APPENDIX D – CONSTRUCTION COSTS

Table D.1: Glazing System Assembly Costs (Imperial)

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/ft²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
1	Window-wall	doubled glazed with insulated slab bypass	1.2.1	52[1]	52.4[2]	52.7[3]	53.7[1]	53.8[2]	54.1[3]
2	Window-wall	doubled glazed with insulated slab bypass and interior foam insulation	1.2.2	52.6[1]	52.7[2]	53.0[3]	54.6[1]	54.7[2]	55.0[3]
3	Window-wall sliding door	double glazed and thermally broken	8.1.6	58.8[1]	59.0[2]	59.3[3]	60.0[1]	60.1[2]	60.5[3]
4	Conventional curtain-wall	doubled glazed with insulated metal backpan	2.1.1	88.2[4]	88.3[5]	89.8[6]	90.7[4]	90.8[5]	92.3[6]
5	Conventional curtain-wall	doubled glazed with insulated metal backpan and interior foam insulation	2.1.2	97.7[4]	97.9[5]	99.5[6]	97.2[4]	97.4[5]	98.1[6]
6	Unitized curtain-wall (i.e. modular system with stacked joint)	doubled glazed with insulated metal backpan	3.2.1	102.1[4]	102.2[5]	103.9[6]	104.9[4]	105.1[5]	106.8[6]
7	Unitized curtain-wall (i.e. modular system with stacked joint)	doubled glazed with insulated metal backpan and interior foam insulation	3.2.2	104.4[4]	104.6[5]	106.2[6]	105.9[4]	106.1[5]	107.8[6]
8	High performance curtain-wall	doubled glazed with insulated metal backpan	4.2.1	97.4[4]	97.6[5]	99.2[6]	98.7[4]	98.8[5]	100.4[6]
9	High performance curtain-wall	doubled glazed with insulated metal backpan and interior foam insulation	4.2.2	102.9[4]	103.0[5]	104.7[6]	106.0[4]	106.2[5]	107.9[6]

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.2.1: Wall System Assembly Costs (Imperial)

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/ft²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
10	Concrete block with brick veneer	brick veneer with exterior insulation between ties at 16" o.c., 8" concrete block and 1 5/8" steel studs	6.2.14	71.5[7]	72.2[8]	74.7[9]	74.9[7]	75.6[8]	78.0[9]
11	Cross laminated timber	6" CLT wall structure with continuous exterior insulation and through-insulation fasteners supporting fiber cement board	7.7.2	50.5[10]	51.3[11]	52.1[11]	53.9[9]	54.8[10]	55.6[11]
12	IMP horizontal system	36" panel system with 3" polyisocyanurate foam core	5.1.25 5.1.26 5.2.27 5.3.7 5.5.11 5.6.9	56.8[38]			63.6[38]		
13	IMP vertical system	42" panel system with 3" polyisocyanurate foam core	5.1.23 5.1.24 5.2.26 5.3.6 5.5.10 5.6.8	31.1[38]			42.3[38]		
14	Poured-in-place concrete	continuous insulation and 3 5/8" Steel studs with R12 batt insulation	6.2.4	62.1[13]	62.7[14]	63.1[15]	64.2[13]	64.9[14]	65.2[15]
15	Poured-in-place concrete	continuous insulation with 1 1/5" Steel studs	6.2.2	59.2[13]	59.9[14]	60.2[15]	62.6[13]	63.2[14]	63.6[15]
16	Pre-cast concrete panel	pre-cast concrete with continuous insulation outboard of 3 5/8" steel studs	6.2.7	49.9[13]	50.5[14]	50.7[15]	50.0[13]	50.6[14]	50.8[15]
17	Pre-cast concrete panel	pre-cast concrete with R-12 batt insulation between 3 5/8" steel studs	6.2.6	53.0[39]			53.6[39]		

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.2.2: Wall System Assembly Costs (Imperial) continued

