	Star class eligibility				
Room						1	2	3	4	5
1A	50,3	47,0	117,5	8938	87,68	V	V	V	V	V
2A	25,2	22,2	55,5	5395	52,93	V	V	V	V	X
2B	25,2	22,2	55,5	5395	52,93	V	V	V	V	X
3A	14,0	11,8	29,5	3196	31,36	V	V	X	X	X
3B	14,0	11,8	29,5	3646	35,77	V	V	X	X	X
4A	28,0	25,5	63,8	5628	55,21	V	V	V	V	V
5A	19,0	17,0	41,8	4336	42,54	X	V	V	V	V
5B	19,0	17,0	41,8	4336	42,54	X	V	V	V	V
6A	18,5	15,6	39,0	4078	40,01	V	V	X	X	X
6B	18,5	15,6	39,0	4528	44,42	V	V	X	X	X
7A	37,0	33,9	84,8	7045	69,11	V	V	V	V	V

Appendix D

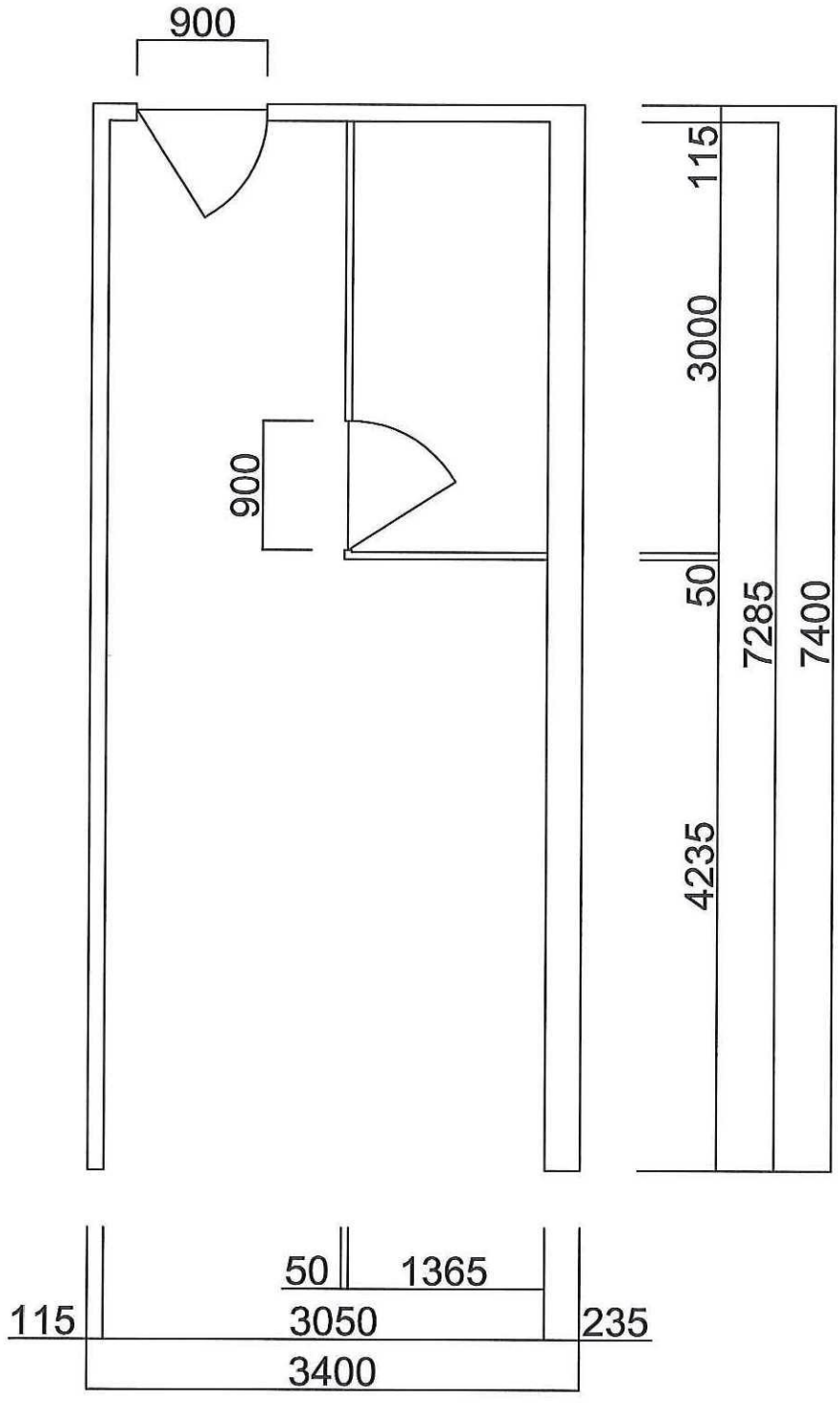
Details and technical drawings



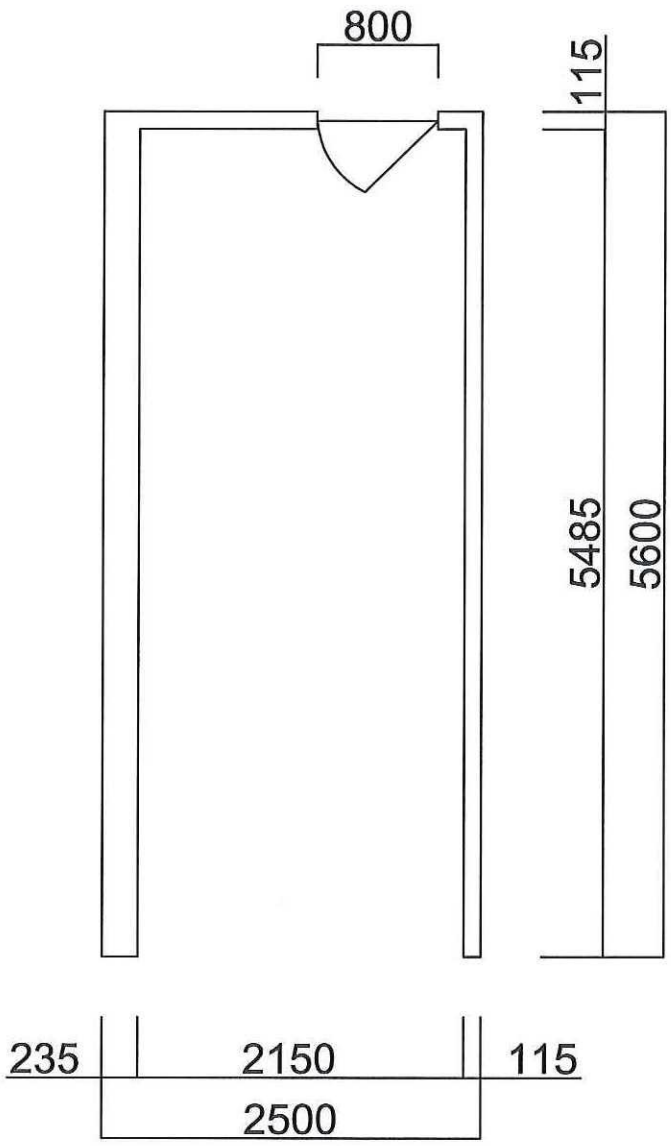
Tekeningnummer	Tekening	Datum
R-1A	Floor plan modular room 1A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



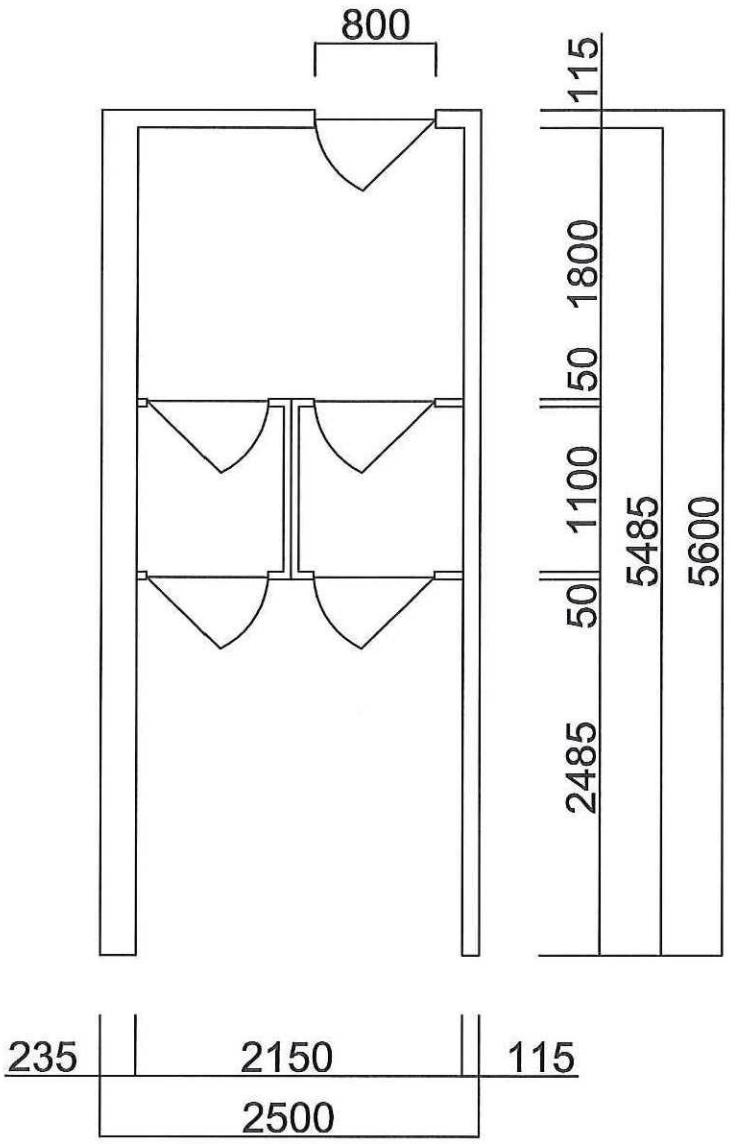
Tekeningnummer	Tekening	Datum
R-2A	Floor plan modular room 2A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



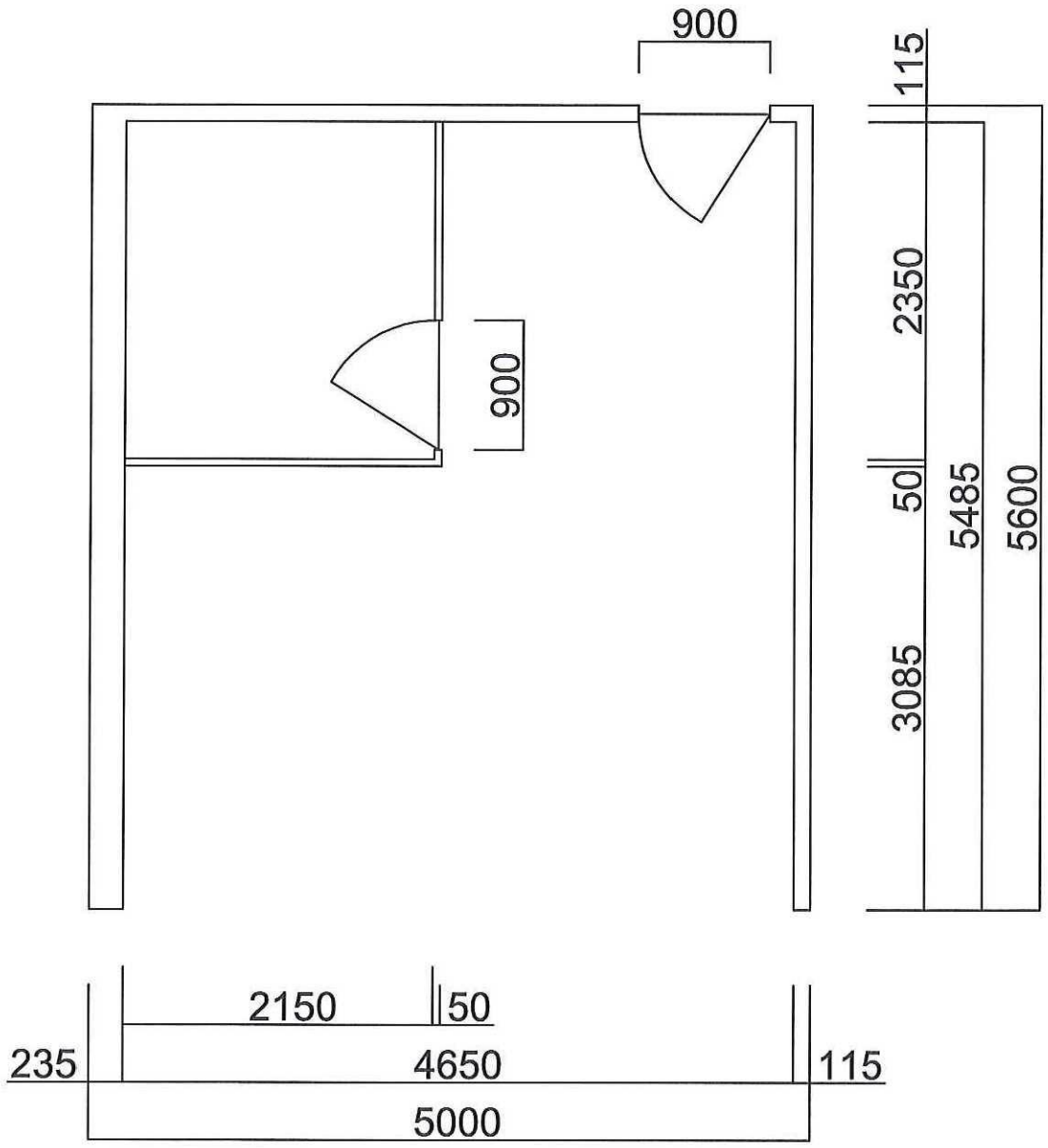
Tekeningnummer	Tekening	Datum
R-2B	Floor plan modular room 2B	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



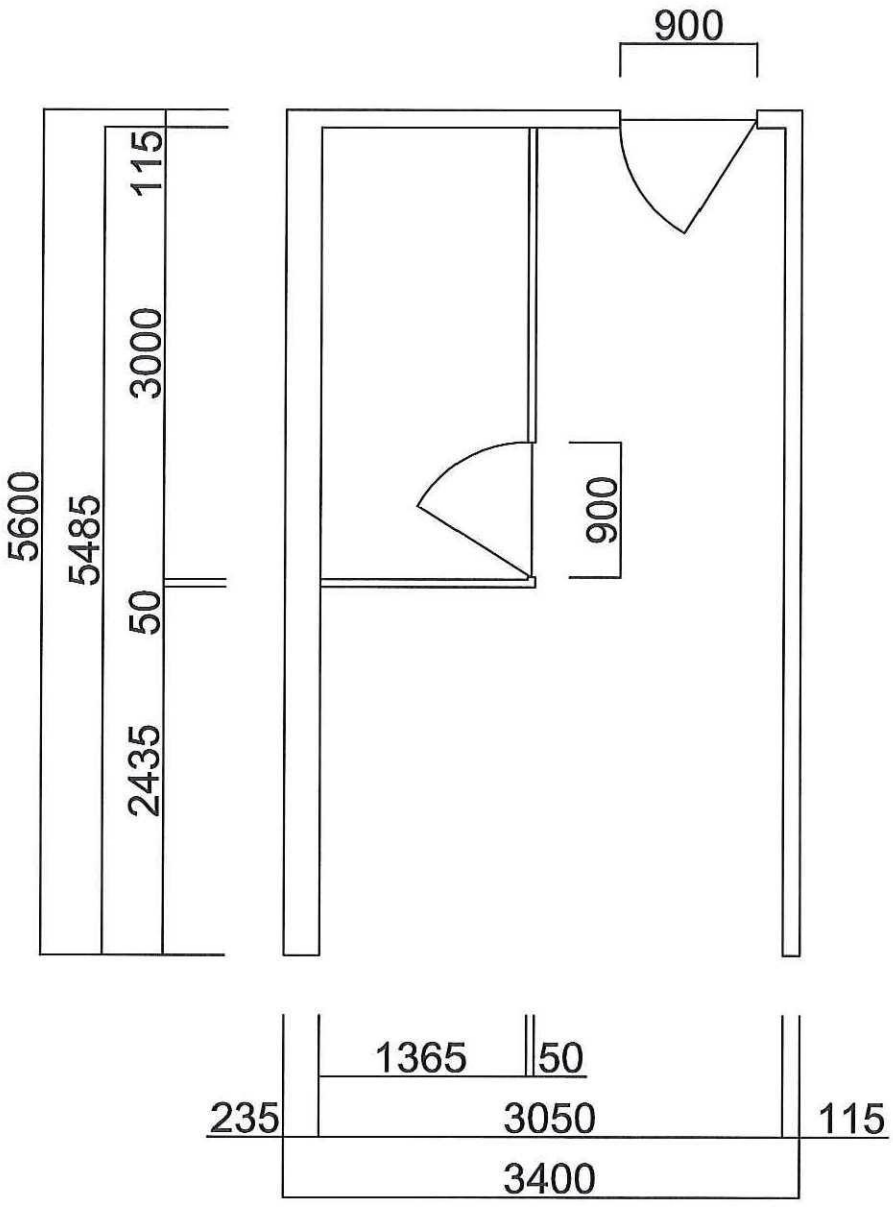
Tekeningnummer	Tekening	Datum
R-3A	Floor plan modular room 3A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



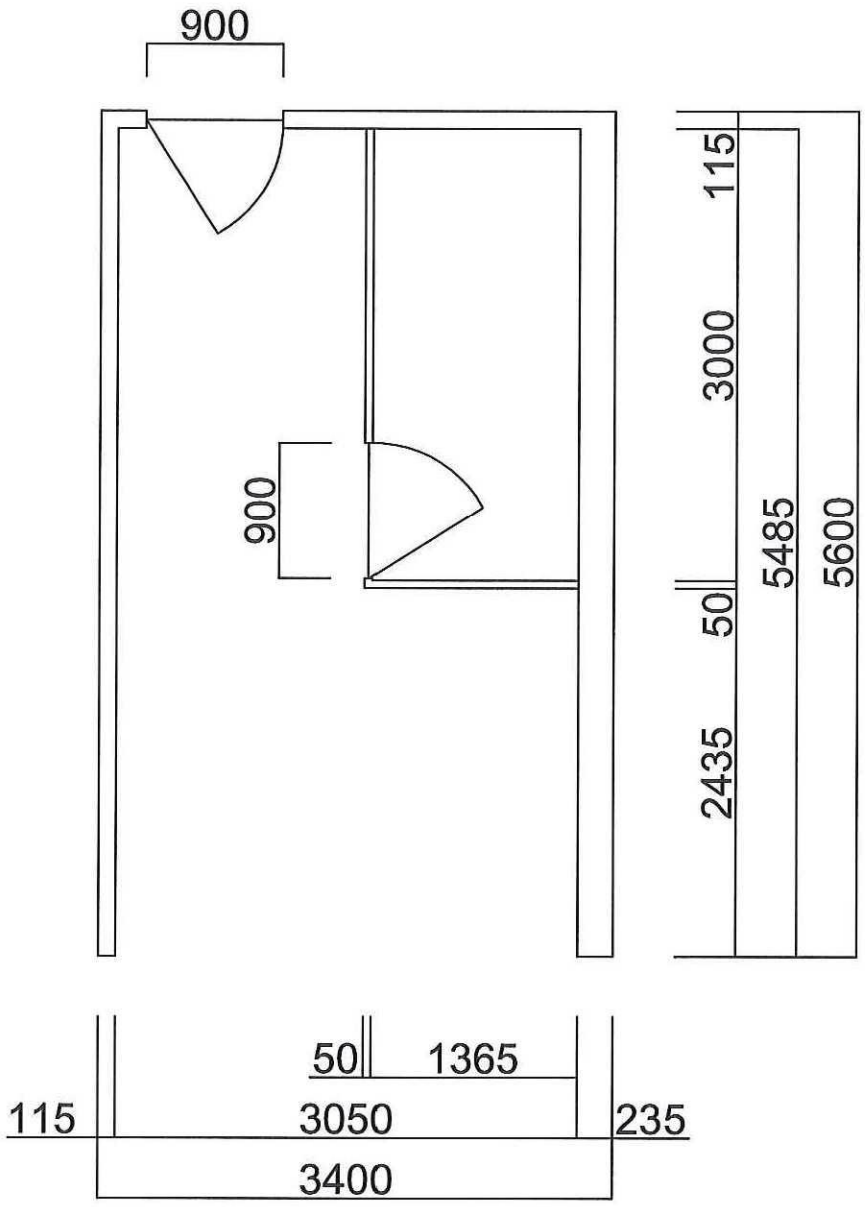
Tekeningnummer	Tekening	Datum
R-3B	Floor plan modular room 3B	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



