

Allocation test input

This Appendix contains input data used in the allocation test described in Section 3.5 of the paper.

Table A1

Compartment area for allocation test case 1 and 2.

Test case 1	Compartment	1	2	3	4	5	6	7	8	9
	Area [m ²]	288.0	288.0	287.3	288.0	251.3	288.0	288.0	288.0	288.0
Test case 2	Compartment	1	2	3	4	5	6	7		
	Area [m ²]	135.9	153.0	100.6	92.6	163.6	128.2	125.4		
	Compartment	8	9	10	11	12	13	14		
	Area [m ²]	106.7	90.7	129.4	176.4	94.8	119.1	164.9		

Table A2

Space area and allowed allocation of 100 spaces to nine compartments for allocation test 1.

Space number	Area [m ²]	Compartments									Space number	Area [m ²]	Compartments								
		1	2	3	4	5	6	7	8	9			1	2	3	4	5	6	7	8	9
1	115					1					51	20	1	1	1				1	1	
2	125					1					52	20	1	1	1				1	1	
3	130				1						53	20	1	1	1				1	1	
4	50				1						54	20	1	1	1				1	1	
5	50				1						55	20	1	1	1				1	1	
6	50				1						56	20	1	1	1				1	1	
7	40				1						57	20	1	1	1				1	1	
8	30				1						58	20	1	1	1				1	1	
9	30				1						59	20	1	1	1				1	1	
10	25				1						60	20	1	1	1				1	1	
11	20								1		61	20	1	1	1				1	1	
12	12								1		62	20	1	1	1				1	1	
13	12								1		63	20	1	1	1				1	1	
14	12								1		64	20	1	1	1				1	1	
15	12								1		65	20	1	1	1				1	1	
16	12								1		66	20	1	1	1				1	1	
17	12								1		67	20	1	1	1				1	1	
18	12								1		68	20	1	1	1				1	1	
19	12								1		69	20	1	1	1				1	1	
20	10					1	1	1			70	20	1	1	1				1	1	
21	10					1	1	1			71	20	1	1	1				1	1	
22	10					1	1	1			72	20	1	1	1				1	1	
23	10					1	1	1			73	20	1	1	1				1	1	
24	10					1	1	1			74	20	1	1	1				1	1	
25	10					1	1	1			75	20	1	1	1				1	1	
26	10					1	1	1			76	20	1	1	1				1	1	
27	10					1	1	1			77	20	1	1	1				1	1	
28	10					1	1	1			78	20	1	1	1				1	1	
29	10					1	1	1			79	20	1	1	1				1	1	
30	10					1	1	1			80	20	1	1	1				1	1	
31	15					1	1	1			81	20	1	1	1				1	1	
32	15					1	1	1			82	20	1	1	1				1	1	
33	15					1	1	1			83	20	1	1	1				1	1	
34	15					1	1	1			84	20	1	1	1				1	1	
35	15					1	1	1			85	20	1	1	1				1	1	
36	15					1	1	1			86	20	1	1	1				1	1	
37	15					1	1	1			87	20	1	1	1				1	1	
38	15					1	1				88	20	1	1	1				1	1	
39	15					1	1				89	20	1	1	1				1	1	
40	15					1	1				90	20	1	1	1				1	1	
41	15					1	1				91	20	1	1	1				1	1	
42	15					1	1				92	20	1	1	1				1	1	
43	15					1	1				93	20	1	1	1				1	1	
44	15					1	1				94	20	1	1	1				1	1	
45	15					1	1				95	20	1	1	1				1	1	
46	20	1	1	1				1	1		96	20	1	1	1				1	1	
47	20	1	1	1				1	1		97	20	1	1	1				1	1	
48	20	1	1	1				1	1		98	20	1	1	1				1	1	
49	20	1	1	1				1	1		99	20	1	1	1				1	1	
50	20	1	1	1				1	1		100	20	1	1	1				1	1	

Table A3

Space area and allowed allocation of 75 spaces to fourteen compartments for allocation test 2.