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/ft²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
18	Pre-cast sandwich panel	4" exterior concrete, 2" insulation with concrete at perimeter edges, 4" interior concrete, steel connectors, 3 5/8" steel studs (16" o.c.)	6.2.9	74.2[41]			78.0[41]		
19	Pre-cast sandwich panel	4" exterior concrete, 2" continuous insulation, 4" interior concrete, steel connectors, 3 5/8" steel studs (16" o.c.)	6.2.9 6.2.10 6.2.11 6.2.12	72.7[41]			76.6[41]		
20	Pre-cast sandwich panel	4" exterior concrete, 2" continuous insulation, 4" interior concrete, FRP connectors, 3 5/8" steel studs (16" o.c.)	6.2.13	75.6[41]			78.9[41]		
21	Steel stud wall with aluminum clip with horizontal sub-girt and thermal isolators	exterior insulated 3 5/8" Steel studs (16" o.c.) with proprietary aluminum clip supporting metal panel	5.1.17	55.8[16]	56.0[17]	56.3[18]	57.4[16]	57.6[17]	57.9[18]
22	Steel stud wall with aluminum clip with horizontal sub-girt and thermal isolators	exterior and interior insulated 3 5/8" Steel studs (16" o.c.) with proprietary clip supporting metal panel	5.1.17 w/ batt	58.6[19]	58.8[20]	59.0[21]	60.2[19]	60.5[20]	60.6[21]
23	Steel stud wall with fiberglass spacer and through-insulation fasteners	exterior insulated 3 5/8" Steel studs (16" o.c.) fiberglass spacer and through-insulation fasteners supporting metal panel	5.1.16	56.6[22]			58.2[22]		
24	Steel stud wall with metal panel	exterior insulated, 3 5/8" Steel studs (16" o.c.) with horizontal clips (24" o.c.) supporting metal panel	5.1.11	71.7[16]	72.0[17]	72.3[18]	74.9[16]	75.2[17]	75.6[18]
25	Steel stud wall with metal panel	exterior and interior insulated, 3 5/8" Steel studs (16" o.c.) with horizontal clips (24" o.c.) supporting metal panel	5.1.12	72.9[19]	73.3[20]	73.5[21]	76.3[19]	76.6[20]	76.9[21]
26	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with vertical z-girts (16" o.c.) supporting metal panel	5.1.3	62.2[16]	62.5[17]	62.7[18]	65.5[16]	65.8[17]	66.1[18]

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.2.3: Wall System Assembly Costs (Imperial) continued

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/ft²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
27	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with horizontal z-girts (24" o.c.) supporting metal panel	5.1.5	61.5[16]	61.8[17]	62.1[18]	64.8[16]	65.1[17]	65.4[18]
28	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with vertical and horizontal z-girts (24" o.c.) supporting metal panel	5.1.9	65.6[16]	65.9[17]	66.2[18]	68.9[16]	69.2[17]	69.5[18]
29	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with clips (24" o.c.) supporting metal panel	5.1.10	63.5[16]	63.8[17]	64.1[18]	66.8[16]	67.1[17]	67.4[18]
30	Steel stud wall with metal panel	exterior and interior insulated 3 5/8" Steel studs (16" o.c.) with horizontal z-girts (16" o.c.) supporting metal panel	5.1.7	65.3[19]	66.6[20]	66.8[21]	68.6[19]	69.0[20]	69.2[21]
31	Steel stud with brick veneer	brick veneer with exterior insulation between ties at 16" o.c., 3 5/8" Steel studs (16" o.c.) and R12 batt insulation	5.2.9	56.1[7]	56.8[8]	59.2[9]	59.4[7]	60.1[8]	62.5[9]
32	Steel stud with stucco	3 5/8" Steel studs (16" o.c.) with vertical z-girts (16" o.c.) supporting stucco	5.1.6	38.7[16]	38.8[17]	39.2[18]	42.1[16]	42.3[17]	42.5[18]
33	Steel stud with stucco	3 5/8" Steel studs (16" o.c.) with vertical clip system (16" o.c.) supporting stucco	5.1.13	40.1[16]	40.3[17]	40.5[18]	43.4[16]	43.6[17]	43.8[18]
34	Wood infill/poured-in-place concrete	concrete framed structure with 2x6 wood stud (16" o.c.), R19 batt Insulation, continuous exterior insulation and through-insulation fasteners supporting fiber cement board	7.7.1	33.0[23]	34.0[24]	34.9[25]	34.7[23]	35.7[24]	36.5[25]
35	Wood-frame wall with steel clip with horizontal rail and thermal isolators	exterior insulated 2x4 wood studs (16" o.c.) with proprietary steel clip supporting metal panel		57.5[16]	47.7[17]	58.0[18]			

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.2.4: Wall System Assembly Costs (Imperial) continued