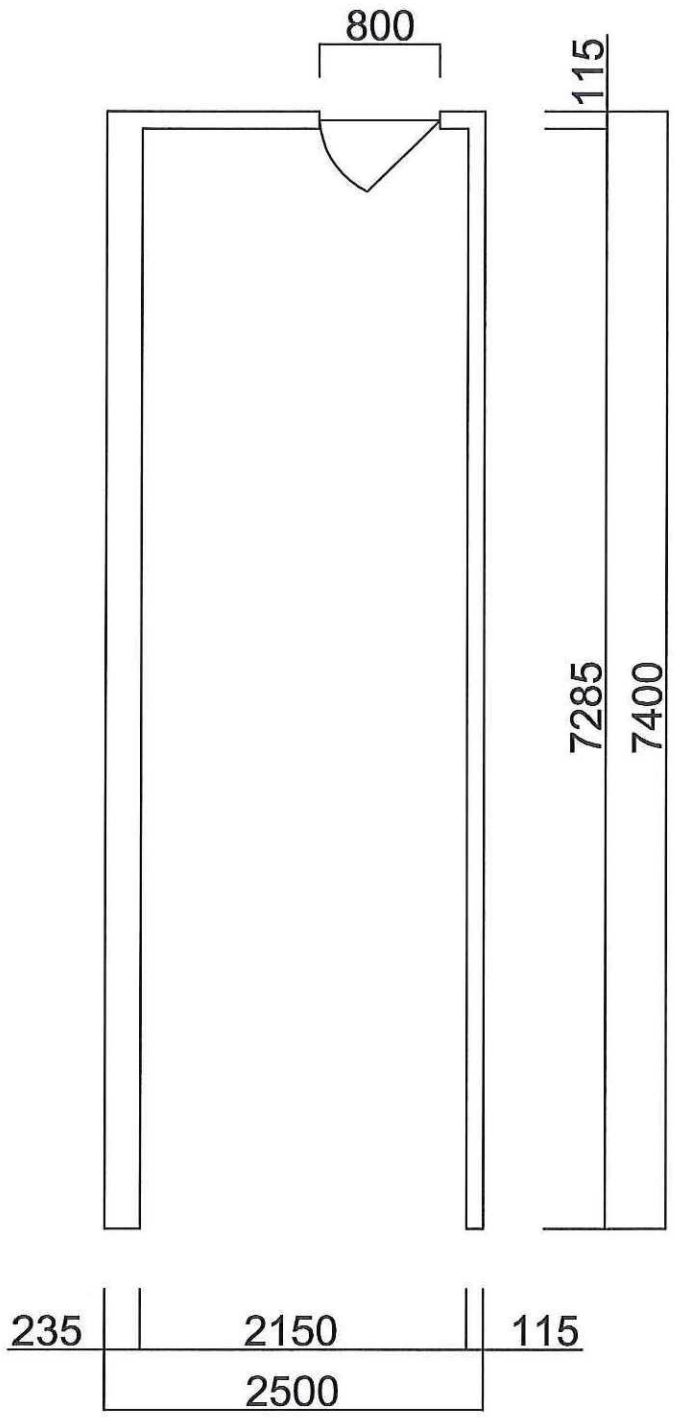
Tekeningnummer	Tekening	Datum
R-4A	Floor plan modular room 4A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



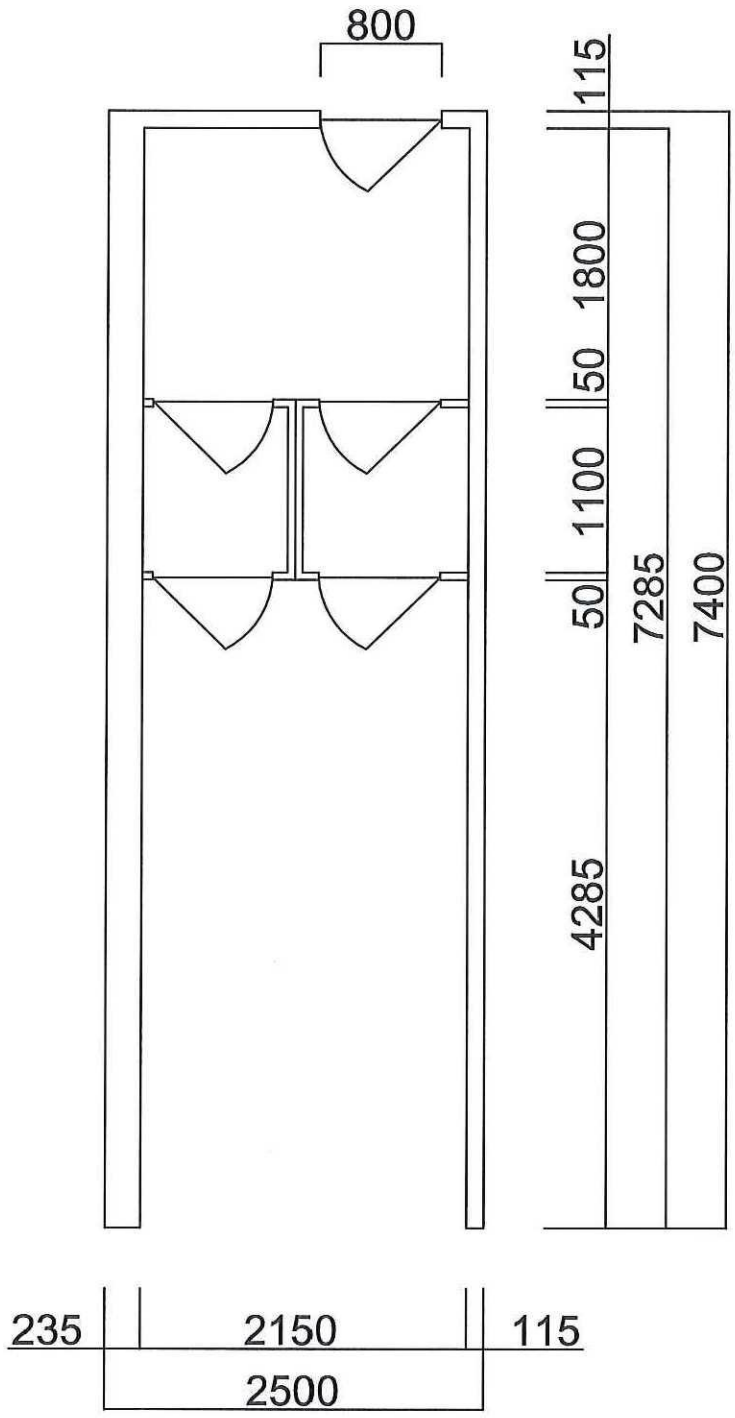
Tekeningnummer	Tekening	Datum
R-5A	Floor plan modular room 5A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



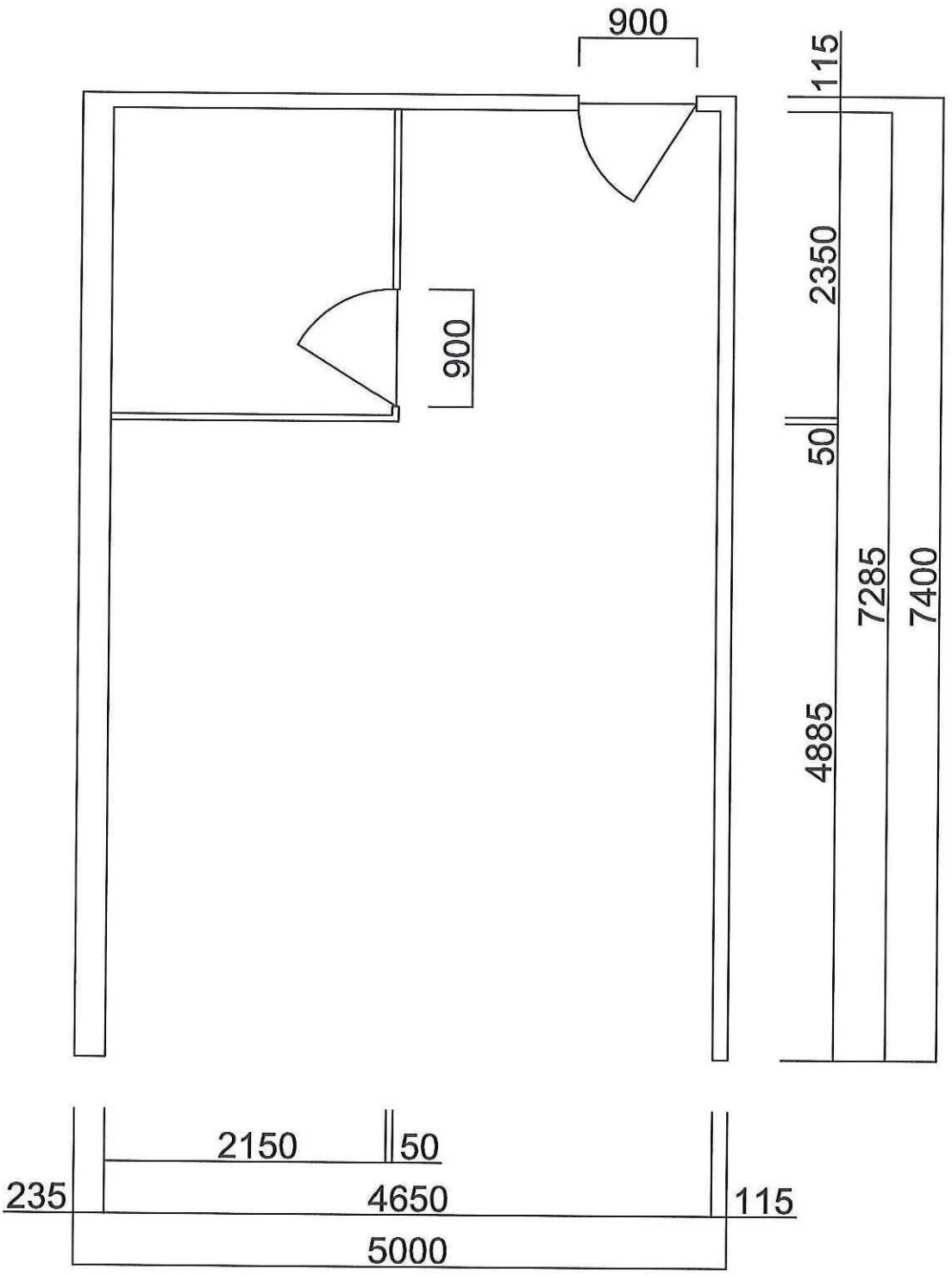
Tekeningnummer	Tekening	Datum
R-5B	Floor plan modular room 5B	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



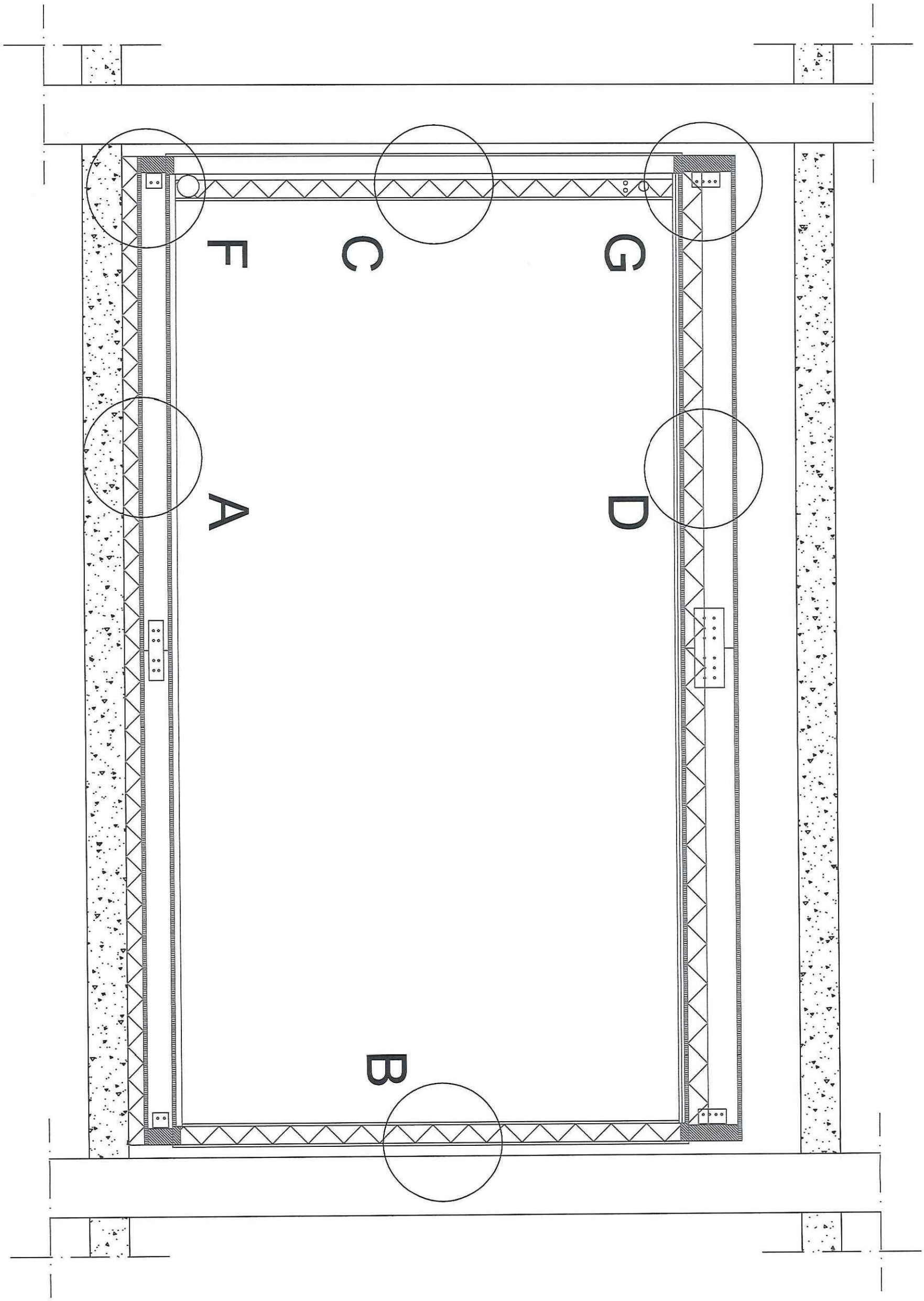
Tekeningnummer	Tekening	Datum
R-6A	Floor plan modular room 6A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



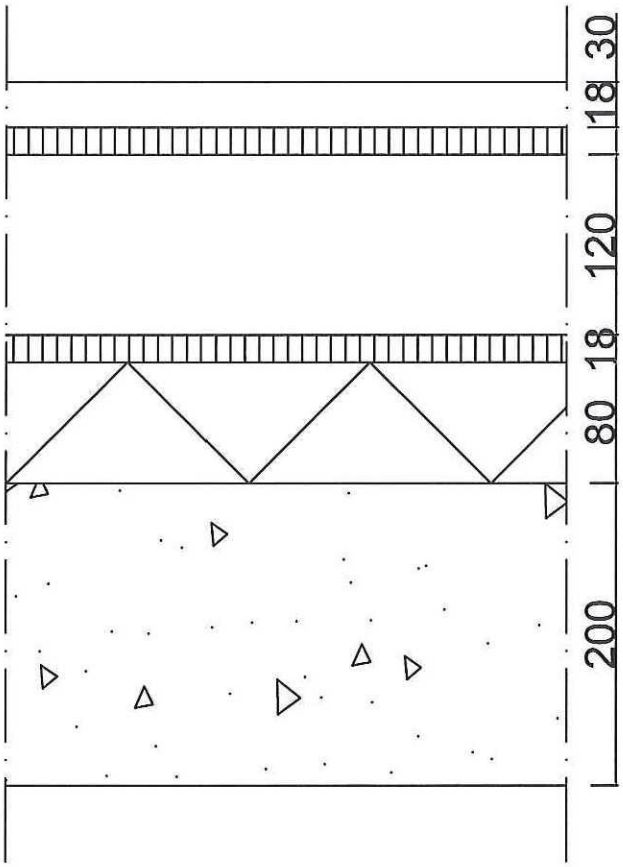
Tekeningnummer	Tekening	Datum
R-6B	Floor plan modular room 6B	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



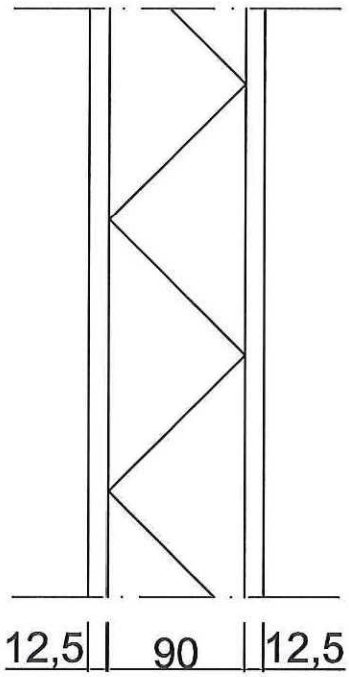
Tekeningnummer	Tekening	Datum
R-7A	Floor plan modular room 7A	17/12/2012
Schaal	Tekenaar	Formaat
1:50	Niko Divendal, TU Delft	A4



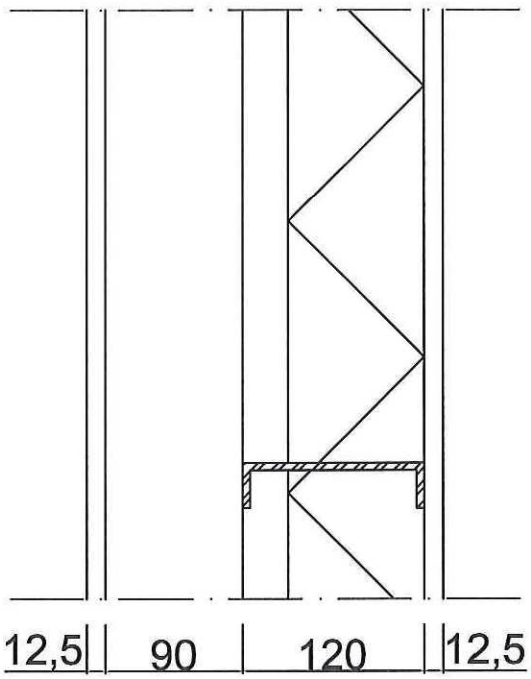
Tekeningnummer	Tekening	Datum
O	Overview modular room including details	17/12/2012
Schaal	Tekenaar	Formaat
1:20	Niko Divendal, TU Delft	A3