Space nr.	Area [m ²]	Compartments														Space nr.	Area [m ²]	Compartments													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14			1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	10	1	1													39	15			1	1	1	1		1	1	1				
2	35	1	1													40	15			1	1	1	1		1	1	1				
3	20	1	1													41	15			1	1	1	1		1	1	1				
4	10														1	1	42	15		1	1	1	1		1	1	1				
5	10															1	43	15		1	1	1	1		1	1	1				
6	10														1	1	44	15		1	1	1	1		1	1	1				
7	10														1	1	45	20	1	1	1	1	1	1	1	1	1				
8	10														1	1	46	20	1	1	1	1	1	1	1	1	1				
9	10														1	1	47	20	1	1	1	1	1	1	1	1	1				
10	10														1	1	48	20	1	1	1	1	1	1	1	1	1				
11	10														1	1	49	20	1	1	1	1	1	1	1	1	1				
12	10														1	1	50	20	1	1	1	1	1	1	1	1	1				
13	13														1	1	51	20	1	1	1	1	1	1	1	1	1				
14	13														1	1	52	20	1	1	1	1	1	1	1	1	1				
15	13														1	1	53	20	1	1	1	1	1	1	1	1	1				
16	13														1	1	54	20	1	1	1	1	1	1	1	1	1				
17	13														1	1	55	20	1	1	1	1	1	1	1	1	1				
18	13														1	1	56	20	1	1	1	1	1	1	1	1	1				
19	13														1	1	57	20	1	1	1	1	1	1	1	1	1				
20	13														1	1	58	20	1	1	1	1	1	1	1	1	1				
21	13														1	1	59	20	1	1	1	1	1	1	1	1	1				
22	13														1	1	60	20	1	1	1	1	1	1	1	1	1				
23	13														1	1	61	20	1	1	1	1	1	1	1	1	1				
24	15														1	1	62	20	1	1	1	1	1	1	1	1	1				
25	15														1	1	63	20	1	1	1	1	1	1	1	1	1				
26	15														1	1	64	20	1	1	1	1	1	1	1	1	1				
27	15														1	1	65	20	1	1	1	1	1	1	1	1	1				
28	15														1	1	66	20	1	1	1	1	1	1	1	1	1				
29	15														1	1	67	20	1	1	1	1	1	1	1	1	1				
30	15														1	1	68	20	1	1	1	1	1	1	1	1	1				
31	15														1	1	69	20	1	1	1	1	1	1	1	1	1				
32	15														1	1	70	20	1	1	1	1	1	1	1	1	1				
33	15														1	1	71	20	1	1	1	1	1	1	1	1	1				
34	15														1	1	72	20	1	1	1	1	1	1	1	1	1				
35	15														1	1	73	50													
36	15														1	1	74	100													
37	15														1	1	75	50													
38	15														1	1															

Case study input

This Appendix contains the input for the concluding case study presented in Section 4 of the paper.