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/ft²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
36	Wood-frame wall with steel clip with horizontal rail and thermal isolators	exterior and interior insulated 2x4 wood studs (16" o.c.) with proprietary steel clip supporting metal panel		73.6[19]	73.9[20]	74.1[21]			
37	Wood-frame with brick veneer	brick veneer with exterior insulation between ties at 16" o.c., 2 x 6 wood studs (16" o.c.) and R19 batt insulation	7.6.4	55.7[7]	56.2[8]	58.0[9]			
38	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, wood strapping supporting fiber cement board	7.1.1	28.4[40]					
39	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, exterior insulation between wood strapping supporting fiber cement board	7.1.2	31.8[26]	32.1[27]	32.6[28]			
40	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, continuous exterior insulation and through-insulation fasteners supporting fiber cement board	7.1.3	33.1[23]	34.1[24]	34.8[25]			
41	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, exterior insulation between metal horizontal z-girts (24" o.c.) supporting fiber cement board	7.1.4	35.9[29]	36.7[30]	37.5[31]			
42	Steel stud wall with EIFS	Exterior and Interior Insulated 3 5/8” x 1 5/8” Steel Stud (16” o.c.) Drained EIFS Wall Assembly	5.1.2	30.9[32]	31.0[33]	31.1[34]	36.8[32]	37.0[33]	37.1[34]
43	Steel stud wall with EIFS	Exterior Insulated 3 5/8” x 1 5/8” Steel Stud (16” o.c.) Drained EIFS Wall Assembly	5.1.1	28.9[35]	29.0[36]	29.2[37]	34.9[35]	35.0[36]	35.1[37]
44	Poured-in-place concrete with EIFS	Exterior Insulated Concrete Drained EIFS Wall Assembly	6.1.1	75.9[32]	76.6[33]	77.0[34]	81.8[32]	82.3[33]	82.9[34]

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.3: Roof System Assembly Costs (Imperial)

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/ft²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
45	Flat roof on composite steel deck, exterior insulated	flat roof on steel deck	5.5.9	73.1[29]	74.7[30]	76.3[31]	76.4[29]	78.1[30]	79.7[31]
46	Flat roof on concrete deck, inverted system	flat roof on concrete deck	9.2.2	59.3[29]	60.6[30]	61.8[31]	62.6[29]	64.0[30]	65.3[31]
47	Flat roof on wood deck, exterior insulated	conventional roof with trusses (24" o.c.) supporting wood sheathing with SBS roof membrane		45.9[29]	46.9[30]	47.9[31]			
48	Flat roof on wood deck, insulation at ceiling level between trusses	conventional roof with trusses (24" o.c.) supporting wood sheathing with batt insulation at ceiling level	7.4.1	43.7[32]	44.6[33]	45.5[34]			
49	Sloped metal roof, exterior insulated	continuous metal sub-girts with metal seam roof	9.2.1	58.6[29]	59.9[30]	61.2[31]			
50	Sloped wood-framed roof, insulation at celling level between trusses	roof truss (24" o.c.) supporting wood sheathing with asphalt shingles and R-19 batt insulation at ceiling	7.1.3	40.8[32]	41.7[33]	42.6[34]			
51	Sloped wood-framed roof, with insulation at sheathing level between trusses	roof truss (24" o.c.) supporting wood sheathing with asphalt shingles and R-30 Polyurethane foam insulation between top chords	7.4.3	39.7[35]	40.6[36]	41.4[37]			

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.4: Glazing System Assembly Costs (Metric)

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/m²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
1	Window-wall	doubled glazed with insulated slab bypass	1.2.1	563[1]	564[2]	567[3]	578[1]	580[2]	583[3]
2	Window-wall	doubled glazed with insulated slab bypass and interior foam insulation	1.2.2	566[1]	567[2]	571	587[1]	589[2]	592[3]
3	Window-wall sliding door	double glazed and thermally broken	8.1.6	633[1]	635[2]	639	646[1]	647[2]	651[3]
4	Conventional curtain-wall	doubled glazed with insulated metal backpan	2.1.1	949[4]	950[5]	966[6]	976[4]	977[5]	993[6]
5	Conventional curtain-wall	doubled glazed with insulated metal backpan and interior foam insulation	2.1.2	1052[4]	1054[5]	1071[6]	1046[4]	1048[5]	1056[6]
6	Unitized curtain-wall (i.e. modular system with stacked joint.)	doubled glazed with insulated metal backpan	3.2.1	1099[4]	1100[5]	1118[6]	1129[4]	1131[5]	1149[6]
7	Unitized curtain-wall (i.e. modular system with stacked joint)	doubled glazed with insulated metal backpan and interior foam insulation	3.2.2	1124[4]	1125[5]	1144[6]	1140[4]	1142[5]	1160[6]
8	High performance curtain-wall	doubled glazed with insulated metal backpan	4.2.1	1049[4]	1050[5]	1067[6]	1062[4]	1064[5]	1081[6]
9	High performance curtain-wall	doubled glazed with insulated metal backpan and interior foam insulation	4.2.2	1107[4]	1109[5]	1127[6]	1141[4]	1143[5]	1161[6]

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.5.1: Wall System Assembly Costs (Metric)