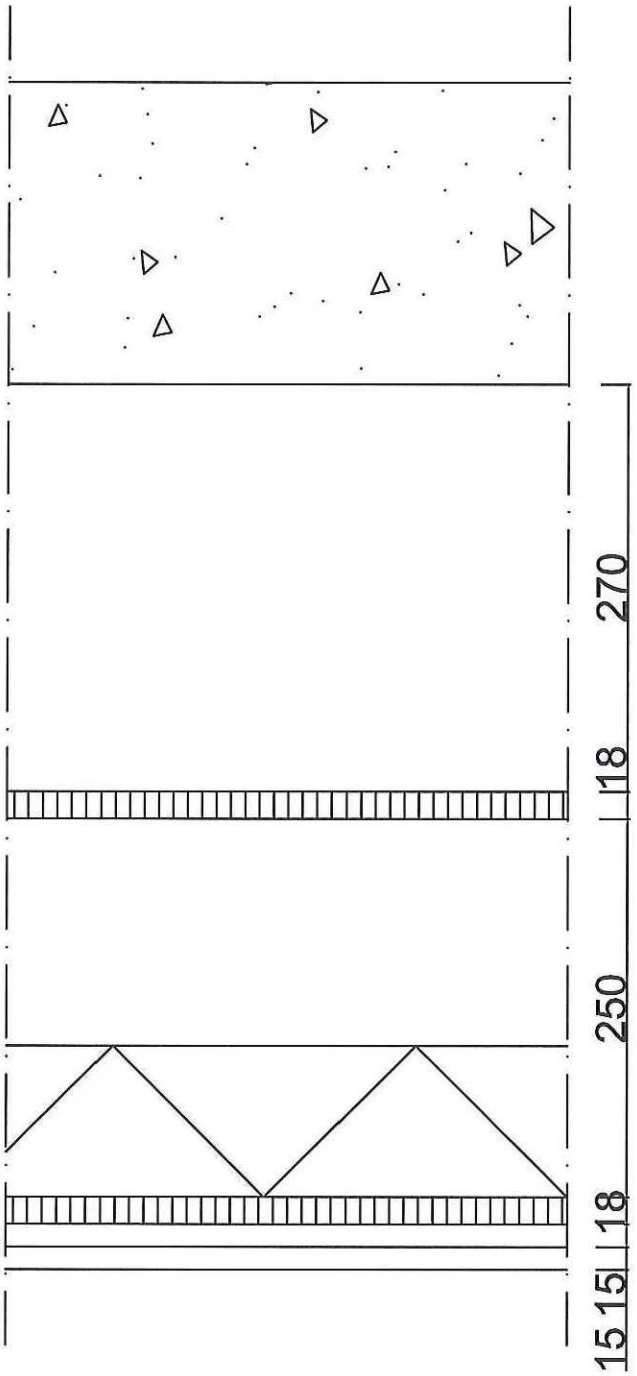
Tekeningnummer	Tekening	Datum
A	Detail A: Build-up timber floor	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



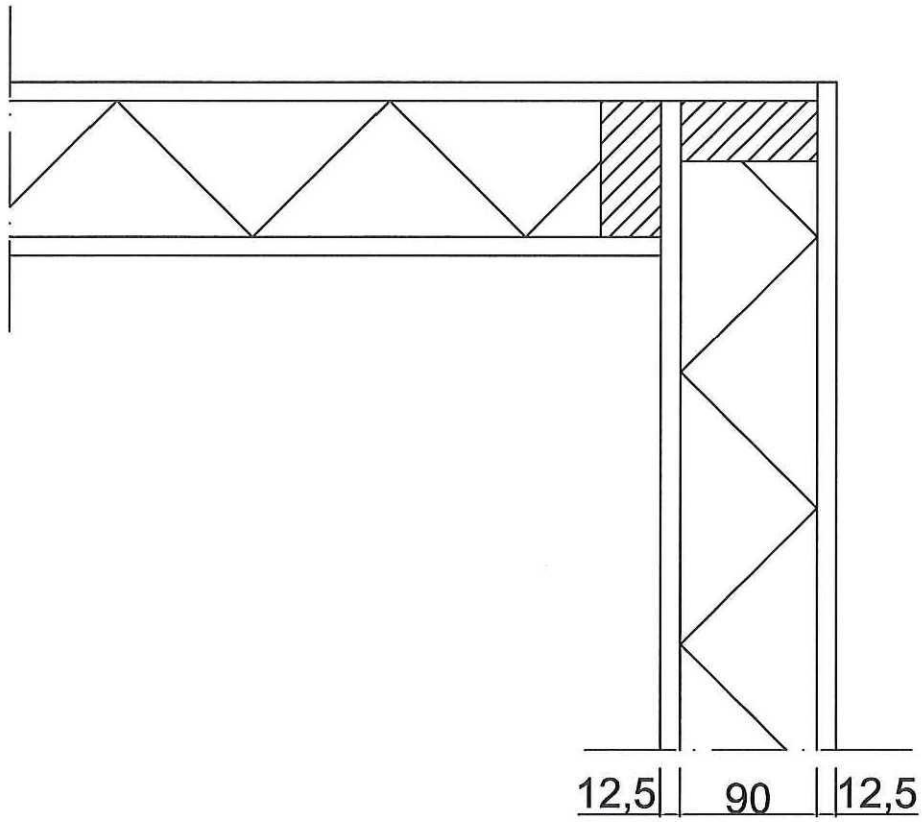
Tekeningnummer	Tekening	Datum
B	Detail B: Build-up thinner timber frame wall	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



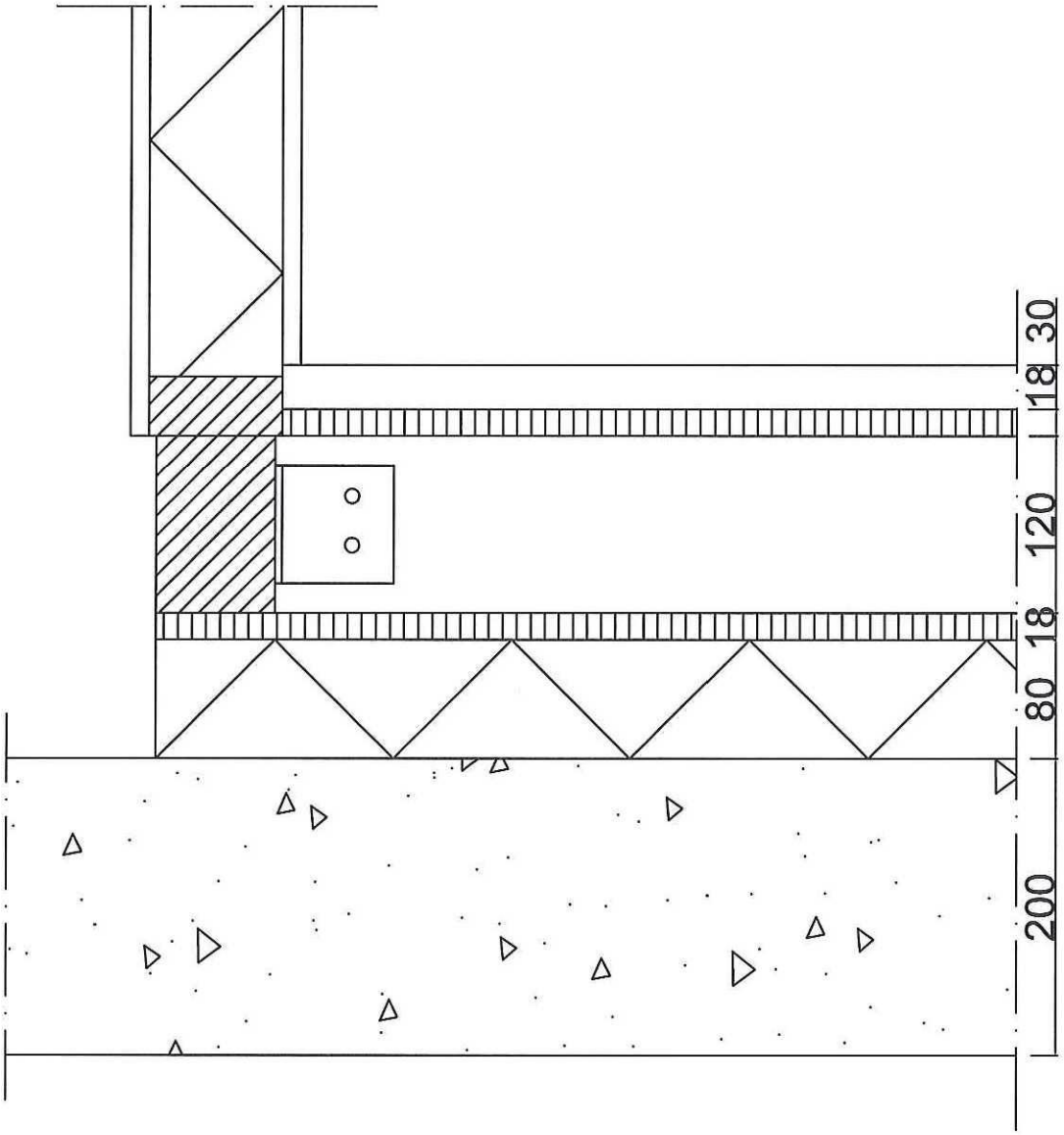
Tekeningnummer	Tekening	Datum
C	Detail C: Build-up thicker timber frame wall	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



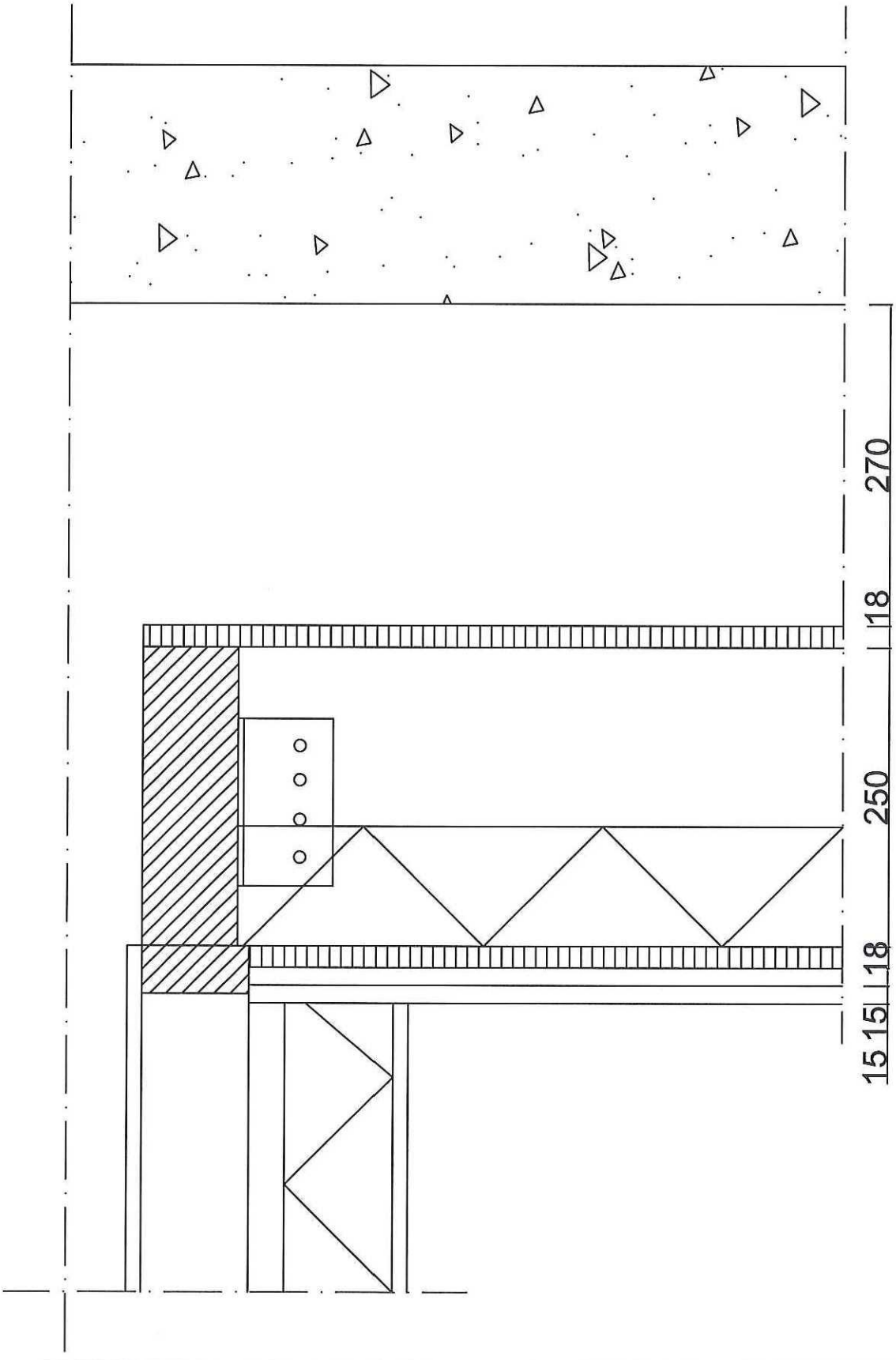
Tekeningnummer	Tekening	Datum
D	Detail D: Build-up timber frame ceiling	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



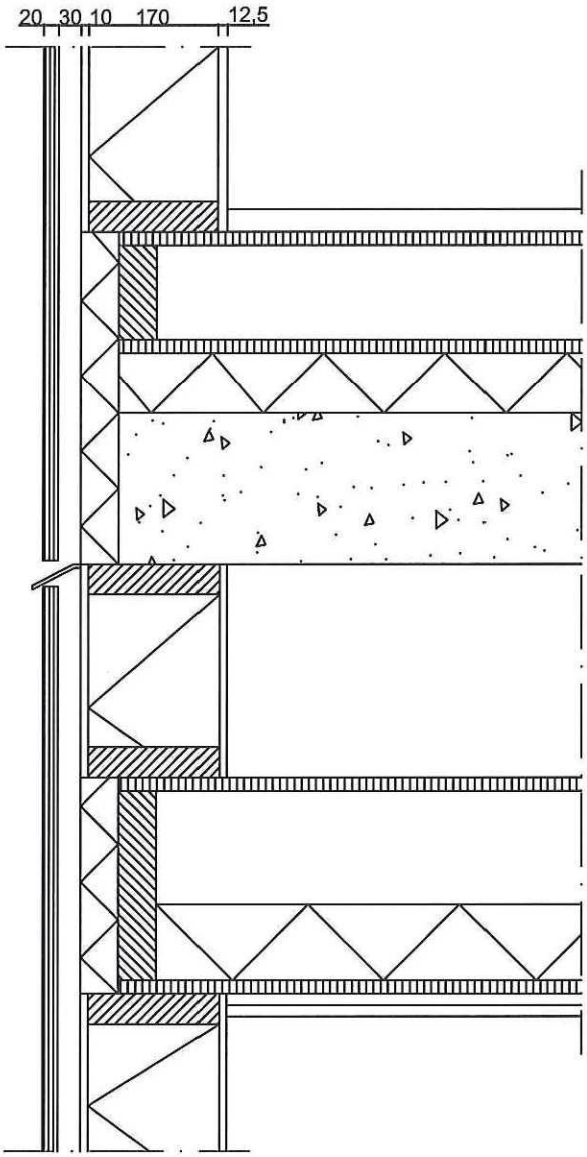
Tekeningnummer	Tekening	Datum
E	Detail E: Wall-wall connection top view	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



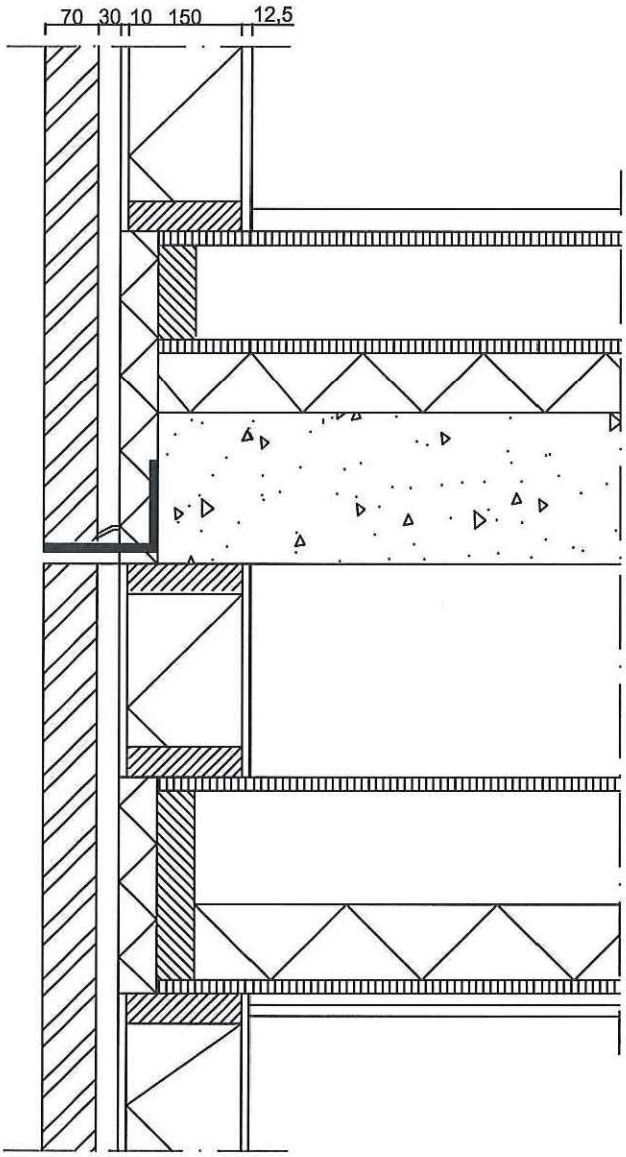
Tekeningnummer	Tekening	Datum
F	Detail F: Floor-wall connection	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



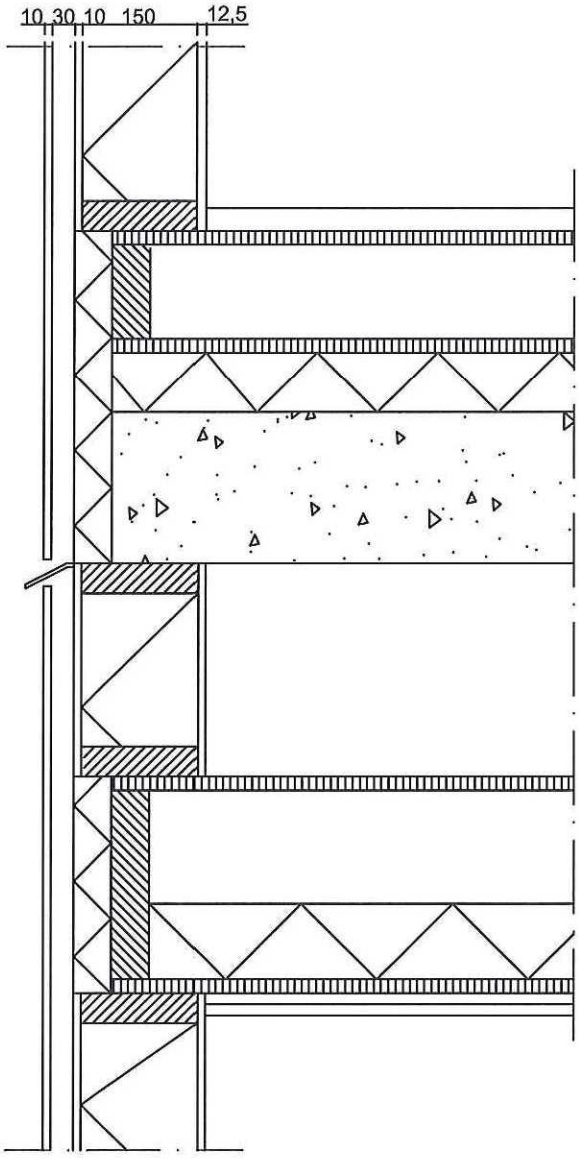
Tekeningnummer	Tekening	Datum
G	Detail G: Floor-ceiling connection	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4



