



---

## Appendix D

### SELECTION MATRIX

---

Air-conditioning system	Building Restrictions				Aesthetic Limitations				System Requirements				
	W <sub>A1</sub>	W <sub>A2</sub>	W <sub>A3</sub>	W <sub>A4</sub>	W <sub>B1</sub>	W <sub>B2</sub>	W <sub>B3</sub>	W <sub>B4</sub>	W <sub>C1</sub>	W <sub>C2</sub>	W <sub>C3</sub>	W <sub>C4</sub>	W <sub>C5</sub>
	5.5	2.7	0	5.6	2.7	5.5	0	0	2.6	5.8	5.8	5.2	5.2
All-air, variable air temperature, full fresh air system with water-cooled refrigeration plant.	22.0	5.5	0.0	27.5	13.7	27.5	0.0	0.0	13.1	0.0	23.0	0.0	5.2
All-air, variable air temperature, full fresh air system with air-cooled refrigeration plant.	22.0	5.5	0.0	27.5	13.7	27.5	0.0	0.0	13.1	0.0	28.8	0.0	5.2
All-air, variable air temperature, economiser system and water-cooled refrigeration plant.	22.0	4.1	0.0	27.5	13.7	27.5	0.0	0.0	13.1	0.0	23.0	0.0	5.2
All-air, variable air temperature, economiser system and air-cooled refrigeration plant.	22.0	4.1	0.0	27.5	13.7	27.5	0.0	0.0	13.1	0.0	28.8	0.0	5.2
All-air, dual duct system with water-cooled refrigeration plant.	22.0	0.0	0.0	27.5	11.0	27.5	0.0	0.0	13.1	0.0	17.3	5.2	10.5
All-air, dual duct system with air-cooled refrigeration plant.	22.0	0.0	0.0	27.5	11.0	27.5	0.0	0.0	13.1	0.0	23.0	5.2	10.5
All-air, variable volume, economiser system and water-cooled refrigeration plant.	22.0	2.7	0.0	27.5	8.2	27.5	0.0	0.0	10.5	0.0	17.3	10.5	10.5
All-air, variable volume, economiser system and air-cooled refrigeration plant.	22.0	2.7	0.0	27.5	8.2	27.5	0.0	0.0	10.5	0.0	23.0	10.5	10.5
Four-pipe system with air-cooled refrigeration plant.	22.0	8.2	0.0	22.0	5.5	27.5	0.0	0.0	7.9	0.0	23.0	15.7	15.7
Four-pipe system with water-cooled refrigeration plant.	22.0	8.2	0.0	22.0	5.5	27.5	0.0	0.0	7.9	0.0	17.3	15.7	15.7
Two-pipe system with air-cooled refrigeration plant.	22.0	11.0	0.0	22.0	5.5	27.5	0.0	0.0	7.9	0.0	17.3	15.7	5.2
Two-pipe system with water-cooled refrigeration plant.	22.0	11.0	0.0	22.0	5.5	27.5	0.0	0.0	7.9	0.0	11.5	15.7	5.2
Split systems	22.0	11.0	0.0	16.5	2.7	27.5	0.0	0.0	7.9	23.0	17.3	20.9	20.9
Window units	27.5	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.8	0.0	26.2	26.2
Through the wall console units	27.5	13.7	0.0	0.0	0.0	27.5	0.0	0.0	0.0	28.8	0.0	26.2	26.2
Packaged rooftop units	22.0	4.1	0.0	27.5	13.7	27.5	0.0	0.0	13.1	11.5	28.8	0.0	5.2

Table D.1 - Selection matrix

Air-conditioning system	Air Quality and flow Restrictions					Building Management				Cost	Preliminary		System
	W <sub>D1</sub> 2.9	W <sub>D2</sub> 0	W <sub>D3</sub> 5.8	W <sub>D4</sub> 5.8	W <sub>D5</sub> 2.9	W <sub>E1</sub> 5.8	W <sub>E2</sub> 5.8	W <sub>E3</sub> 5.8	W <sub>E4</sub> 6.3	W <sub>F</sub> 7.3	W <sub>G1</sub> 5.2	W <sub>G2</sub> 0	Ranking Value
All-air, variable air temperature, full fresh air system with water-cooled refrigeration plant.	14.4	0.0	28.8	28.8	14.4	28.8	0.0	0.0	31.4	10	5.2	0.0	<b>300</b>
All-air, variable air temperature, full fresh air system with air-cooled refrigeration plant.	14.4	0.0	28.8	28.8	14.4	28.8	0.0	0.0	31.4	11	5.2	0.0	<b>306</b>
All-air, variable air temperature, economiser system and water-cooled refrigeration plant.	14.4	0.0	28.8	28.8	14.4	28.8	0.0	0.0	31.4	23	5.2	0.0	<b>311</b>
All-air, variable air temperature, economiser system and air-cooled refrigeration plant.	14.4	0.0	28.8	28.8	14.4	28.8	0.0	0.0	31.4	26	5.2	0.0	<b>320</b>
All-air, dual duct system with water-cooled refrigeration plant.	14.4	0.0	28.8	28.8	14.4	28.8	0.0	0.0	0.0	22	5.2	0.0	<b>276</b>
All-air, dual duct system with air-cooled refrigeration plant.	14.4	0.0	28.8	28.8	14.4	28.8	0.0	0.0	0.0	24	5.2	0.0	<b>284</b>
All-air, variable volume, economiser system and water-cooled refrigeration plant.	14.4	0.0	28.8	23.0	14.4	28.8	0.0	5.8	18.8	9	5.2	0.0	<b>285</b>
All-air, variable volume, economiser system and air-cooled refrigeration plant.	14.4	0.0	28.8	23.0	14.4	28.8	0.0	5.8	18.8	31	5.2	0.0	<b>313</b>
Four-pipe system with air-cooled refrigeration plant.	8.6	0.0	17.3	17.3	8.6	17.3	17.3	17.3	12.6	25	5.2	0.0	<b>293</b>
Four-pipe system with water-cooled refrigeration plant.	8.6	0.0	17.3	17.3	8.6	17.3	17.3	17.3	12.6	0	5.2	0.0	<b>263</b>
Two-pipe system with air-cooled refrigeration plant.	8.6	0.0	17.3	17.3	8.6	11.5	17.3	17.3	18.8	34	5.2	0.0	<b>290</b>
Two-pipe system with water-cooled refrigeration plant.	8.6	0.0	17.3	17.3	8.6	11.5	17.3	17.3	18.8	11	5.2	0.0	<b>261</b>
Split systems	0.0	0.0	0.0	0.0	5.8	5.8	28.8	28.8	12.6	23	5.2	0.0	<b>279</b>
Window units	0.0	0.0	0.0	0.0	0.0	0.0	28.8	28.8	0.0	28	0.0	0.0	<b>208</b>
Through the wall console units	0.0	0.0	0.0	0.0	0.0	0.0	28.8	28.8	0.0	28	0.0	0.0	<b>235</b>
Packaged rooftop units	8.6	0.0	23.0	28.8	11.5	23.0	0.0	0.0	25.1	37	5.2	0.0	<b>316</b>

Table D.1 - Selection matrix (Continued)

## D.1 NOTES

1. The above matrix provides the detail selection results of the hypothetical building of Chapter 7.
2. The matrix indicates the product of the weighing factor and rating factor for each system and its corresponding selection criteria. The total of which is provided in the system ranking value column.
3. The weighing factor ( $W_i$ ) for each selection criteria is provided at the top of the matrix.
4. Refer to Chapter 6 for the appropriate rating factors.