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/m²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
10	Concrete block with brick veneer	brick veneer with exterior insulation between ties at 16" o.c., 8" concrete block and 1 5/8" steel studs	6.2.14	770[7]	777[8]	804[9]	806[7]	813[8]	840[9]
11	Cross laminated timber	6" CLT wall structure with continuous exterior insulation and through-insulation fasteners supporting fiber cement board	7.7.2	544[10]	553[11]	561[12]	581[10]	590[11]	598[12]
12	IMP horizontal system	36" panel system with 3" polyisocyanurate foam core	5.1.25 5.1.26 5.2.27 5.3.7 5.5.11 5.6.9	612[38]			684[38]		
13	IMP vertical system	42" panel system with 3" polyisocyanurate foam core	5.1.23 5.1.24 5.2.26 5.3.6 5.5.10 5.6.8	335[38]			456[38]		
14	Poured-in-place concrete	continuous insulation and 3 5/8" Steel studs with R12 batt insulation	6.2.4	668[13]	675[14]	679[15]	691[13]	698[14]	702[15]
15	Poured-in-place concrete	continuous insulation with 1 1/5" Steel studs	6.2.2	638[13]	644[14]	648[15]	674[13]	681[14]	684[15]
16	Pre-cast concrete panel	pre-cast concrete with continuous insulation outboard of 3 5/8" steel studs	6.2.7	538[13]	543[14]	546[15]	539[13]	544[14]	547[15]
17	Pre-cast concrete panel	pre-cast concrete with R-12 batt insulation between 3 5/8" steel studs	6.2.6	570[39]			577[39]		

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.5.2: Wall System Assembly Costs (Metric) continued

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/m²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
18	Pre-cast sandwich panel	4" exterior concrete, 2" insulation with concrete at perimeter edges, 4" interior concrete, steel connectors, 3 5/8" steel studs (16" o.c.)	6.2.9	799[40]			840[40]		
19	Pre-cast sandwich panel	4" exterior concrete, 2" continuous insulation, 4" interior concrete, steel connectors, 3 5/8" steel studs (16" o.c.)	6.2.9 6.2.10 6.2.11 6.2.12	783[40]			824[40]		
20	Pre-cast sandwich panel	4" exterior concrete, 2" continuous insulation, 4" interior concrete, FRP connectors, 3 5/8" steel studs (16" o.c.)	6.2.13	814[40]			849[40]		
21	Steel stud wall with aluminum clip with horizontal sub-girt and thermal isolators	exterior insulated 3 5/8" Steel studs (16" o.c.) with proprietary aluminum clip supporting metal panel	5.1.17	600[16]	603[17]	606[18]	618[16]	620[17]	623[18]
22	Steel stud wall with aluminum clip with horizontal sub-girt and thermal isolators	exterior and interior insulated 3 5/8" Steel studs (16" o.c.) with proprietary clip supporting metal panel	5.1.17 w/ batt	630[19]	633[20]	635[21]	648[19]	651[20]	653[21]
23	Steel stud wall with fiberglass spacer and through-insulation fasteners	exterior insulated 3 5/8" Steel studs (16" o.c.) fiberglass spacer and through-insulation fasteners supporting metal panel	5.1.16	609[22]			627[22]		
24	Steel stud wall with metal panel	exterior insulated, 3 5/8" Steel studs (16" o.c.) with horizontal clips (24" o.c.) supporting metal panel	5.1.11	771[16]	775[17]	779[18]	806[16]	810[17]	813[18]
25	Steel stud wall with metal panel	exterior and interior insulated, 3 5/8" Steel studs (16" o.c.) with horizontal clips (24" o.c.) supporting metal panel	5.1.12	785[19]	789[20]	791[21]	821[19]	825[20]	827[21]
26	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with vertical z-girts (16" o.c.) supporting metal panel	5.1.3	669[16]	672[17]	675[18]	705[16]	708[17]	711[18]

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.5.3: Wall System Assembly Costs (Metric) continued