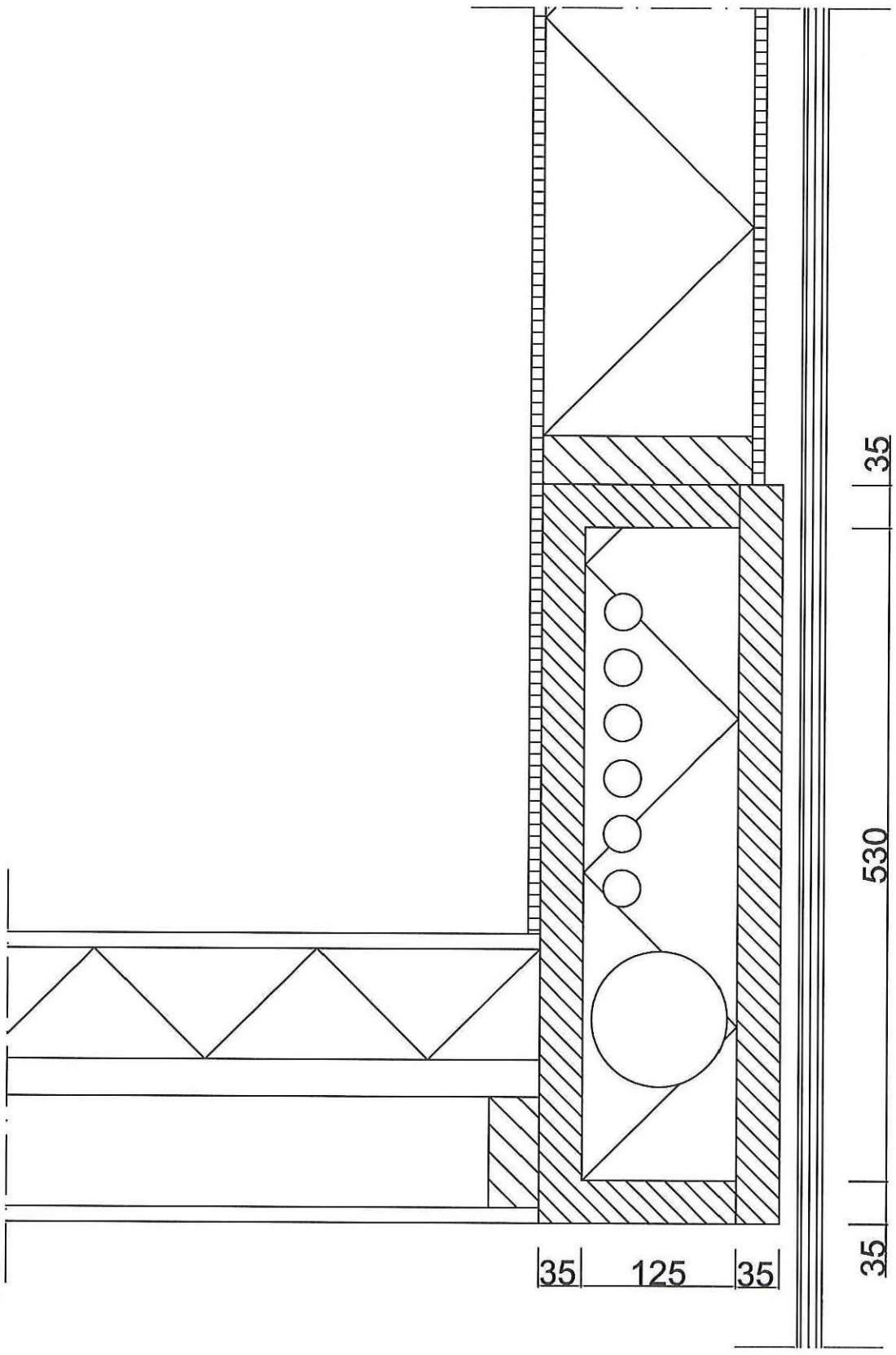
Tekeningnummer	Tekening	Datum
H1	Façade-Ceiling and Façade-Floor connection: Timber façade	17/12/2012
Schaal	Tekenaar	Formaat
1:10	Niko Divendal, TU Delft	A4



Tekeningnummer	Tekening	Datum
H2	Façade-Ceiling and Façade-Floor connection: Brick façade	17/12/2012
Schaal	Tekenaar	Formaat
1:10	Niko Divendal, TU Delft	A4



Tekeningnummer	Tekening	Datum
H3	Façade-Ceiling and Façade-Floor connection: Aluminum façade	17/12/2012
Schaal	Tekenaar	Formaat
1:10	Niko Divendal, TU Delft	A4



Tekeningnummer	Tekening	Datum
I	Detail I: Cross section vertical shaft top view	17/12/2012
Schaal	Tekenaar	Formaat
1:5	Niko Divendal, TU Delft	A4

Appendix E

Calculation R-value, Calculation Sanitary pipes (tables), calculation ventilation (tables)

R-value

Timber façade	d (m)	λ (W/mK)	R (m^2K/W)
Constructielaag			
r_e			0,04
Plaatmateriaal hout	0,02	0,29	0,07
Spouw	0,03	0,16	0,19
Plaatmateriaal hout	0,01	0,29	0,03
Isolatie	0,17	0,04	4,25
Gipskartonplaat	0,125	0,5	0,25
r_i			0,13
R_{gevel}			***4,96***

Brick façade	d (m)	λ (W/mK)	R (m^2K/W)
Constructielaag			
r_e			0,04
Baksteen	0,07	0,65	0,11
Spouw	0,03	0,16	0,19
Plaatmateriaal hout	0,01	0,29	0,03
Isolatie	0,17	0,04	4,25
Gipskartonplaat	0,125	0,5	0,25
r_i			0,13
R_{gevel}			***5,00***

Timber façade	d (m)	λ (W/mK)	R (m^2K/W)
Constructielaag			
r_e			0,04
Aluminium	0,01	200	0,00
Spouw	0,03	0,16	0,19
Plaatmateriaal hout	0,01	0,29	0,03
Isolatie	0,17	0,04	4,25
Gipskartonplaat	0,125	0,5	0,25
r_i			0,13
R_{gevel}			***4,89***

Sanitary Pipes

$$q_w = f \cdot \sqrt{\sum q_b}$$

Where the q_w is the volume flow to determine the diameter of the manifolds and pipes,
f is a simultaneity coefficient (f = 0,5 for residential, f = 0,7 hotels),
q_b is a basic volume flow for each unit

Unit	Basic volume flow q_b (l/s)
Water closet (WC)	2
Bathroom sink (WT)	0.5
Bath tub (BK)	1

$$q_w = 0{,}7 \cdot \sqrt{2 + 0{,}5 + 1} = 0{,}7 \cdot \sqrt{3{,}5}$$

$$q_w \approx 1{,}31\ l/s$$

Volume flow In horizontal manifolds (PVC)									
d	P	Maximum volume flow q (l/s)							
		1	2	3	4	5	10	15	20
50	**1**	0.15	0.21	0.26	0.30	0.33	0.47	0.58	0.67
50	**0.85**	0.12	0.18	0.22	0.25	0.28	0.40	0.49	0.57
75	**1**	0.51	0.72	0.88	1.02	1.14	1.61	1.98	2.28
75	**0.85**	0.43	0.61	0.75	0.86	0.97	1.37	1.68	1.94
90	**1**	0.86	1.22	1.50	1.73	1.94	2.74	3.36	3.88
90	**0.85**	0.73	1.04	1.27	1.47	1.65	2.33	2.86	3.30
110	**1**	1.54	2.18	2.67	3.08	3.45	4.88	5.97	6.90
110	**0.85**	1.31	1.85	2.27	2.62	2.93	4.14	5.08	5.86
125	**1**	2.21	3.13	3.83	4.43	4.95	7.00	8.58	9.90
125	**0.85**	1.88	2.66	3.26	3.76	4.21	5.95	7.29	8.42
160	**1**	4.29	6.07	7.43	8.58	9.60	13.58	16.63	19.20
160	**0.85**	3.65	5.16	6.32	7.30	8.16	11.54	14.13	16.32
200	**1**	7.79	11.02	13.50	15.59	17.43	24.65	30.19	34.87
200	**0.85**	6.62	9.37	11.47	13.25	14.81	20.95	25.66	29.63

Ventilation ducts

Air flow		Diameter	
		Main channel	Connecting channel
m^3/s	m^3/h	mm	mm
0,05	170	100	125
0,07	260	125	160
0,12	430	160	200
0,19	680	200	250
0,29	1060	250	315
0,55	1960	315	400
0,88	3200	400	500
1,37	4900	500	630
2,65	9500	630	1000
5,00	18000	800	1250
7,90	28000	1000	1600
12,30	44000	1250	2000
23,10	83000	1600	2500

Appendix F

Size calculation timber floors and ceilings per span

Size calculation ceiling (replace red numbers for different spans)

> *Gezaagd hout C18* : $Gbalk := 320$; $Gosb := 600$; $Gga := 2000$; $Gstuc := 800$; $E := 9000$; $g := 9.81$; $E := 9000$; $fm0rep := 18$; $fv0rep := 2$;

$$320$$
$$600$$
$$2000$$
$$800$$
$$9000$$
$$9.81$$
$$9000$$
$$18$$
$$2$$

$l := 6800$; $h1 := \frac{l}{15}$; $h2 := \frac{l}{20}$; $b := 55$; $A := h2 \cdot b$; $Wy := \frac{1}{6} \cdot b \cdot h2^2$; $Iy := \frac{1}{12} \cdot b \cdot h2^3$;

$$6800$$
$$\frac{1360}{3}$$
$$340$$
$$55$$
$$18700$$
$$\frac{3179000}{3}$$
$$\frac{540430000}{3}$$

Opbouw Plafond : *Balk C18, OSB Plaat18 mm, Pleisterwerk12 mm*;
Balk C18, OSB Plaat18 mm, Pleisterwerk12 mm

Eigengewicht : $Egbalk := \frac{A}{1000000} \cdot Gbalk \cdot g \cdot 0.01$; $Egosb := Gosb \cdot \left(\frac{18}{1000}\right) \cdot 0.6 \cdot 0.01$; $Egga := Gstuc \cdot \left(\frac{12.5}{1000}\right) \cdot 0.6 \cdot 0.01$; $q := Egbalk + Egosb + Egga$;

$$0.5870304000$$
$$0.06480000000$$
$$0.06000000000$$
$$0.7118304000$$

$Mmax := \frac{1}{8} \cdot q \cdot \left(\frac{l}{1000}\right)^2$; $Vmax := \frac{1}{2} \cdot q \cdot \left(\frac{l}{1000}\right)$;

4.114379712

2.420223360

Sterkte: $t := \frac{Vmax \cdot 1000}{A}$; $tmax := 1.5 \cdot t$; $UC := \frac{tmax}{fv0rep}$;

0.1294237091

0.1941355636

0.09706778180

Buiging: $s := \frac{Mmax \cdot 1000000}{Wy}$; $UC := \frac{s}{fm0rep}$;

3.882711273

0.2157061818

Stijfheid: $eis := 0.003 \cdot l$; $u := \frac{5}{384} \cdot \frac{\left(q \cdot \left(\frac{l}{1000}\right)^4\right)}{\left(\frac{E}{100000} \cdot \frac{Iy}{10000}\right)} \cdot 1000$; $UC := \frac{u}{eis}$;

20.400

12.22335030

0.5991838382

Minimale hoogte: $Iy2 := \frac{5}{384} \cdot \frac{\left(q \cdot \left(\frac{l}{1000}\right)^4\right)}{\left(\frac{E}{100000} \cdot eis\right)} \cdot 1000$;

$simplify\left(\sqrt[3]{\frac{Iy2 \cdot 10000}{\frac{1}{12} \cdot b}}\right)$;

10793.89739

286.6370202

Minimale hoogte volgens sterkte en buiging: $hmin := \frac{Vmax \cdot 1000 \cdot 1.5}{2 \cdot b}$; $hmin2 := \sqrt{\frac{Mmax \cdot 1000000}{3 \cdot b}}$;

33.00304582

157.9102106

Size calculation floor (replace red numbers for different spans)

> *Gezaagd hout C18* : $Gbalk := 320$; $Gosb := 600$; $Gga := 2000$; $E := 9000$; $g := 9.81$; $E := 9000$; $fm0rep := 18$; $fv0rep := 2$;

320

600

2000

9000

9.81

9000

18

2

$l := 3000$; $h1 := \frac{l}{15}$; $h2 := \frac{l}{20}$; $b := 55$; $A := h2 \cdot b$; $Wy := \frac{1}{6} \cdot b \cdot h2^2$; $Iy := \frac{1}{12} \cdot b \cdot h2^3$;

3000

200

150

55

8250

206250

15468750

Opbouw Vloer : *Balk C18, OSB Plaat18 mm, GipsAnhydriet30 mm*;

Balk C18, OSB Plaat18 mm, GipsAnhydriet30 mm

Eigengewicht : $Egbalk := \frac{A}{1000000} \cdot Gbalk \cdot g \cdot 0.01$; $Egosb := Gosb \cdot \left(\frac{18}{1000}\right) \cdot 0.6 \cdot 0.01$; $Egga := Gga \cdot \left(\frac{30}{1000}\right) \cdot 0.6 \cdot 0.01$; $q := Egbalk + Egosb + Egga$;

0.2589840000

0.06480000000

0.3600000000

0.6837840000

$Mmax := \frac{1}{8} \cdot q \cdot \left(\frac{l}{1000}\right)^2$; $Vmax := \frac{1}{2} \cdot q \cdot \left(\frac{l}{1000}\right)$;

0.7692570000

1.025676000

Sterkte : $t := \frac{Vmax \cdot 1000}{A}$; $tmax := 1.5 \cdot t$; $UC := \frac{tmax}{fv0rep}$;

0.1243243636

0.1864865454

0.09324327270

Buiging: $s := \frac{Mmax \cdot 1000000}{Wy}$; $UC := \frac{s}{fm0rep}$;

3.729730909

0.2072072727

Stijfheid: $eis := 0.003 \cdot l$; $u := \frac{5}{384} \cdot \frac{\left(q \cdot \left(\frac{l}{1000}\right)^4\right)}{\left(\frac{E}{100000} \cdot \frac{Iy}{10000}\right)} \cdot 1000$; $UC := \frac{u}{eis}$;

9.000

5.180181818

0.5755757576

Minimale hoogte: $Iy2 := \frac{5}{384} \cdot \frac{\left(q \cdot \left(\frac{l}{1000}\right)^4\right)}{\left(\frac{E}{100000} \cdot eis\right)} \cdot 1000$;

$simplify\left(\sqrt[3]{\frac{Iy2 \cdot 10000}{\frac{1}{12} \cdot b}}\right)$;

890.3437500

124.7743809

Minimale hoogte volgens sterkte en buiging: $hmin := \frac{Vmax \cdot 1000 \cdot 1.5}{2 \cdot b}$; $hmin2 := \sqrt{\frac{Mmax \cdot 1000000}{3 \cdot b}}$;

13.98649091

68.28003835

Appendix G

Calculations floor loads current buildings

Derkinderenstraat 10-24

> $l := 7.2$; $d := 0.2$; $dbalk := 0.3$; $bbalk := 0.3$;

$$7.2$$
$$0.2$$
$$0.3$$
$$0.3$$

BelastingVloer;
$eg := d \cdot 24$; $afw := 0.6$; $pla := 0.4$; $lei := 0.2$; $wan := 0.5$;
$pg := eg + afw + pla + lei + wan$;
$pvb := 2.5$;

BelastingVloer

$$4.8$$
$$0.6$$
$$0.4$$
$$0.2$$
$$0.5$$
$$6.5$$
$$2.5$$

$qvloer := (1.2 \cdot pg) + (1.5 \cdot pvb)$;

$$11.55$$

BelastingBalk;
$UitVloer := pg \cdot l$; $egb := dbalk \cdot bbalk \cdot 24$;
$pg2 := UitVloer + egb$;
$pvb2 := pvb \cdot l$;

BelastingBalk

$$46.80$$
$$2.16$$
$$48.96$$
$$18.00$$

$qTot := (1.2 \cdot pg2) + (1.5 \cdot pvb2)$; $qTotm2 := \frac{qTot}{l}$;

$$85.752$$
$$11.91000000$$

NEN8700;