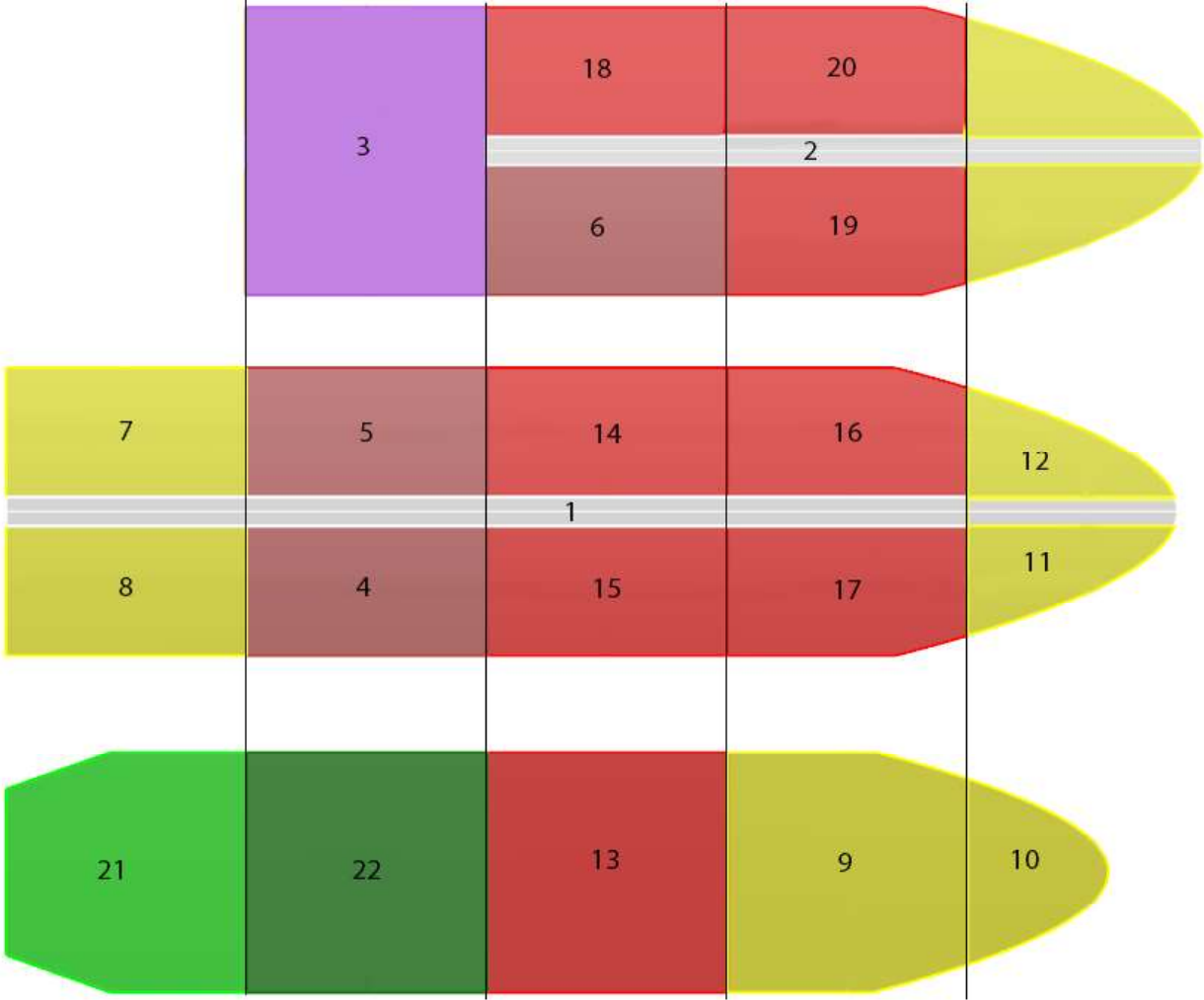


Figure A1: Deck plans of the functional arrangement used in the case study

Table A4

Case study: Space list and space characteristics

ID	Name	Area	AR low	AR high	FBB name	FBB numbers					
1	Store 1	15	0.5	1	Operational rooms and offices	4					
2	Store 2	15	0.5	1	Operational rooms and offices	4					
3	Store 3	20	0.5	1	Operational rooms and offices	4					
4	Mess	35	0.5	1	Accommodation cabins	15					
5	Galley	15	0.5	1	Accommodation cabins	15					
6	Cabin 1	10	0.5	1	Accommodation cabins	13					
7	Cabin 1	10	0.5	1	Accommodation cabins	13					
8	Cabin 1	10	0.5	1	Accommodation cabins	13					
9	Cabin 1	10	0.5	1	Accommodation cabins	13					
10	Cabin 1	10	0.5	1	Accommodation cabins	13					
11	Cabin 1	10	0.5	1	Accommodation cabins	13					
12	Cabin 1	10	0.5	1	Accommodation cabins	13					
13	Cabin 1	10	0.5	1	Accommodation cabins	13					
14	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
15	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
16	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
17	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
18	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
19	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
20	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
21	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
22	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
23	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
24	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
25	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
26	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
27	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
28	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
29	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
30	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20
31	Cabin 2	15	0.5	1	Accommodation cabins	14	16	17	18	19	20

Table A5

Case study: List with functional building blocks and available area in compartments. ¹ YES: these FBBs are not available for space arrangement

FBB number	FBB name	Area	Blocked ¹	Deck	Compartment	Available area
1	Passage ways and staircases	58.5	Yes	1	3	97.92
2	Passage ways and staircases	24	Yes	2	2	51.84
3	Helicopter hangar	120	Yes	2	3	110.16
4	Operational rooms and offices	54.1	No	2	4	110.16
5	Operational rooms and offices	54.1	Yes	3	3	55.08
6	Operational rooms and offices	54.1	Yes	3	4	110.16
7	Void	54.1	Yes			
8	Void	54.1	Yes			
9	Void	95.9	Yes			
10	Void	30.3	Yes			
11	Void	24.9	Yes			
12	Void	24.9	Yes			
13	Accommodation cabins	100.1	No			
14	Accommodation cabins	54.1	No			
15	Accommodation cabins	54.1	No			
16	Accommodation cabins	52.8	No			
17	Accommodation cabins	52.8	No			
18	Accommodation cabins	54.1	No			
19	Accommodation cabins	53.6	No			
20	Accommodation cabins	53.6	No			
21	Propulsion room	93.3	Yes			
22	Generator room	100.1	Yes			