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/m²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
27	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with horizontal z-girts (24" o.c.) supporting metal panel	5.1.5	662[16]	665[17]	669[18]	698[16]	701[17]	704[18]
28	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with vertical and horizontal z-girts (24" o.c.) supporting metal panel	5.1.9	706[16]	709[17]	713[18]	742[16]	745[17]	749[18]
29	Steel stud wall with metal panel	exterior insulated 3 5/8" Steel studs (16" o.c.) with clips (24" o.c.) supporting metal panel	5.1.10	683[16]	686[17]	690[18]	719[16]	722[17]	725[18]
30	Steel stud wall with metal panel	exterior and interior insulated 3 5/8" Steel studs (16" o.c.) with horizontal z-girts (16" o.c.) supporting metal panel	5.1.7	703[19]	706[20]	709[21]	739[19]	742[20]	745[21]
31	Steel stud with brick veneer	brick veneer with exterior insulation between ties at 16" o.c., 3 5/8" Steel studs (16" o.c.) and R12 batt insulation	5.2.9	604[7]	611[8]	637[9]	639[7]	647[8]	673[9]
32	Steel stud with stucco	3 5/8" Steel studs (16" o.c.) with vertical z-girts (16" o.c.) supporting stucco	5.1.6	418[16]	417[17]	421[18]	453[16]	455[17]	457[18]
33	Steel stud with stucco	3 5/8" Steel studs (16" o.c.) with vertical clip system (16" o.c.) supporting stucco	5.1.13	431[16]	433[17]	435[18]	467[16]	469[17]	471[18]
34	Wood infill/poured-in-place concrete	concrete framed structure with 2x6 wood stud (16" o.c.), R19 batt Insulation, continuous exterior insulation and through-insulation fasteners supporting fiber cement board	7.7.1	355[23]	366[24]	375[25]	374[23]	384[24]	393[25]
35	Wood-frame wall with steel clip with horizontal rail and thermal isolators	exterior insulated 2x4 wood studs (16" o.c.) with proprietary steel clip supporting metal panel		619[16]	514[17]	624[18]			

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.5.4: Wall System Assembly Costs (Metric) continued

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/m²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
36	Wood-frame wall with steel clip with horizontal rail and thermal isolators	exterior and interior insulated 2x4 wood studs (16" o.c.) with proprietary steel clip supporting metal panel		792[19]	795[20]	798[21]			
37	Wood-frame with brick veneer	brick veneer with exterior insulation between ties at 16" o.c., 2 x 6 wood studs (16" o.c.) and R19 batt insulation	7.6.4	599[7]	605[8]	625[9]			
38	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, wood strapping supporting fiber cement board	7.1.1	305[40]					
39	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, exterior insulation between wood strapping supporting fiber cement board	7.1.2	343[26]	345[27]	351[28]			
40	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, continuous exterior insulation and through-insulation fasteners supporting fiber cement board	7.1.3	356[23]	367[24]	375[25]			
41	Wood-frame with lightweight cladding	2x6 wood stud (16" o.c.), R19 batt Insulation, exterior insulation between metal horizontal z-girts (24" o.c.) supporting fiber cement board	7.1.4	386[29]	395[30]	404[31]			
42	Steel stud wall with EIFS	Exterior and Interior Insulated 3 5/8” x 1 5/8” Steel Stud (16” o.c.) Drained EIFS Wall Assembly	5.1.2	333[42]	334[43]	335[44]	396[42]	398[43]	399[44]
43	Steel stud wall with EIFS	Exterior Insulated 3 5/8” x 1 5/8” Steel Stud (16” o.c.) Drained EIFS Wall Assembly	5.1.1	311[45]	312[46]	314[47]	376[45]	377[46]	378[47]
44	Poured-in-place concrete with EIFS	Exterior Insulated Concrete Drained EIFS Wall Assembly	6.1.1	817[42]	825[43]	829[44]	880[42]	886[43]	893[44]

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.6: Roof System Assembly Costs (Metric)

ID	Assembly Category	Detailed Description	Detail Reference	Cost ($/m²)					
				Insulation Level† for Low and Mid-Rise Applications			Insulation Level† for High-Rise Applications		
				1	2	3	1	2	3
45	Flat roof on composite steel deck, exterior insulated	flat roof on steel deck	5.5.9	787[29]	804[30]	821[31]	822[29]	841[30]	858[31]
46	Flat roof on concrete deck, inverted system	flat roof on concrete deck	9.2.2	638[29]	652[30]	666[31]	673[29]	688[30]	703[31]
47	Flat roof on wood deck, exterior insulated	conventional roof with trusses (24" o.c.) supporting wood sheathing with SBS roof membrane		494[29]	505[30]	516[31]			
48	Flat roof on wood deck, insulation at ceiling level between trusses	conventional roof with trusses (24" o.c.) supporting wood sheathing with batt insulation at ceiling level	7.4.1	470[32]	480[33]	490[34]			
49	Sloped metal roof, exterior insulated	continuous metal sub-girts with metal seam roof	9.2.1	631[29]	645[30]	659[31]			
50	Sloped wood-framed roof, insulation at celling level between trusses	roof truss (24" o.c.) supporting wood sheathing with asphalt shingles and R-19 batt insulation at ceiling	7.1.3	439[32]	449[33]	459[34]			
51	Sloped wood-framed roof, with insulation at sheathing level between trusses	roof truss (24" o.c.) supporting wood sheathing with asphalt shingles and R-30 Polyurethane foam insulation between top chords	7.4.3	427[35]	437[36]	446[37]			