$Ft0 := qTotm2$; $Psi0 := 0.5$; $t := 40$; $t0 := 50$;

$$11.91000000$$

0.5

40

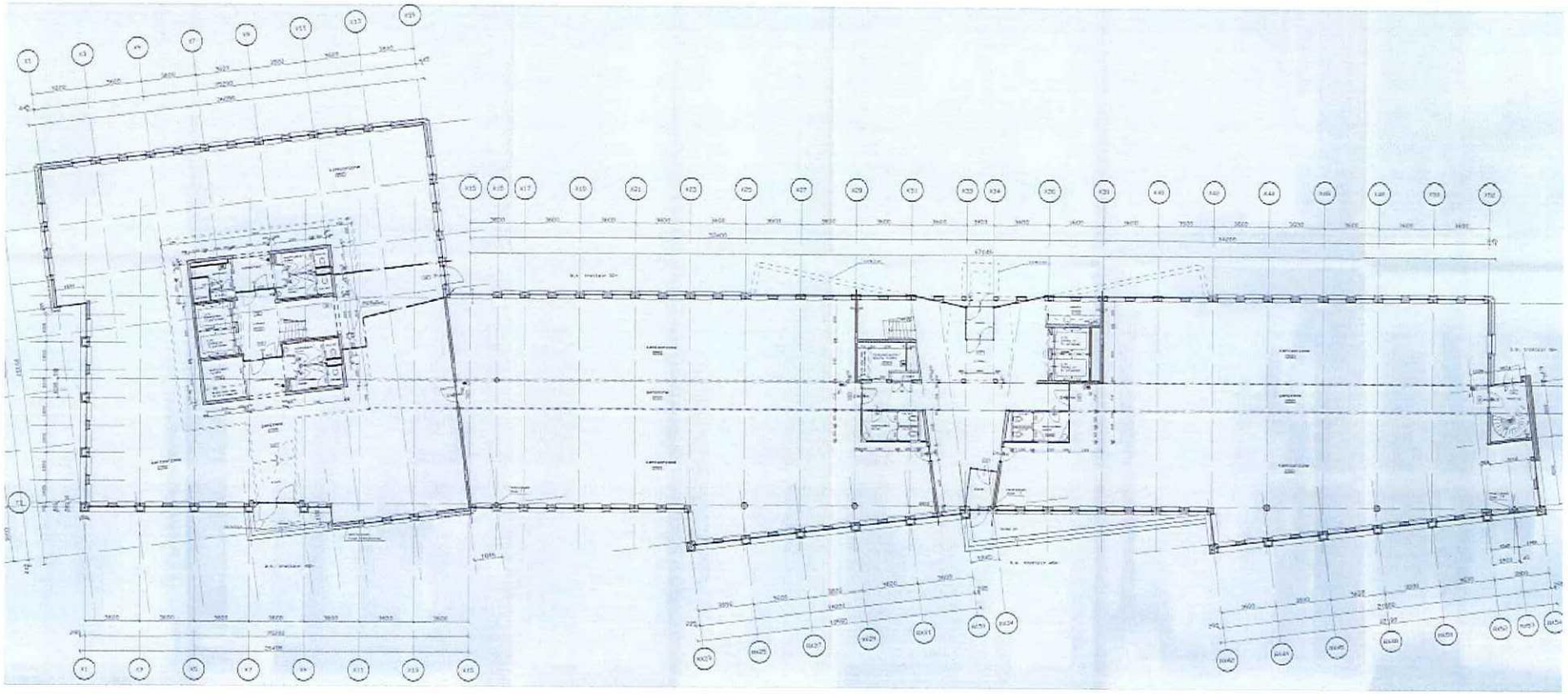
50

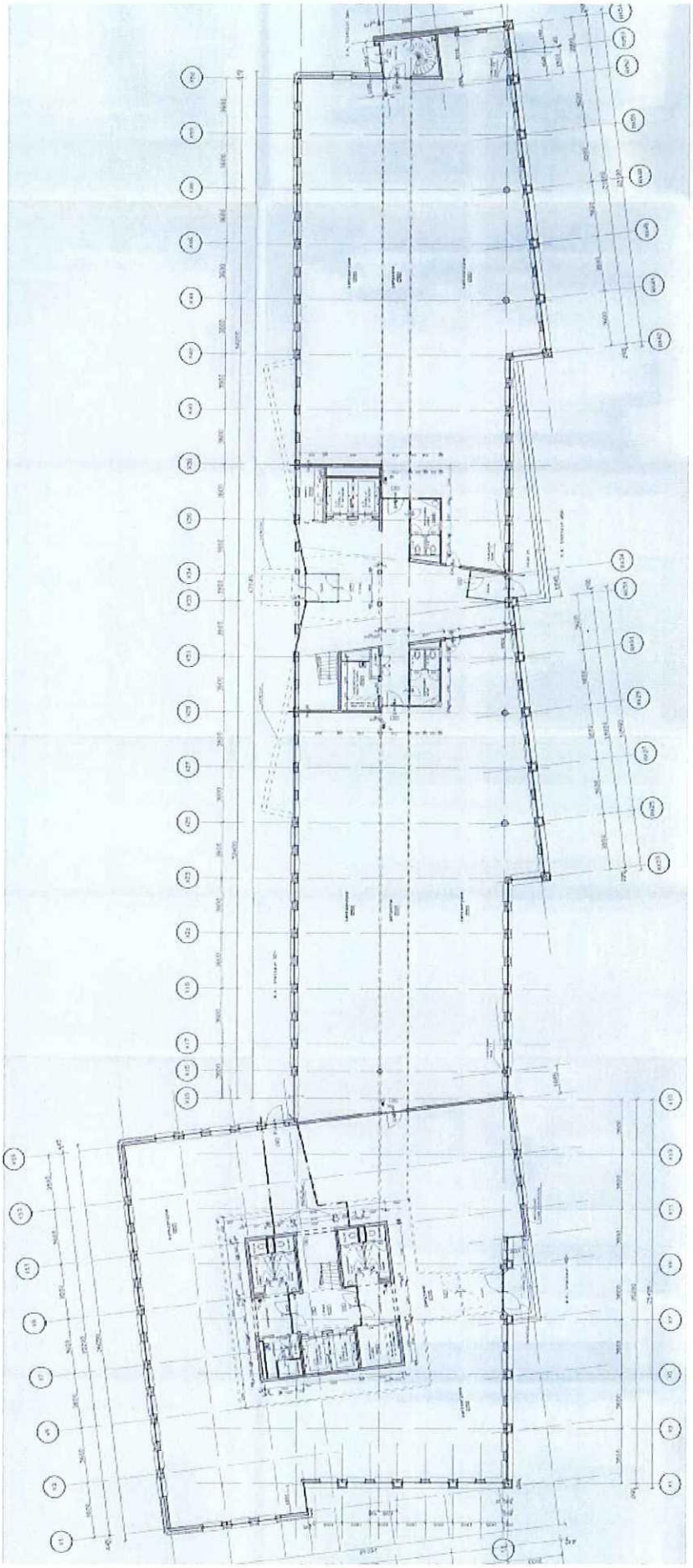
$$Ft := simplify\left(Ft0 \cdot \left(1 + \frac{1 - Psi0}{9} \cdot \ln\left(\frac{t}{t0}\right)\right)\right);$$

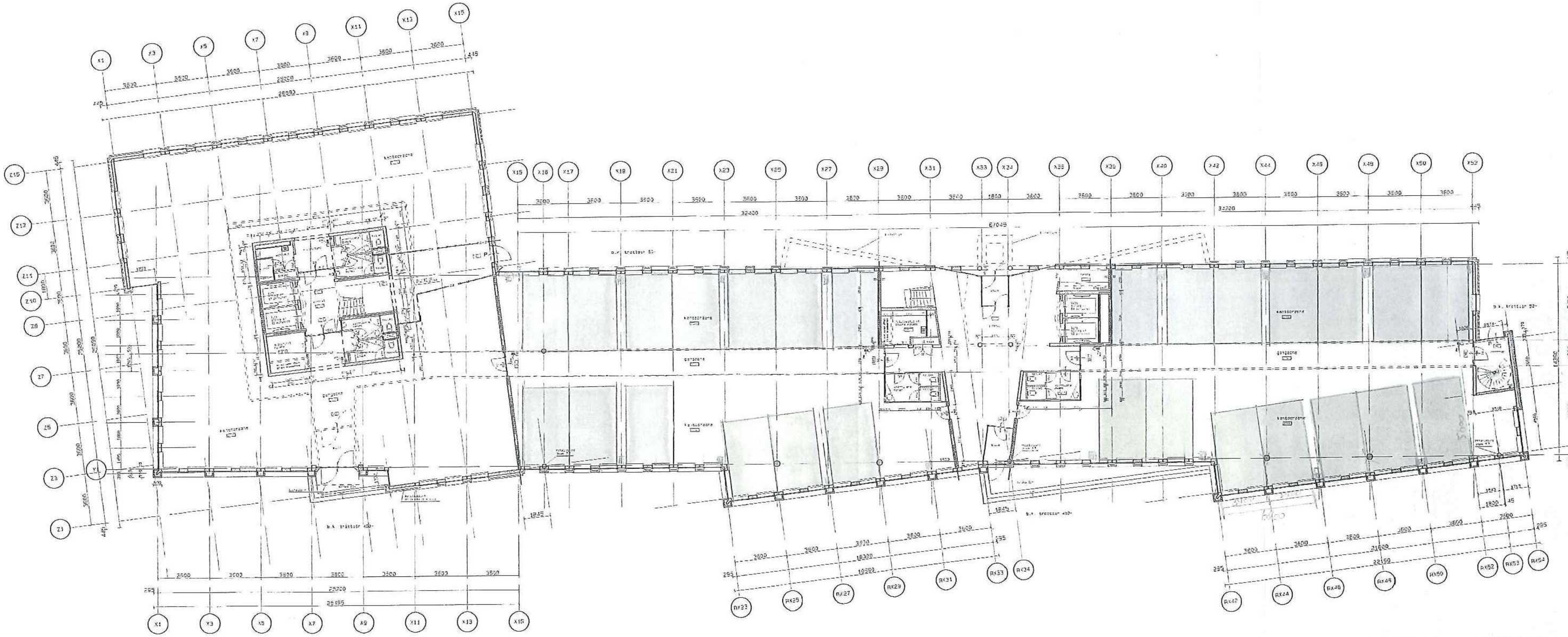
11.76235335

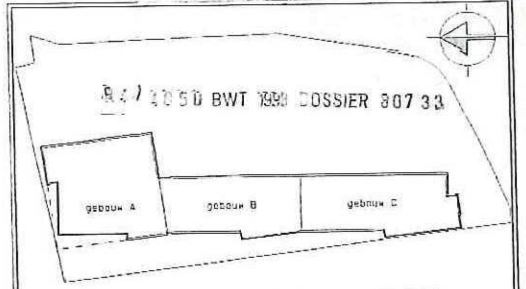
Appendix H

Case study floor plans









Begane grond b.k.afg.vl.= Peil = 0 = 300-NAP

RENVOOI

- beton wand of kolom
- rpuwl-verblendsteen 90 mm
- kalkzandsteen
- gipskartonwand 100 mm 4x gipsplaat 12,5 mm
- gipskartonwand 75 mm 2x gipsplaat 12.5 mm
- systeemwand 150 mm 2x promatectplaat 25 mm
- brandscheiding 60 min.WBDBO
- deur 30 min.brandwerend
- deur 60 min.brandwerend
- deurdranger
- binnendeurkozijn + dagmaataangave
- binnendeurkozijn + dorpel
- brandslang haspelkast (inbouw)
- brandslang haspel + handbrandmeldinstallatie
- plafondhoogte t.o.v. o.k afg.vloer
- overdruk
- uit transparanten
- nooduit transparanten
- paniekslutting

wijz.	get.	datum	omschrijving
F			
E			
D			
C			
B			
A			

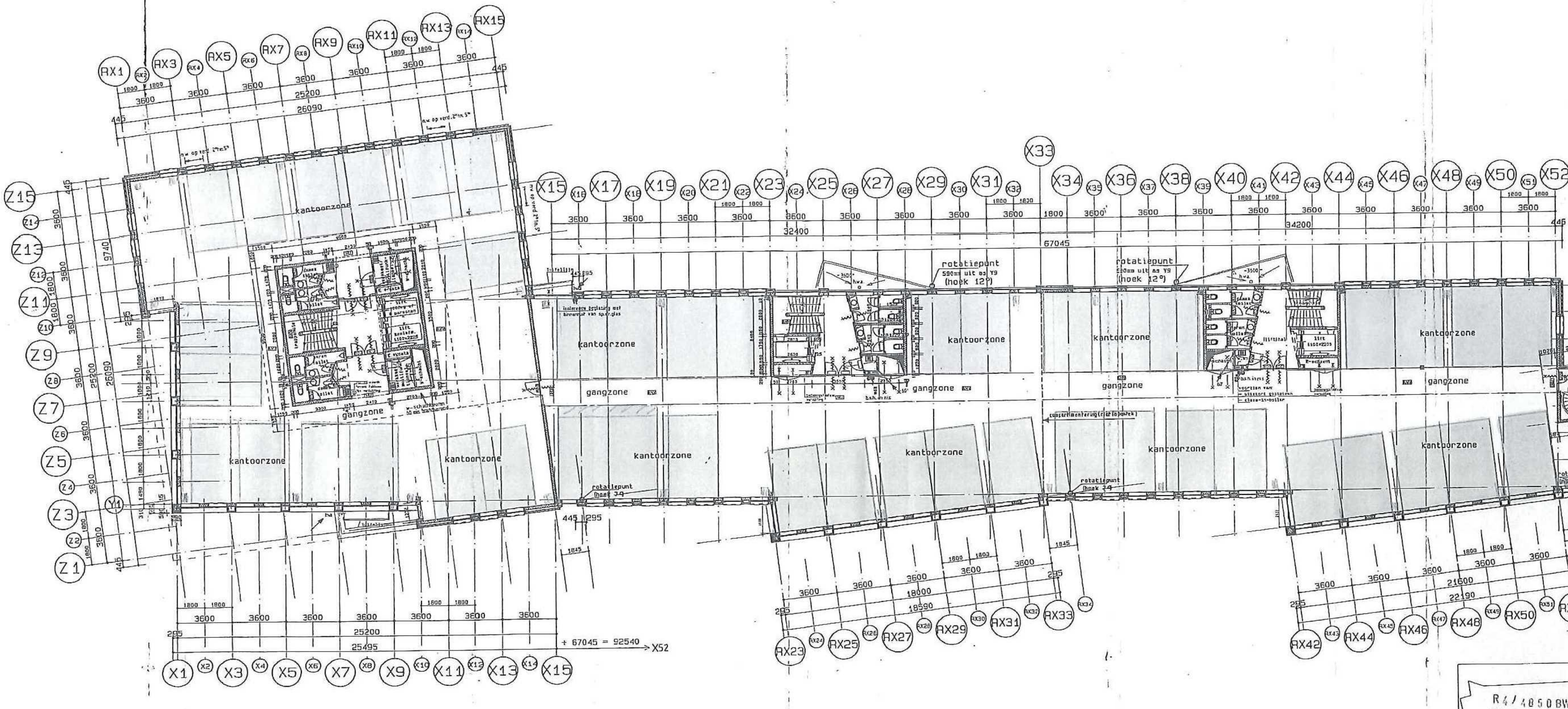
Verbouwaanvraag

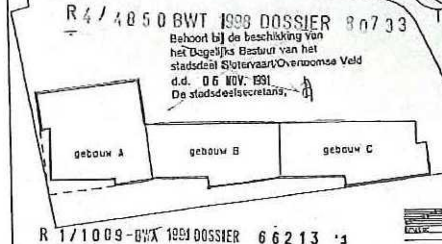
EGM architecten bv
architectuur en bouwvoorbereiding

project: Interstate Amsterdam — projectnummer: 98018

omschrijving: Begane grond — getekend: wk

datum	schaal	formaat	tekeningnummer
24-07-1998	1: 100	A0	BA-AC-00-100-





R 4 / 4 8 5 0 BWT 1998 DOSSIER 8 0 7 3 3
Behoord bij de beschikking van het Dagelijks Bestuur van het stadsdeel Slotervaart/Overtoomse Veld
d.d. 06 NOV. 1991
De stadsdeelsecretaris,

R 1/1009-BWX 1991 DOSSIER 66213 '1
gewijzigd plan; 07 OKT. 1991 14 OKT. 1991

wijziging	get	datum	omschrijving
F			
E			
D			
C		01-10-1991	correcties bouwaanvraag
B		17-05-1991	Correcties
A		08-03-1991	Bestek

Ladenius & Faijdherbe B.V.   Volker Stevin Ontwikkelingsmaatschappij

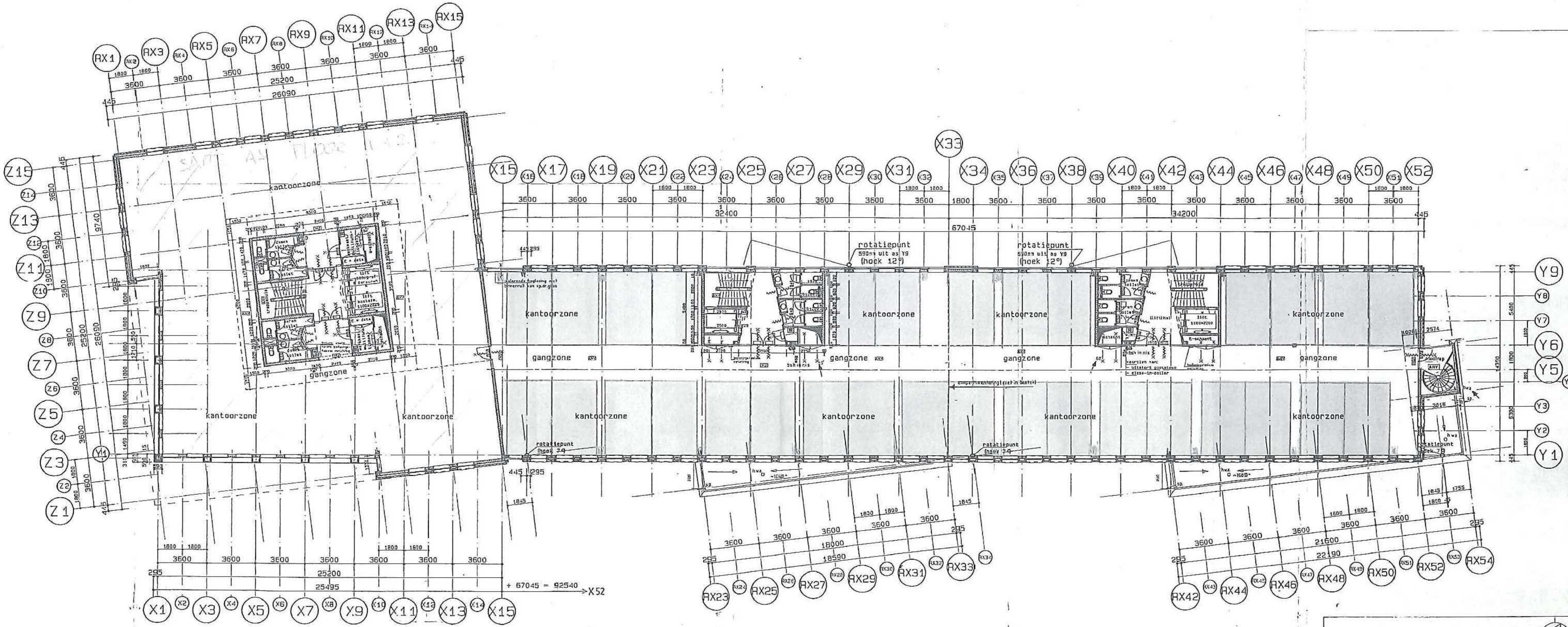
Bouwvoorbereiding

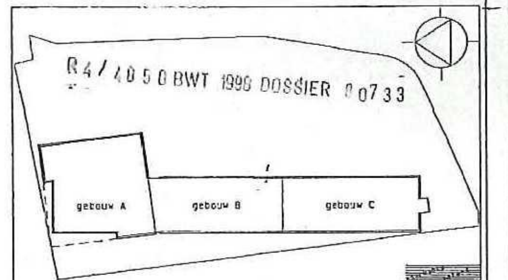
EGMarchitecten

project: Kantoorontwikkeling TRIVIUM
Derkinderenstraat te Amsterdam
projectnr: 89.074

omschrijving: 1e +2e verdieping 3600+, 7200+
getekend: 4

datum	schaal	formaat	tekeningnr
22-11-1990	1: 100	A0	211 C





R 1 / 1 0 0 9 - BWT 1991 DOSSIER 6 6 2 1 3

gewijzigd plan 07 OKT. 1991

14 OKT. 1991

Behoort bij de beschikking van het Dagelijks Bestuur van het stadsdeel Slotervaart/Overtoomse Veld d.d. 06 NOV. 1991
De stadsdeelsecretaris,

wijziging	get	datum	omschrijving
F			
E			
D			
C		01-10-1991	correcties bouwaanvraag
B		17-06-1991	Correcties
A		08-03-1991	Bestek

Ladenius & Faijdherbe B.V. — Volker Stevin Ontwikkelingsmaatschappij

Bouwvoorbereiding

EGMarchitecten
Eijkelenboom Gerritse & Middelhoek bv

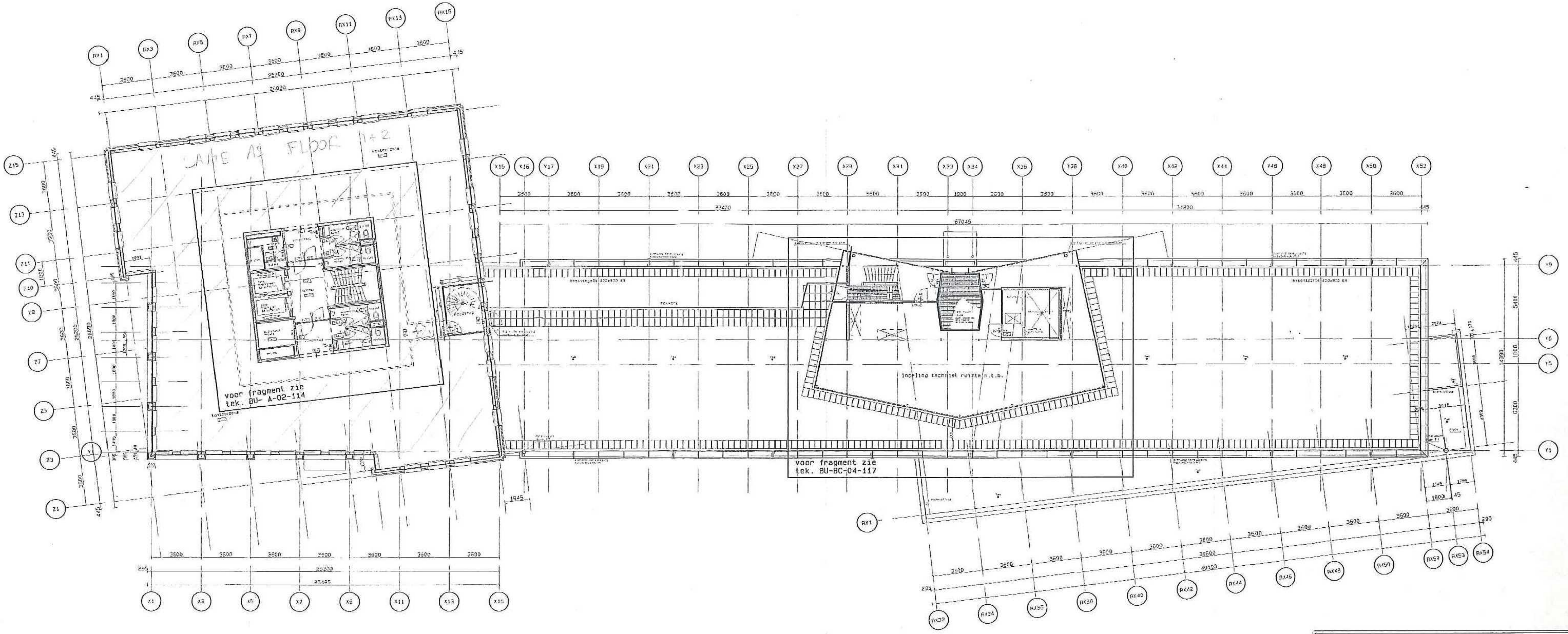
project: Kantoorontwikkeling TRIVIUM, Derkinderenstraat te Amsterdam

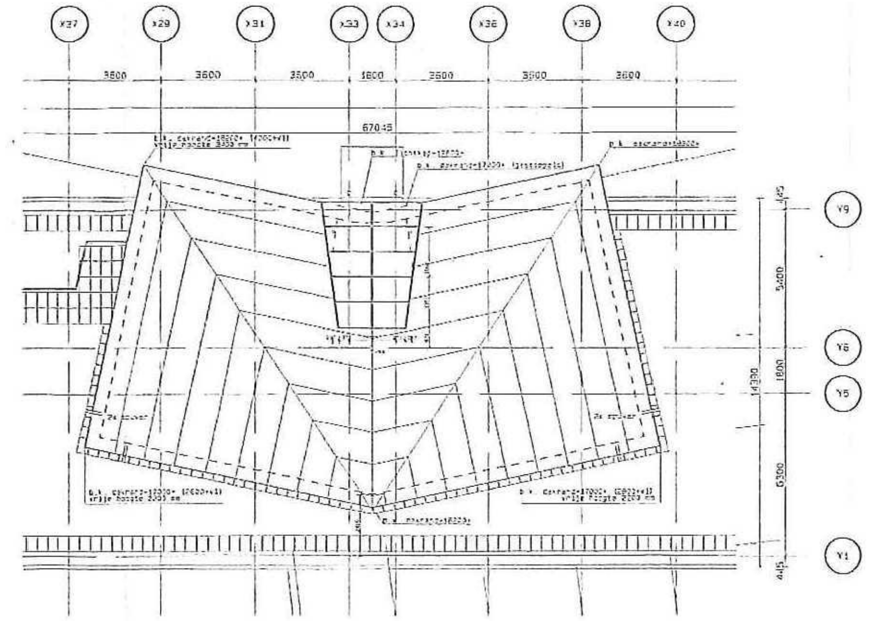
projectnr: 89.074

omschrijving: 3e verdieping 10800+

getekend: 5

datum	schaal	formaat	tekeningnr
22-11-1990	1: 100	A0	213 C

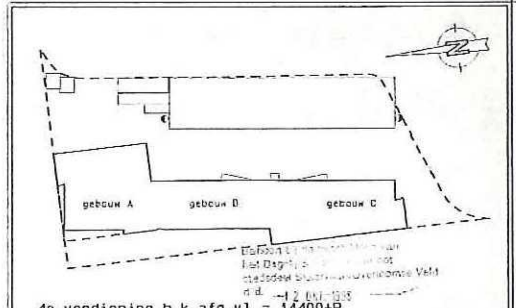




dak van dakopbouw (5e verdieping)

RENVOOI

- beton wand of kolom
- moduul-verblendsteen 90 mm
- kalkzandsteen
- gipskartonwand 100 mm 4x gipsplaat 12.5 mm
- gipskartonwand 75 mm 2x gipsplaat 12.5 mm
- systeemwand 150 mm 2x promatectplaat 25 mm
- brandscheiding 60 min WBDBO
- deur 30 min.brandwerend
- deur 60 min.brandwerend
- deurdranger
- binnendeurkozijn + dagmaatzengave
- binnendeurkozijn + dorpel
- brandslang haspelkast (inbouw)
- brandslang haspel + handbrandmeldinstallatie
- plafondhoogte t.o.v. b.k.afg.vloer
- overdruk
- uit transparanten
- nooduit transparanten
- panicksluiting
- kruipluiken 600x750



4e verdieping b.k.afg.vl.= 14400+P
5e verdieping b.k.afg.vl.= 18000+P

R4/4050 BWT 1998 DOSSIER 80733

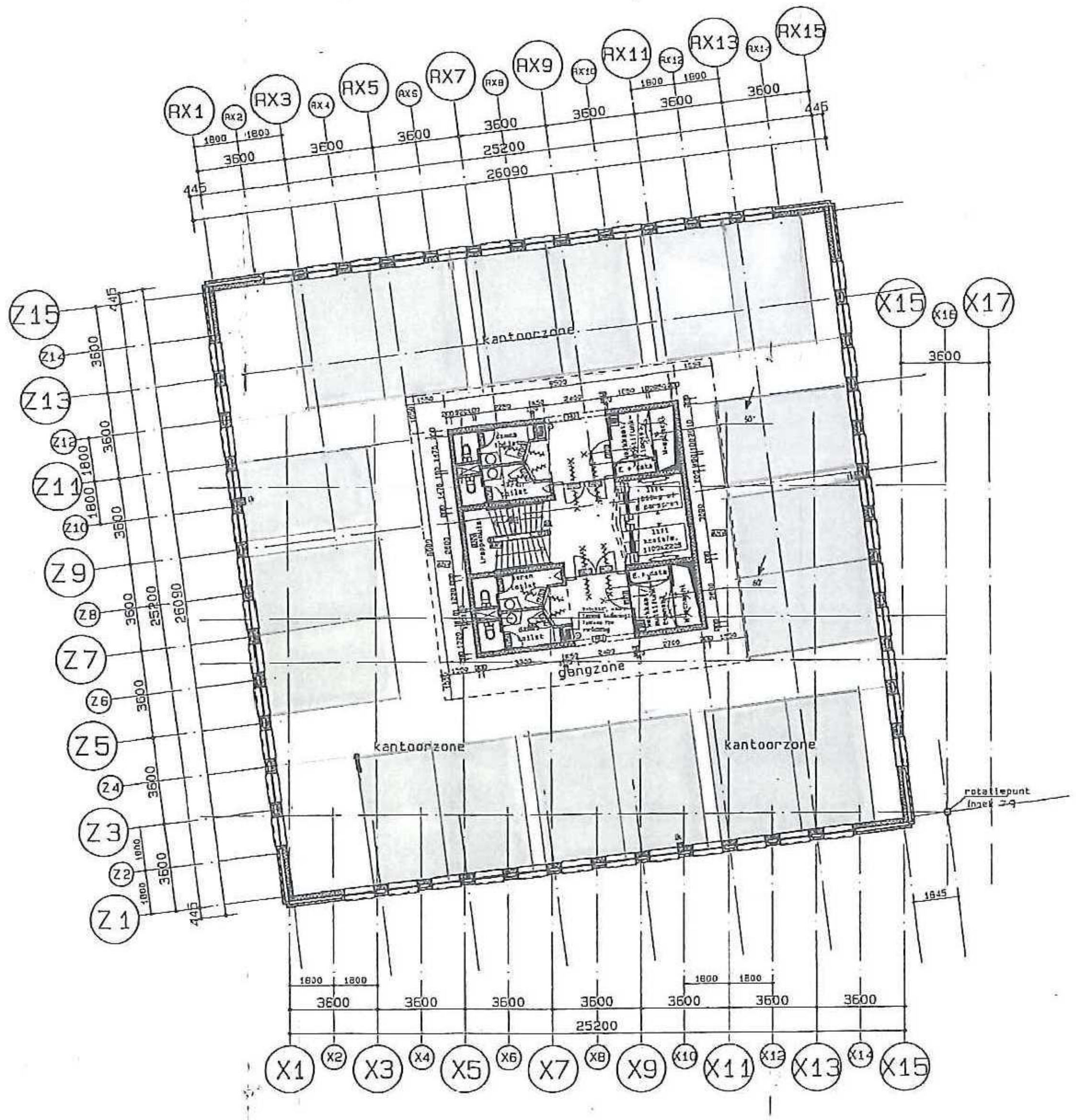
Bouwuitvoeringsfase/Verbouwaanvraag

EGM architecten bv
architectuur en bouwvoorbereiding

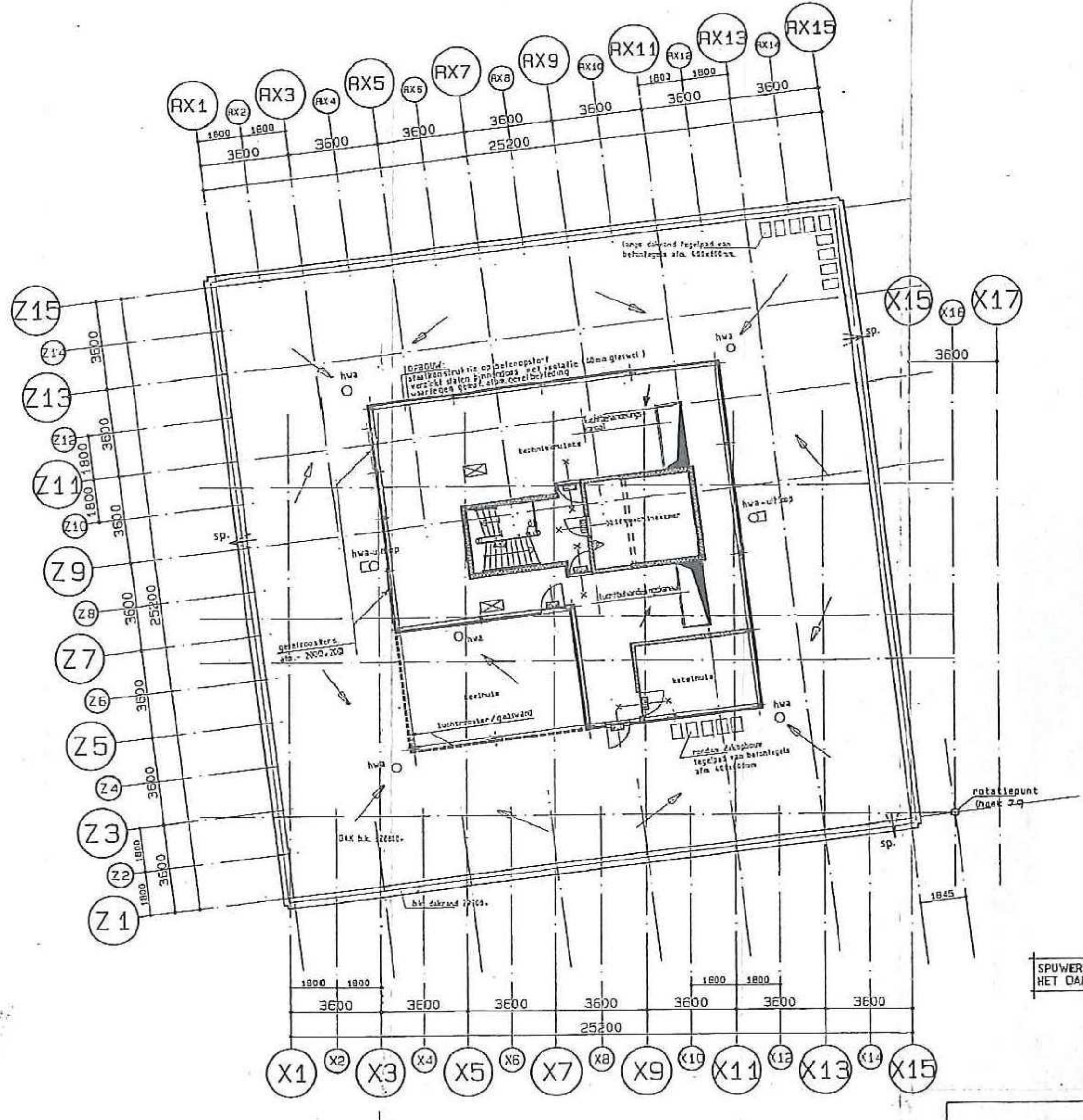
Kantoorgebouw Trivium Amsterdam 98018

4e en 5e verdieping wk

datum	schaal	formaat	tekeningnummer
18-08-1998	1: 100	A0	BU-AC-04-104-C

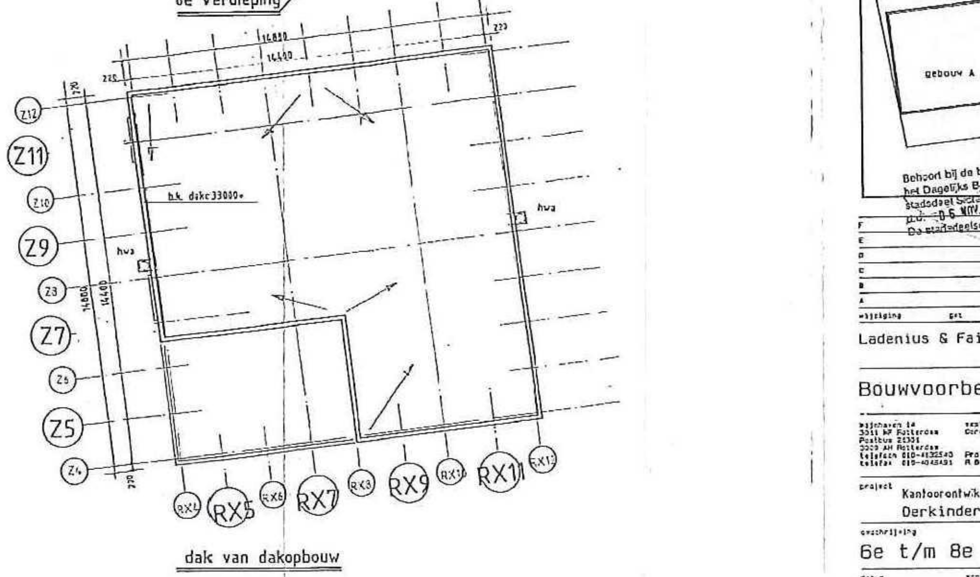


6e en 7e verdieping

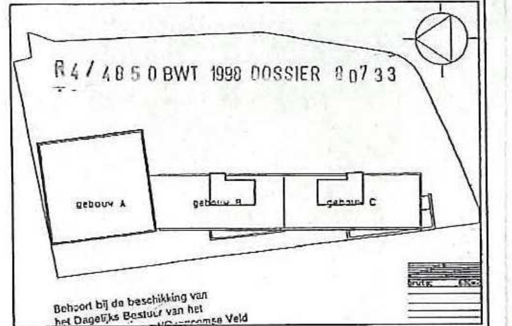


SPUWERS DIENEN MINIMAAL 150 MM BOVEN HET DAKVLAK TE WORDEN AANGEBRACHT

8e verdieping



dak van dakopbouw



Behoort bij de beschikking van het Dagelijks Bestuur van het stadsdeel Sloterdijk/Geuzenveld (?) Veld
d.d. 0 6 NOV. 1991
De stadsdeelsecretaris,

wijziging	get	datum	omschrijving
F			
E			
D			
C		01-10-1991	correcties bouwaanvraag
B		17-06-1991	Correcties
A		08-03-1991	Bestek

Ladenius & Faijdherbe B.V. Volker Stevin Ontwikkelingsmaatschappij

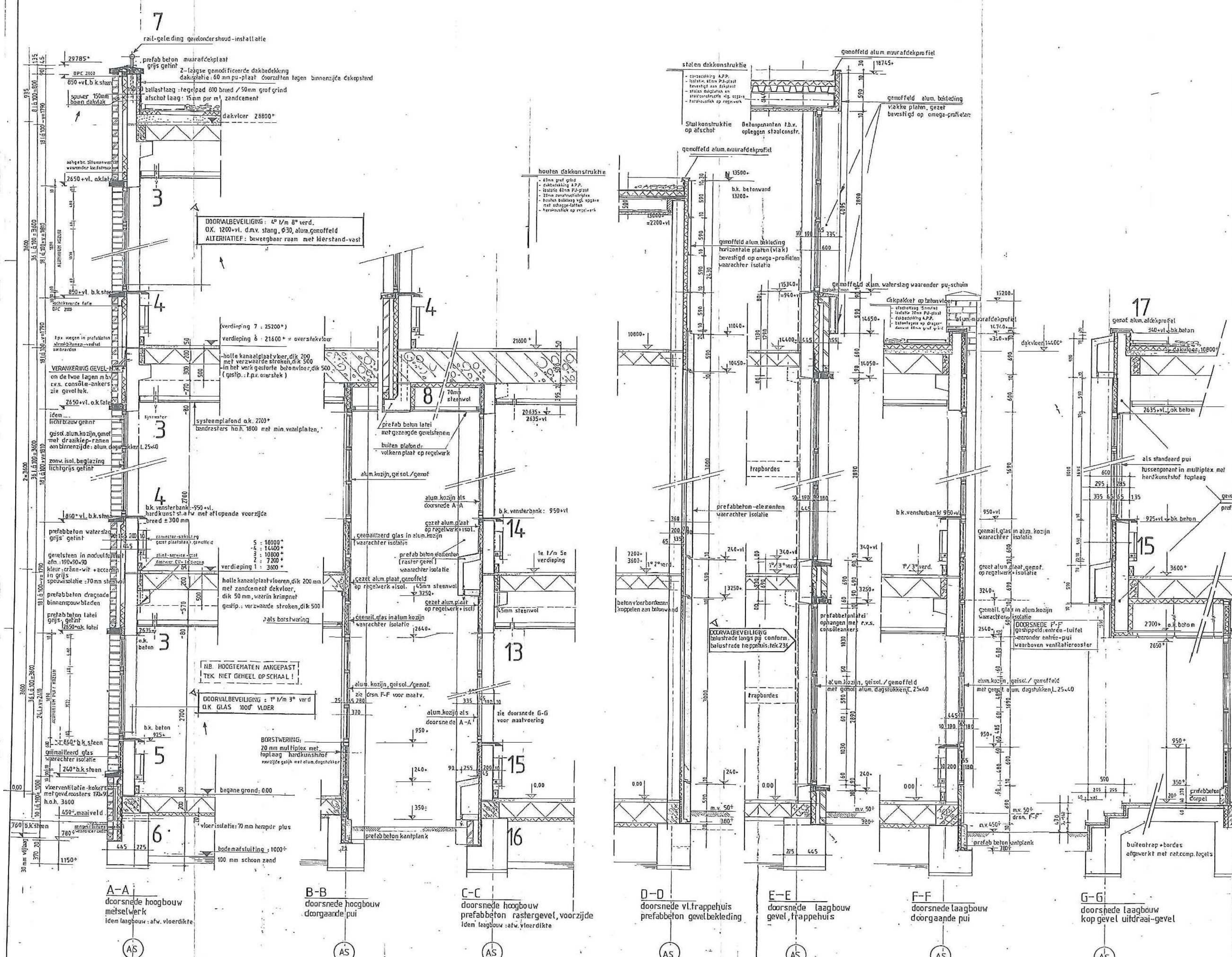
Bouwvoorbereiding R 1/1009-BWT 1990 DOSSIER 6 6 2
gewijzigd plan 14 OKT. 1991 07 OKT. 1991