†For insulation level notes see Table D.7: Insulation Level Notes

Table D.7: Insulation Level Notes

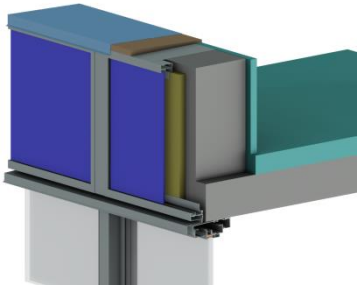
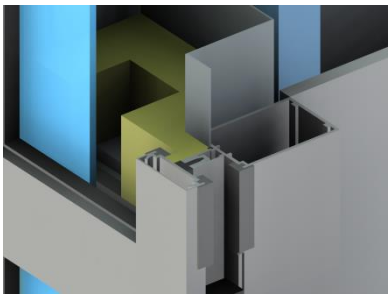
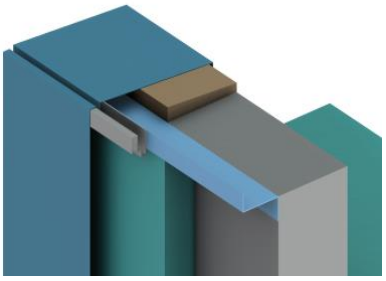
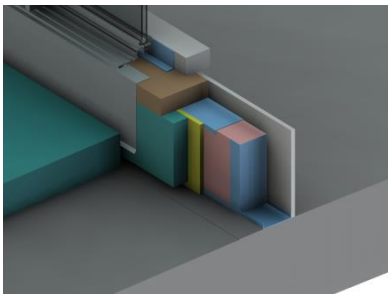
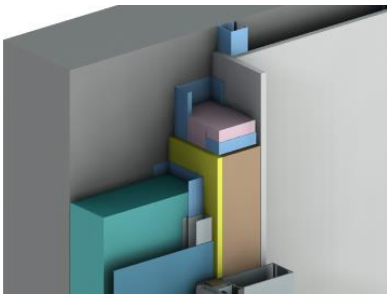
Note Number	Description
1	2" mineral fibre in backpan
2	2" + 1" mineral fibre in backpan
3	3" medium density polyurethane spray applied foam in backpan
4	3" mineral fibre in backpan
5	4" mineral fibre in backpan
6	4" medium density polyurethane spray applied foam in backpan
7	2" mineral fibre
8	4" mineral fibre
9	4" medium density polyurethane spray applied foam
10	3" rigid extruded insulation (XPS)
11	4" rigid extruded insulation (XPS)
12	5" rigid extruded insulation (XPS)
13	2" rigid extruded insulation (XPS)
14	3" rigid extruded insulation (XPS)
15	2.5" medium density polyurethane spray applied foam
16	4" mineral fibre
17	5" mineral fibre
18	6" mineral fibre
19	4" mineral fibre + R-12 Batt
20	5" mineral fibre + R-12 Batt
21	6" mineral fibre + R-12 Batt
22	4" mineral fibre
23	2" rigid extruded insulation (XPS) + R-19 Batt
24	3" rigid extruded insulation (XPS) + R-19 Batt

Note Number	Description
25	4" rigid extruded insulation (XPS) + R-19 Batt
26	2" mineral fibre + R-19 Batt
27	2.5" mineral fibre + R-19 Batt
28	4" mineral fibre + R-19 Batt
29	4" rigid extruded insulation (XPS)
30	5" rigid extruded insulation (XPS)
31	6" rigid extruded insulation (XPS)
32	R-20 Batt
33	R-20 + R-20 Batt
34	R-30 Loose-filled Fiberglass
35	4" medium density polyurethane spray applied foam in backpan
36	5" medium density polyurethane spray applied foam in backpan
37	6" medium density polyurethane spray applied foam in backpan
38	3” Polyiso
39	R-12 Batt
40	R-19 Batt
41	2” XPS
42	2” Expanded Polystyrene (EPS)
43	3” Expanded Polystyrene (EPS)
44	4” Expanded Polystyrene (EPS)
45	2” Expanded Polystyrene (EPS) + R-12 Batt
46	3” Expanded Polystyrene (EPS) + R-12 Batt
47	4” Expanded Polystyrene (EPS) + R-12 Batt