EGM architecten

project: Kantoorontwikkeling TRIVIUM, Oerkinderenstraat te Amsterdam
projectnr: 89.074 7

omschrijving: 6e t/m 8e verdieping 21600+. 25200+. 28800+

datum: 22-11-1990 | schaal: 1: 100 | formaat: A0 | tekeningnr: 216 C



zie ook tek.no.: 226 en 227 : gevelfragmenten + doorsneden / voor principe-details 1:5 zie tek.no.: 220

10-10-1991 opmerkingen BOWOTO
01-10-1991 correcties bouwaanvraag
17-06-1991 correcties

Behoort bij de beschikking van het Dagelijks Bestuur van het stadsdeel Slotervaart/Overtoomse Veld d.d. 06 NOV. 1991
De stadsdeelsecretaris

Bouwvoorbereiding

EGM architecten bv

Kantoorontwikkeling TRIVIUM
Derkinderenstraat te Amsterdam
89074

geveldoorsneden : A-A t/m H-H

13

08-03-1991 | 1:20 | A0 | 228C

Appendix I

Costs and pricing of modular elements

Costs 1A	*Surface*	*Cost per m^2*	*Total cost*
Wall	54	130	7020
Ceiling	50,32	150	7548
Floor	49,538	140	6935,32
Bathroom			1000
Assembly			800
Finishing	153,86	10	1538,58
Total			24841,9

Costs 2A/B	*Surface*	*Cost per m^2*	*Total cost*
Wall	45,5	130	5915
Ceiling	25,16	150	3774
Floor	24,769	140	3467,66
Bathroom			1000
Assembly			800
Finishing	95,429	10	954,29
Total			15910,95

Costs 3A	*Surface*	*Cost per m^2*	*Total cost*
Wall	34,25	130	4452,5
Ceiling	14	150	2100
Floor	13,7125	140	1919,75
Bathroom			0
Assembly			800
Finishing	61,9625	10	619,625
Total			9891,875

Costs 3B	*Surface*	*Cost per m^2*	*Total cost*
Wall	34,25	130	4452,5
Ceiling	14	150	2100
Floor	13,7125	140	1919,75
Bathroom			2000
Assembly			800
Finishing	61,9625	10	619,625
Total			11891,88

Costs 4A	*Surface*	*Cost per m^2*	*Total cost*
Wall	40,5	130	5265
Ceiling	28	150	4200
Floor	27,425	140	3839,5
Bathroom			1000
Assembly			800
Finishing	95,925	10	959,25
Total			16063,75

Costs 5A/B	*Surface*	*Cost per m^2*	*Total cost*
Wall	36,5	130	4745
Ceiling	19,04	150	2856
Floor	18,649	140	2610,86
Bathroom			1000
Assembly			800
Finishing	74,189	10	741,89
Total			12753,75

Costs 6A	*Surface*	*Cost per m^2*	*Total cost*
Wall	43,25	130	5622,5
Ceiling	18,5	150	2775
Floor	18,2125	140	2549,75
Bathroom			0
Assembly			800
Finishing	79,9625	10	799,625
Total			12546,875

Costs 6B	*Surface*	*Cost per m^2*	*Total cost*
Wall	43,25	130	5622,5
Ceiling	18,5	150	2775
Floor	18,2125	140	2549,75
Bathroom			2000
Assembly			800
Finishing	79,9625	10	799,625
Total			14546,875

Costs 7A	*Surface*	*Cost per m^2*	*Total cost*
Wall	49,5	130	6435
Ceiling	37	150	5550
Floor	36,425	140	5099,5
Bathroom			1000
Assembly			800
Finishing	122,925	10	1229,25
Total			20113,75

Appendix J

Excel file scores TPC

Building				30		22		10	
				Score		Financial		Durability	
General		Building year	<1970	0,6				0,6	
			>1970	1	1			1	1
		Vacancy years	0-3	0,3		0,3			
			3-5	0,6		0,6			
			5-...	1	1	1	1		
		Expandability	Horizontal	0,333		0,333			
			Vertical	0,333		0,333			
			Basement	0,333	1	0,333	1		
		Transformation type	Interior only						
			Interior + façade						
			Modular method						
		Gross Floor Area (m2)	(=m^2)						
		Façade surface area (m2)	(=m^2)						
		Demolition costs (€/m^2)	(=€/m^2)						
		Transformation costs (€/m^2)	(=€/m^2)						
		Facade costs (€/m^2)	(=€/m^2)						
Construction	Structure	Grid size (mm)	<5400	0,6					
			5400	1					
			7600	1					
			>7600	1	1				
		Floor to floor height (mm)	<3000	0,6					
			>3000	1	1				
		Type	Beams/columns	0,6					
			Columns	1					
			Mesh structure	0,3	1				
		State	Replace	0,3		0,6		0,3	
			Renovate	0,6		0,3		0,6	
			Good	1	1	1	1	1	1
	Foundation	State	Replace	0,3		0,3		0,3	
			Renovate	0,3		0,3		0,3	
			Good	1	1	1	1	1	1
	Interior walls	Type	None	1		1		1	
			Glass	1		1		0,3	
			Gypsum	0,6		0,6		0,6	
			Timber	0,6		0,6		1	
			Aluminum/steel	0,6		0,6		0,3	
			Stone	0,3	1	0,3	1	0,6	1
		Fixed establishment	Yes	0,3		0,3		0,6	
			No	1	1	1	1	1	1
	Ceilings	Type	Solid	0,3		0,3			
			Lowered	0,6		0,6			
			None	1	1	1	1		
Floors	Roof	State	Replace	0,3		0,6		0,3	
			Renovate	0,6		0,3		0,6	
			Good	1	1	1	1	1	1
	Floors	Sound insulation (dB)	0-30	0,3		0,3			
			30-50	0,6		0,6			
			50-...	1	1	1	1		
		Fire protection	30 minutes	0,6		0,6			
			60 minutes	1		1			
			120 minutes	1	1	1	1		
		Carrying capacity	<150 kg/m2	0,3		0,3			
			150-300 kg/m2	0,6		0,6			
			>300 kg/m2	1	1	1	1		
Facade		R-value	0-2	0,3		0,6		0,6	
			2-4	0,6		0,6		0,6	
			4-...	1	1	1	1	1	1
		Load bearing	Yes	0,6		0,3			
			No	1	1	1	1		
		State	Replace	0,3		0,6		0,6	
			Renovate	0,6		0,3		0,6	
			Good	1	1	1	1	1	1

		Daylight admission (%)	0-5	0,3							
			5-10	0,6							
			10-...	1	1						
Building depth		Depth (m)	0-11	0,6							
			12-16	1							
			17-...	0,6	1						
Vertical transport	Installations	State	Replace	0,3		0,6		0,3			
			Renovate	0,6		0,3		0,6			
			Good	1	1	1	1	1	1		
		Amount of vert penetr.	Sufficient available	1		1					
			Adding 1	0,6		0,6					
			Adding more than 1	0,3	1	0,3	1				
	People transport	Stairs	0-1	0,6		0,6					
			2-4	1		1					
			4-...	1	1	1	1				
		Elevators	0-2	0,6		0,6					
			3-6	1		1					
			7-...	1	1	1	1				
Acquiring costs		Building value	0-5.000.000	1		1					
			5.000.000-10.000.000	0,6		0,6					
			10.000.000-...	0,3	1	0,3	1				
		Percentage vacant	0-50	0,3		0,3					
			51-80	0,6		0,6					
			81-100	1	1	1	1				
Terrain		Recognition	None	1							
			Neighborhood	0,6							
			Local	0,3							
			Rural	0	1						
		Entrance	Obscure	1							
			Inviting	0,6	1						
		Energy Performance	Bad (EPC>1,70)	0,3		0,3		0,3			
			Mediocre (1,00>EPC>1,70)	0,6		0,6		0,6			
			Good (EPC<1,00)	1	1	1	1	1	1		

Location					25		3
				Score		Financial	
Geographic	Nationwide location	Within Netherlands	North	0,3			
			East	0,6			
			South	0,6			
			West	1	1		
	Part of City	Center	Yes	1			
			No	0,6	1		
		Distance to center (km)	0-10	1			
			10-20	0,6			
			20-...	0,3	1		
Hotel	Competition	Distance to closest competitive hotel (km)	0-5	0,3		0,3	
	(Within same star class)		5-15	0,6		0,6	
			15-...	1	1	1	1
		Number of hotels within 5 km	0-5	1		1	
			6-10	0,6		0,6	
			11-...	0,3	1	0,3	1
Accessibility	Car	Distance to major freeway (km)	0-5	1			
			5-10	0,6			
			10-...	0,3	1		
		Parking possibilities	Yes	1		1	

			No	0,6	1	0,6	1
	Public transport	Distance to bus/tram (m)	0-500	1			
			500-1000	0,6			
			1000-...	0,3	1		
		Distance to train station (m)	0-500	1			
			500-1000	0,6			
			1000-...	0,3	1		
		Distance to airport (km)	0-20	1			
			21-50	0,6			
			50-...	0,3	1		
	Facilities	Number of restaurants within 1km	0-10	0,3			
			11-20	0,6			
			21-...	1	1		
		Grocery possibilities within 1km	Yes	1			
			No	0,6	1		
		Shopping possibilities within 5km	Yes	1			
			No	0,6	1		
		Recreation possibilities within 1km	Yes	1			
		swimming pool, park,....	No	0,6	1		
		Touristic attractions within 1 km	Yes	1			
		musea, city center,...	No	0,6	1		
Public safety	Vandalism	Vandalism in vicinity (1km)	Yes	0,6			
			No	1	1		
		Graffiti on (surrounding) building(s)	Yes	0,6			
			No	1	1		
	Crime rate	Offenses per 1000 inhabitants	0-100	1			
			100-200	0,6			
			200-...	0,3	1		
Environmental nuisance	Environmental	Unpleasant shadow from adjacent buildings	Yes	0,6			
		during more than 50% of daytime	No	1	1		
		Wind nuisance	Yes	0,6			
		during more than 50 days/year	No	1	1		
	Man influenced	Odor nuisance	Yes	0,6			
		during more than 100 days/year	No	1	1		
		Noise nuisance	Yes	0,6			
		during more than 2 hours/day	No	1	1		
Visual quality environment	Direct surroundings	Type	Industrial	0,3			
			Office district	0,6			
			Residential	1			
			Center	1	1		
		Appearance street	Urban	0,6			
			Green/rural	1			
			Non-consistent	0,3	1		
	Green	Distance to nearest park (km)	0-1	1			
			1-5	0,6			
			6-10	0,3	1		

Hotel				15		15		6	
				Score		Financial		Durability	
Hotel		Class	1*	1		1			
			2*	1		1			
			3*	1		1			
			4*	0,6		0,6			
			5*	0,3	1	0,3	1		
		Housing Costs (%)	0-8	0,3		0,3			
			8-12	0,6		0,6			
			12-18	1	1	1	1		
		BAR							
Room	Quality	Finishing	Budget	1		1			
			Average	0,6		0,6			
			Luxurious	0,3	1	0,3	1		
		Price per room (EURO)	10-100	0,6		0,6			
			100-200	1		1			
			200-...	0,6	1	0,6	1		
	Quantity	Number of rooms	1-100	0,3		0,3			
			100-300	0,6		0,6			
			300-...	1	1	1	1		
		Occupancy rate (%)	0-60	0,3		0,3			
			60-80	0,6		0,6			
			80-100	1	1	1	1		
Facilities	Sport	Gym	Yes	1		1			
			No	0,6	1	0,6	1		
		Swimming Pool	Inside: Structurally possible	0,6		0,6			
			Inside: Structurally impossible	0,3		0,3			
			Outside	0,6		0,6			
			Inside and Outside: Structurally possible	0,6		0,6			
			Inside and Outside: Structurally impossible	0,3		0,3			
			None	1	1	1	1		
	Dining	Restaurant	Yes	1		1			
			No	0,6	1	0,6	1		
Installations	Heating systems	Heating of building	Electrical	0,3		0,6		0,3	
			HR boiler	0,6		1		0,6	
			VR boiler	0,6		1		0,6	
			Heat pump	1		0,6		1	
			External heat delivery	1		1		1	
			Steam powered	0,6	1	0,3	1	0,6	1
		Cooling	Heat pump (summer operation)	0,6		0,6		0,6	
			Absorption cooling machine	0,6		0,6		0,6	
			Cold storage	0,6		0,3		0,6	
			Multiple devices	1	1	1	1	1	1
		Hot drinking water	Electrical	0,3		0,6		0,3	
			HR boiler	0,6		1		0,6	
			VR boiler	0,6		1		0,6	
			Heat pump	1		0,6		1	
			External heat delivery	1		1		1	
			Steam powered	0,6	1	0,3	1	0,6	1
		Ventilation	Mechanical ventilation with heat exchange	1		0,6		1	
			Mechanical ventilation without heat exchange	0,6		0,3		0,6	
			Natural ventilation only	1	1	1	1	1	1
		Solar panels	No solar panels	0,3		1		0,3	
			Solar panels	0,6		0,6		0,6	

			PV Cells	1	1	0,3	1	1	1	
	Lighting system	Power per m2 (W/m2)	0-8	1		1		1		
			8-14	0,6		0,6		0,6		
			14-...	0,3	1	0,3	1	0,3	1	

Appendix K

Java Code

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" dir="ltr" lang="nl-NL">
	<head>
		<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
		<title>TPC: Transformation Performance Coefficient</title>
		<link type="text/css" rel="stylesheet" href="style.css" />
		<script type="text/javascript" src="javascript/jquery.min.js"></script>
		<script type="text/javascript" src="javascript/main.js"></script>
	</head>
	<body>
		<div id="pagewrap">
			<div id="header">
				<div id="building">Building</div>
				<div id="location">Location</div>
				<div id="hotel">Hotel</div>
				<div id="results">Results</div>
			</div>
			<div class="clear"></div>
			<div id="content">
				<div id="content_building">
					<div class="selectors">General</div>
					<div class="selectors">Construction</div>
					<div class="selectors">Floors</div>
					<div class="selectors">Facade</div>
					<div class="selectors">Building depth</div>
					<div class="selectors">Vertical transport</div>
					<div class="selectors">Acquiring costs</div>
					<div class="selectors">Terrain</div>
					<div class="clear"></div>
					<div class="test">
						<div id="building1" class="building">
							<span>Building year</span>
							<select>
								<option value="building-0.6- -0.6">&lt; 1970</option>
								<option value="building-1- -1">&gt; 1970</option>
							</select><br />
							<span>Vacancy years</span>
							<select>
								<option value="building-0.3-0.3- ">0 - 3</option>
								<option value="building-0.6-0.6- ">3 - 5</option>
								<option value="building-1-1- ">5 - ...</option>
							</select><br />
							<span>Expandability</span><br />
							<h2><input type="checkbox" name="expandability" value="building-
0.333-0.333- "> Horizontal</h2>
							<h2><input type="checkbox" name="expandability" value="building-
0.333-0.333- "> Vertical</h2>
							<h2><input type="checkbox" name="expandability" value="building-
0.333-0.333- "> Basement</h2>
							<span>Transformation type</span><br />
							<h2><input type="radio" name="transformation" value="1"> Interior
only</h2>
							<h2><input type="radio" name="transformation" value="2"> Interior +
facade</h2>
							<h2><input type="radio" name="transformation" value="3"> Modular
method</h2>
							<div id="extra1">
								<span>Gross Floor Area (m2)</span>
								<input type="text" name="GrossFloorArea" value=""><br
/>
							</div>
							<div id="extra2">
								<span>Facade surface area (m2)</span>
								<input type="text" name="Facadesurfacearea"
value=""><br />
							</div>
							<div id="extra3">
								<span>Demolition costs (&amp;euro;/m2)</span>
								<input type="text" name="DemolitionCosts" value=""><br
/>
							</div>
							<div id="extra4">
								<span>Transformation costs (&amp;euro;/m2)</span>
								<input type="text" name="TransformationCosts"
value=""><br />
							</div>
							<div id="extra5">
								<span>Facade costs (&amp;euro;/m2)</span>
								<input type="text" name="FacadeCosts" value=""><br />
							</div>
						</div>
```

```
<div id="building2" class="building">
        <h1>Structure in current situation</h1>

        <span>Grid size (mm)</span>
        <select>
                <option value="building-0.6- - ">&lt; 5400</option>
                <option value="building-1- - ">5400</option>
                <option value="building-1- - ">7600</option>
                <option value="building-1- - ">&gt; 7600</option>
        </select><br />
        <span>Floor to floor height (mm)</span>
        <select>
                <option value="building-0.6- - ">&lt; 3000</option>
                <option value="building-1- - ">&gt; 3000</option>
        </select><br />
        <span>Type</span>
        <select>
                <option value="building-0.6- - ">Beams /
Columns</option>

                <option value="building-1- - ">Columns</option>
                <option value="building-0.3- - ">Mesh structure</option>
        </select><br />
        <span>State</span>
        <select>
                <option value="building-0.3-0.6-0.3">Replace</option>
                <option value="building-0.6-0.3-0.6">Renovate</option>
                <option value="building-1-1-1">Good</option>
        </select><br />
        <h1>Foundation in current situation</h1>
        <span>State</span>
        <select>
                <option value="building-0.3-0.3-0.3">Replace</option>
                <option value="building-0.3-0.3-0.3">Renovate</option>
                <option value="building-1-1-1">Good</option>
        </select><br />
        <h1>Interior walls in current situation</h1>
        <span>Type</span>
        <select>
                <option value="building-1-1-1">None</option>
                <option value="building-1-1-0.3">Glass</option>
                <option value="building-0.6-0.6-0.6">Gypsum</option>
                <option value="building-0.6-0.6-1">Timber</option>
                <option value="building-0.6-0.6-0.3">Aluminium /
Steel</option>

                <option value="building-0.3-0.3-0.6">Stone</option>
        </select><br />
        <span>Fixed establishment</span>
        <select>
                <option value="building-0.3-0.3-0.6">Yes</option>
                <option value="building-1-1-1">No</option>
        </select><br />
        <h1>Ceilings in current situation</h1>
        <span>Type</span>
        <select>
                <option value="building-0.3-0.3- ">Solid</option>
                <option value="building-0.6-0.6- ">Lowered</option>
                <option value="building-1-1- ">None</option>
        </select><br />
</div>
<div id="building3" class="building">
        <h1>Roof in current situation</h1>
        <span>State</span>
        <select>
                <option value="building-0.3-0.6-0.3">Replace</option>
                <option value="building-0.6-0.3-0.6">Renovate</option>
                <option value="building-1-1-1">Good</option>
        </select><br />
        <h1>Floors in current situation</h1>
        <span>Sound insulation (dB)</span>
        <select>
                <option value="building-0.3-0.3- ">0 - 30</option>
                <option value="building-0.6-0.6- ">30 - 50</option>
                <option value="building-1-1- ">50 - ...</option>
        </select><br />
        <span>Fire protection</span>
        <select>
                <option value="building-0.6-0.6- ">30 minutes</option>
                <option value="building-1-1- ">60 minutes</option>
                <option value="building-1-1- ">120 minutes</option>
        </select><br />
        <span>Carrying capacity</span>
```

```
                    <select>
                        <option value="building-0.3-0.3- ">&lt; 150
kg/m2</option>
                        <option value="building-0.6-0.6- ">150 - 300
kg/m2</option>
                        <option value="building-1-1- ">&gt; 300 kg/m2</option>
                    </select><br />
                </div>
                <div id="building4" class="building">
                    <h1>Facade in current situation</h1>
                    <span>R-value</span>
                    <select id="rValue">
                        <option value="building-0.3-0.6-0.6">0 - 2</option>
                        <option value="building-0.6-0.6-0.6">2 - 4</option>
                        <option value="building-1-1-1">4 - ...</option>
                    </select><br />
                    <span>Load bearing</span>
                    <select id="loadBearing">
                        <option value="building-0.6-0.3- ">Yes</option>
                        <option value="building-1-1- ">No</option>
                    </select><br />
                    <span>State</span>
                    <select id="state">
                        <option value="building-0.3-0.6-0.6">Replace</option>
                        <option value="building-0.6-0.3-0.6">Renovate</option>
                        <option value="building-1-1-1">Good</option>
                    </select><br />
                    <span>Daylight admission (%)</span>
                    <select id="daylightAdmission">
                        <option value="building-0.3- - ">0 - 5</option>
                        <option value="building-0.6- - ">5 - 10</option>
                        <option value="building-1- - ">10 - ...</option>
                    </select><br />
                </div>
                <div id="building5" class="building">
                    <span>Depth (m)</span>
                    <select>
                        <option value="building-0.6- - ">0 - 11</option>
                        <option value="building-1- - ">12 - 16</option>
                        <option value="building-0.6- - ">17 - ...</option>
                    </select><br />
                </div>
                <div id="building6" class="building">
                    <h1>Installations in current situation</h1>
                    <span>State</span>
                    <select>
                        <option value="building-0.3-0.6-0.3">Replace</option>
                        <option value="building-0.6-0.3-0.6">Renovate</option>
                        <option value="building-1-1-1">Good</option>
                    </select><br />
                    <span>Amount of vertical penetrations</span>
                    <select>
                        <option value="building-1-1- ">Sufficient
available</option>
                        <option value="building-0.6-0.6- ">Adding 1</option>
                        <option value="building-0.3-0.3- ">Adding more than
1</option>
                    </select><br />
                    <h1>People transport in current situation</h1>
                    <span>Stairs</span>
                    <select>
                        <option value="building-0.6-0.6- ">0 - 1</option>
                        <option value="building-1-1- ">2 - 4</option>
                        <option value="building-1-1- ">4 - ...</option>
                    </select><br />
                    <span>Elevators</span>
                    <select>
                        <option value="building-0.6-0.6- ">0 - 2</option>
                        <option value="building-1-1- ">3 - 6</option>
                        <option value="building-1-1- ">7 - ...</option>
                    </select><br />
                </div>
                <div id="building7" class="building">
                    <span>Building value</span>
                    <select>
                        <option value="building-1-1- ">0 - 5.000.000</option>
                        <option value="building-0.6-0.6- ">5.000.001 -
10.000.000</option>
                        <option value="building-0.3-0.3- ">10.000.001 -
...</option>
                    </select><br />
```

```
                                        <span>Percentage vacant</span>
                                        <select>
                                                <option value="building-0.3-0.3- ">0 - 50</option>
                                                <option value="building-0.6-0.6- ">51 - 80</option>
                                                <option value="building-1-1- ">81 - 100</option>
                                        </select><br />
                                </div>
                                <div id="building8" class="building">
                                        <h1>Terrain in current situation</h1>
                                        <span>Recognition of building</span>
                                        <select>
                                                <option value="building-1- - ">None</option>
                                                <option value="building-0.6- - ">Neighborhood</option>
                                                <option value="building-0.3- - ">Local</option>
                                                <option value="building-0- - ">National</option>
                                        </select><br />
                                        <span>Entrance</span>
                                        <select>
                                                <option value="building-1- - ">Obscure</option>
                                                <option value="building-0.6- - ">Inviting</option>
                                        </select><br />
                                        <span>Energy Performance in current situation</span>
                                        <select>
                                                <option value="building-0.3-0.3-0.3">Bad (EPC &gt;
1,70)</option>
                                                <option value="building-0.6-0.6-0.6">Mediocre (1,00 &gt;
EPC &gt; 1,70)</option>
                                                <option value="building-1-1-1">Good (EPC &lt;
1,00)</option>
                                        </select><br />
                                </div>
                        </div>
                </div>
                <div id="content_location">
                        <div class="selectors">Geographic</div>
                        <div class="selectors">Hotel</div>
                        <div class="selectors">Accessibility</div>
                        <div class="selectors">Public safety</div>
                        <div class="selectors">Environmental nuisance</div>
                        <div class="selectors">Visual quality environment</div>
                        <div class="clear"></div>
                        <div class="test">
                                <div id="location1" class="location">
                                        <h1>Nationwide location</h1>
                                        <span>Within Netherlands</span>
                                        <select>
                                                <option value="location-0.3- - ">North</option>
                                                <option value="location-0.6- - ">East</option>
                                                <option value="location-0.6- - ">South</option>
                                                <option value="location-1- - ">West</option>
                                        </select><br />
                                        <h1>Part of City</h1>
                                        <span>Center</span>
                                        <select>
                                                <option value="location-1- - ">Yes</option>
                                                <option value="location-0.6- - ">No</option>
                                        </select><br />
                                        <span>Distance to center (km)</span>
                                        <select>
                                                <option value="location-1- - ">0 - 10</option>
                                                <option value="location-0.6- - ">10 - 20</option>
                                                <option value="location-0.3- - ">20 - ...</option>
                                        </select><br />
                                </div>
                                <div id="location2" class="location">
                                        <h1>Competition (Within same star class)</h1>
                                        <span>Distance to closest competitive hotel (km)</span>
                                        <select>
                                                <option value="location-0.3-0.3- ">0 - 5</option>
                                                <option value="location-0.6-0.6- ">6 - 15</option>
                                                <option value="location-1-1- ">16 - ...</option>
                                        </select><br />
                                        <span>Number of hotels within 2 km</span>
                                        <select>
                                                <option value="location-1-1- ">0 - 5</option>
                                                <option value="location-0.6-0.6- ">6 - 10</option>
                                                <option value="location-0.3-0.3- ">11 - ...</option>
                                        </select><br />
                                </div>
                                <div id="location3" class="location">
                                        <h1>Car</h1>
```

```
<span>Distance to major freeway (km)</span>
<select>
<option value="location-1- - ">0 - 5</option>
<option value="location-0.6- - ">5 - 10</option>
<option value="location-0.3- - ">10 - ...</option>
</select><br />
<span>Parking possibilities</span>
<select>
<option value="location-1-1- ">Yes</option>
<option value="location-0.6-0.6- ">No</option>
</select><br />
<h1>Public transport</h1>
<span>Distance to bus / tram (m)</span>
<select>
<option value="location-1- - ">0 - 500</option>
<option value="location-0.6- - ">500 - 1000</option>
<option value="location-0.3- - ">1000 - ...</option>
</select><br />
<span>Distance to train station (m)</span>
<select>
<option value="location-1- - ">0 - 500</option>
<option value="location-0.6- - ">500 - 1000</option>
<option value="location-0.3- - ">1000 - ...</option>
</select><br />
<span>Distance to airport (km)</span>
<select>
<option value="location-1- - ">0 - 20</option>
<option value="location-0.6- - ">21 - 50</option>
<option value="location-0.3- - ">51 - ...</option>
</select><br />
<h1>Facilities</h1>
<span>Number of restaurants within 1 km</span>
<select>
<option value="location-0.3- - ">0 - 10</option>
<option value="location-0.6- - ">11 - 20</option>
<option value="location-1- - ">21 - ...</option>
</select><br />
<span>Grocery possibilities within 1 km</span>
<select>
<option value="location-1- - ">Yes</option>
<option value="location-0.6- - ">No</option>
</select><br />
<span>Shopping possibilities within 5 km</span>
<select>
<option value="location-1- - ">Yes</option>
<option value="location-0.6- - ">No</option>
</select><br />
<span>Recreation possibilities within 1 km</span><br />
<span class="small">(swimming pool, park,...)</span>
<select class="small">
<option value="location-1- - ">Yes</option>
<option value="location-0.6- - ">No</option>
</select><br />
<span>Touristic attractions within 1 km</span><br />
<span class="small">(musea, city center,...)</span>
<select class="small">
<option value="location-1- - ">Yes</option>
<option value="location-0.6- - ">No</option>
</select><br />
</div>
<div id="location4" class="location">
<h1>Vandalism</h1>
<span>Vandalism in vicinity (1 km)</span>
<select>
<option value="location-0.6- - ">Yes</option>
<option value="location-1- - ">No</option>
</select><br />
<span>Graffiti on (surrounding) building(s)</span>
<select>
<option value="location-0.6- - ">Yes</option>
<option value="location-1- - ">No</option>
</select><br />
<h1>Crime rate</h1>
<span>Offenses per 1000 inhabitants</span>
<select>
<option value="location-1- - ">0 - 100</option>
<option value="location-0.6- - ">100 - 200</option>
<option value="location-0.3- - ">200 - ...</option>
</select><br />
</div>
<div id="location5" class="location">
```

```
                                        <h1>Environmental</h1>
                                        <span>Unpleasant shadow from adjacent buildings</span><br />
                                        <span class="small">(during more than 50% of daytime)</span>
                                        <select class="small">
                                                <option value="location-0.6- - ">Yes</option>
                                                <option value="location-1- - ">No</option>
                                        </select><br />
                                        <span>Wind nuisance</span><br />
                                        <span class="small">(during more than 50 days / year)</span>
                                        <select class="small">
                                                <option value="location-0.6- - ">Yes</option>
                                                <option value="location-1- - ">No</option>
                                        </select><br />
                                        <h1>Man influenced</h1>
                                        <span>Odor nuisance</span><br />
                                        <span class="small">(during more than 100 days / year)</span>
                                        <select class="small">
                                                <option value="location-0.6- - ">Yes</option>
                                                <option value="location-1- - ">No</option>
                                        </select><br />
                                        <span>Noise nuisance</span><br />
                                        <span class="small">(during more than 2 hours / day)</span>
                                        <select class="small">
                                                <option value="location-0.6- - ">Yes</option>
                                                <option value="location-1- - ">No</option>
                                        </select><br />
                                </div>
                                <div id="location6" class="location">
                                <h1>Direct surroundings</h1>
                                <span>Type</span>
                                <select>
                                        <option value="location-0.3- - ">Industrial</option>
                                        <option value="location-0.6- - ">Office district</option>
                                        <option value="location-1- - ">Residential</option>
                                        <option value="location-1- - ">Center</option>
                                </select><br />
                                <span>Appearance street</span>
                                <select>
                                        <option value="location-0.6- - ">Urban</option>
                                        <option value="location-1- - ">Green / rural</option>
                                        <option value="location-0.3- - ">Non-consistent</option>
                                </select><br />
                                <h1>Green</h1>
                                <span>Distance to nearest park (km)</span>
                                <select>
                                        <option value="location-1- - ">0 - 1</option>
                                        <option value="location-0.6- - ">2 - 5</option>
                                        <option value="location-0.3- - ">6 - 10</option>
                                </select><br />
                        </div>
                        </div>
</div>
<div id="content_hotel">
                <div class="selectors">Hotel</div>
                <div class="selectors">Room</div>
                <div class="selectors">Facilities</div>
                <div class="selectors">Installations</div>
                <div class="clear"></div>
                <div class="test">
                        <div id="hotel1" class="hotel">
                                <span>Class</span>
                                <select>
                                        <option value="hotel-1-1- ">1*</option>
                                        <option value="hotel-1-1- ">2*</option>
                                        <option value="hotel-1-1- ">3*</option>
                                        <option value="hotel-0.6-0.6- ">4*</option>
                                        <option value="hotel-0.3-0.3- ">5*</option>
                                </select><br />
                                <span>Housing Costs (%)</span>
                                <input type="text" name="housingCosts" value=""><br />
                                <span>BAR (%)</span>
                                <input type="text" name="BAR" value=""><br />
                        </div>
                        <div id="hotel2" class="hotel">
                                <h1>Quality</h1>
                                <span>Finishing</span>
                                <select>
                                        <option value="hotel-1-1- ">Budget</option>
                                        <option value="hotel-0.6-0.6- ">Average</option>
                                        <option value="hotel-0.3-0.3- ">Luxurious</option>
                                </select><br />
```

```
                <span>Price per room (&amp;euro;)</span>
                <input type="text" name="ppr" value=""><br />
                <span>Room Size (m2)</span>
                <input type="text" name="rs" value=""><br />
                <h1>Quantity</h1>
                <span>Number of rooms</span>
                <input type="text" name="nor" value=""><br />
                <span>Occupancy rate (%)</span>
                <input type="text" name="or" value=""><br />
        </div>
        <div id="hotel3" class="hotel">
                <h1>Sport</h1>
                <span>Gym</span>
                <select>
                        <option value="hotel-1-1- ">Yes</option>
                        <option value="hotel-0.6-0.6- ">No</option>
                </select><br />
                <span>Swimming Pool</span>
                <select>
                        <option value="hotel-1-1- ">None</option>
                        <option value="hotel-0.6-0.6- ">Outside</option>
                        <option value="hotel-0.6-0.6- ">Inside: Structure
adequate</option>
                        <option value="hotel-0.3-0.3- ">Inside: Structure needs
renovating</option>
                        <option value="hotel-0.6-0.6- ">Inside and Outside:
Structure adequate</option>
                        <option value="hotel-0.3-0.3- ">Inside and Outside:
Structure needs renovating</option>
                </select><br />
                <h1>Dining</h1>
                <span>Restaurant</span>
                <select>
                        <option value="hotel-1-1- ">Yes</option>
                        <option value="hotel-0.6-0.6- ">No</option>
                </select><br />
        </div>
        <div id="hotel4" class="hotel">
        <h1>Heating systems</h1>
        <span>Heating of building</span>
        <select>
                <option value="hotel-0.3-0.6-0.3">Electrical</option>
                <option value="hotel-0.6-1-0.6">HR boiler</option>
                <option value="hotel-0.6-1-0.6">VR boiler</option>
                <option value="hotel-1-0.6-1">Heat pump</option>
                <option value="hotel-1-1-1">External heat delivery</option>
                <option value="hotel-0.6-0.3-0.6">Steam powered</option>
        </select><br />
        <span>Cooling</span>
        <select>
                <option value="hotel-0.6-0.6-0.6">Heat pump (summer
operation)</option>
                <option value="hotel-0.6-0.6-0.6">Absorption cooling
machine</option>
                <option value="hotel-0.6-0.3-0.6">Cold storage</option>
                <option value="hotel-1-1-1">Multiple devices</option>
        </select><br />
        <span>Hot drinking water</span>
        <select>
                <option value="hotel-0.3-0.6-0.3">Electrical</option>
                <option value="hotel-0.6-1-0.6">HR boiler</option>
                <option value="hotel-0.6-1-0.6">VR boiler</option>
                <option value="hotel-1-0.6-1">Heat pump</option>
                <option value="hotel-1-1-1">External heat delivery</option>
                <option value="hotel-0.6-0.3-0.6">Steam powered</option>
        </select><br />
        <span>Ventilation</span>
        <select>
                <option value="hotel-1-0.6-1">Mechanical ventilation with heat
exchange</option>
                <option value="hotel-0.6-0.3-0.6">Mechanical ventilation without heat
exchange</option>
                <option value="hotel-1-1-1">Natural ventilation only</option>
        </select><br />
        <span>Solar panels</span>
        <select>
                <option value="hotel-0.3-1-0.3">No solar panels</option>
                <option value="hotel-0.6-0.6-0.6">Solar panels</option>
                <option value="hotel-1-0.3-1">PV Cells</option>
        </select><br />
        <h1>Lighting system</h1>
```

```
                                        <span>Power per m2 (W/m2)</span>
                                        <select>
                                                <option value="hotel-1-1-1">0 - 8</option>
                                                <option value="hotel-0.6-0.6-0.6">8 - 14</option>
                                                <option value="hotel-0.3-0.3-0.3">14 - ...</option>
                                        </select><br />
                                </div>
                                </div>
                        </div>
                        <div id="content_results">
                                <div class="selectors">Score</div>
                                <div class="selectors">Financial</div>
                                <div class="clear"></div>
                                <div class="test">
                                        <div id="results1" class="results">
                                                <div class="totalScoreText">TPC</div>
                                                <div class="totalScoreOutput"></div>
                                                <br />
                                                <br />
                                                <div class="scoreText">TPC</div>
                                                <div class="small">building</div>
                                                <div id="buildingScoreOutput" class="scoreOutput"></div>
                                                <br />
                                                <div class="scoreText">TPC</div>
                                                <div class="small">location</div>
                                                <div id="locationScoreOutput" class="scoreOutput"></div>
                                                <br />
                                                <div class="scoreText">TPC</div>
                                                <div class="small">hotel</div>
                                                <div id="hotelScoreOutput" class="scoreOutput"></div>
                                                <br />
                                                <div class="scoreText">TPC</div>
                                                <div class="small">durability</div>
                                                <div id="totalDurabilityOutput" class="scoreOutput"></div>
                                                <br />
                                                <div class="scoreText">TPC</div>
                                                <div class="small">financial</div>
                                                <div id="totalFinancialOutput" class="scoreOutput"></div>
                                                <br />
                                                <div id="absolute"></div>
                                        </div>
                                        <div id="results2" class="results">
                                                <div class="financialText">Projected Total costs (&euro;)</div>
                                                <div id="totalCostsOutput" class="financialOutput"></div>
                                                <br />
                                                <div class="financialText">Projected Total revenue per year usable for
housing costs (&euro;)</div>
                                                <div id="totalRevenueOutput" class="financialOutput"></div>
                                                <br />
                                                <div class="financialText">Projected Budget per m2 (&euro;/m2)</div>
                                                <div id="totalBudgetOutput" class="financialOutput"></div>
                                                <br />
                                                <div class="financialText">Projected Total possible investment
(&euro;)</div>
                                                <div id="totalInvestmentOutput" class="financialOutput"></div>
                                                <br />

                                        </div>
                                </div>
                        </div>
                </div>
                <div id="sidebarTop"></div>
                <div id="sidebar">
                        <div id="sidebarValues">
                                <div class="totalScoreText">TPC</div>
                                <div class="totalScoreOutput"></div>
                        </div>
                </div>
                <div class="clear"></div>
                <div id="footer">

                </div>
        </div>
    </body>
</html>
```