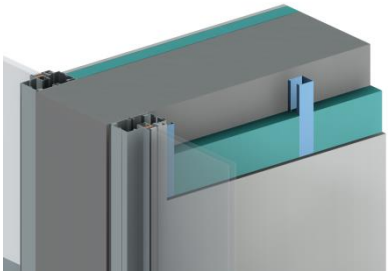
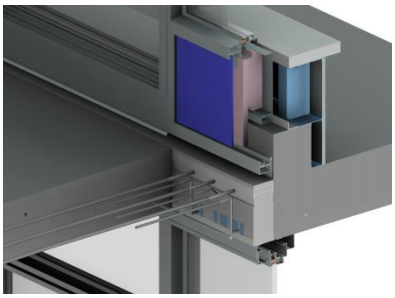
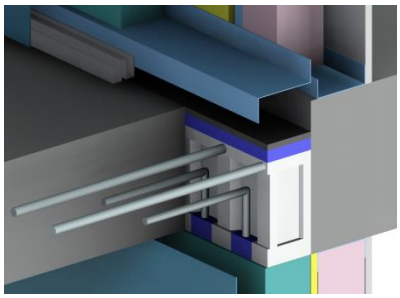
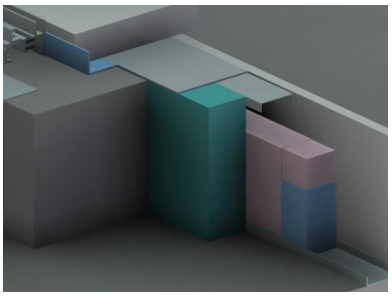
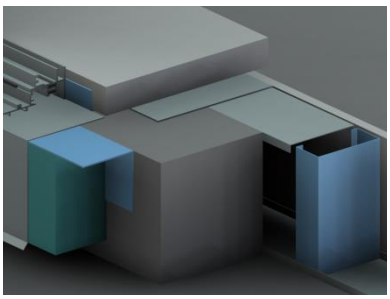
Table D.8: AIM Assembly Costs

AIM Detail		Imperial			Metric		
		Base Assembly Cost ($/ft²)	Incremental Cost for AIM ($/ft²)	Total Cost ($/ft²)	Base Assembly Cost ($/m²)	Incremental Cost for AIM ($/m²)	Total Cost ($/m²)
Conventional Curtain Wall	2.1.3	91	-	91	977	-	977
	2.1.4-A1	91	15	106	977	161	1,139
	2.1.4-A2	91	15	106	977	161	1,139
	2.1.4-A3	91	8	99	977	86	1,063
	2.1.4-A4	91	10	101	977	108	1,085
	2.1.5	91	-	91	977	-	977
	2.1.6-B1	91	8	99	977	86	1,063
	2.1.6-B2	91	8	99	977	86	1,063
	2.1.7	91	-	91	977	-	977
	2.1.8	91	15	106	977	161	1,139
	2.1.9	91	-	91	977	-	977
	2.1.10-D1	91	8	99	977	86	1,063
	2.1.10-D2	91	8	99	977	86	1,063
	2.1.10-D3	91	10	101	977	108	1,085
	2.1.10-D4	91	15	106	977	161	1,139
High Performance Curtain Wall	4.2.3	114	-	114	1,225	-	1,225
	4.2.4-E1	99	8	107	1,064	86	1,150
	4.2.4-E2	99	15	114	1,064	161	1,225
	4.2.4-E3	114	15	129	1,225	161	1,387
	4.2.4-E4	114	8	122	1,225	86	1,311
	4.2.5	99	-	99	1,064	-	1,064
	4.2.6-F1	99	8	107	1,064	86	1,150
	4.2.6-F2	99	10	109	1,064	108	1,171
	4.2.6-F3	114	15	129	1,225	161	1,387
Window Wall	1.2.3	54	-	54	580	-	580
	1.2.4-G1	54	8	62	580	86	666
	1.2.4-G2	54	8	62	580	86	666
Unitized Curtain Wall	3.2.3-H0.1	105	-	105	1,131	-	1,131
	3.2.3-H0.2	105	-	105	1,131	-	1,131
	3.2.4-H1	105	8	113	1,131	86	1,217
	3.2.4-H2	105	8	113	1,131	86	1,217
	3.2.4-H3	105	10	115	1,131	108	1,239
	3.2.5	105	-	105	1,131	-	1,131
	3.2.6-I1	105	15	120	1,131	161	1,293
	3.2.6-I2	105	8	113	1,130	86	1,216

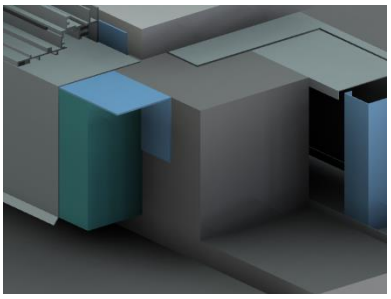
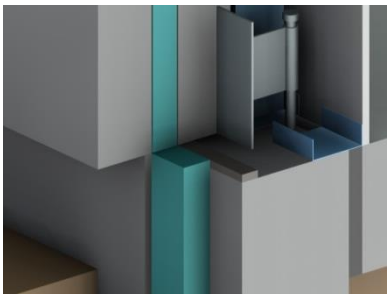
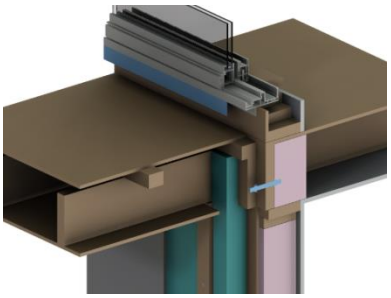
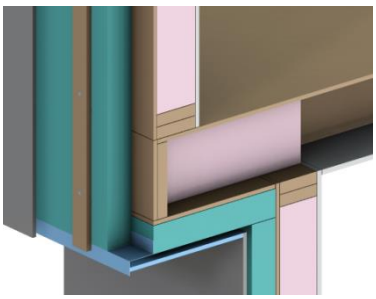
D.9.1: Incremental cost per length for modifying standard details

Detail Reference		Modification to Standard Detail	Additional Cost	
			$/ft	$/m
	1.3.2	Add insulation to interior and exterior face of parapet	53	174
	2.3.2	Add insulation along mullion edge	2.5	8
	5.5.6	Add 3" mineral wool insulation on the exterior face of parapet	14.50	48
	8.1.11	Add 3" XPS insulation on the exterior face of steel stud curb	9	29
	5.4.6	Add batt insulation inside steel stud cavity at curtain wall jamb	2	7

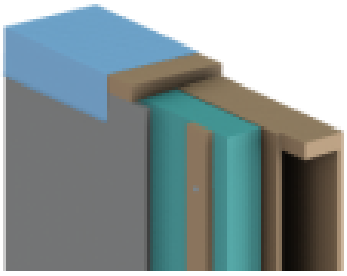
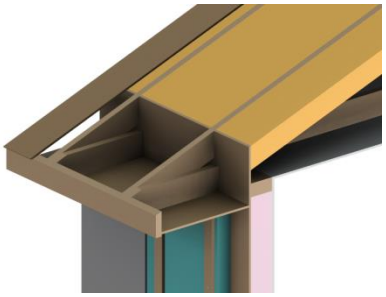
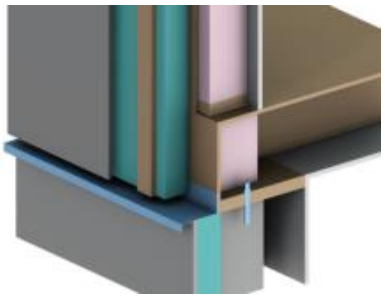
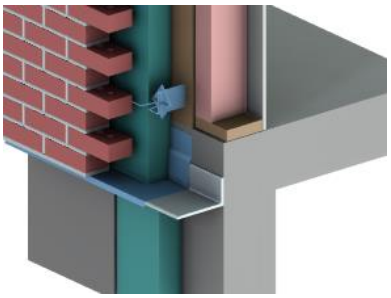
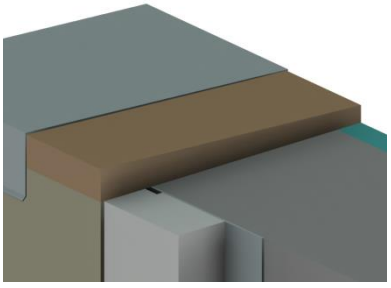
D.9.2: Incremental cost per length for modifying standard details (continued)

Detail Reference		Modification to Standard Detail	Additional Cost	
			$/ft	$/m
	1.5.2	Add 1" XPS insulation on both sides of concrete partition wall	13	42
	8.1.8	Add Isokorb and cement board along concrete eyebrow	81	266
	5.2.13	Add Isokorb and cement board along concrete eyebrow	81	266
	8.1.3	Add 2" XPS insulation along interior face of concrete curb	4.50	15
	8.1.4	Add 2" XPS insulation along exterior face of concrete curb	5	16

D.9.3: Incremental cost per length for modifying standard details (continued)

Detail Reference		Modification to Standard Detail	Additional Cost	
			$/ft	$/m
	8.1.5	Add XPS insulation on exterior side of curb and dropping balcony slab	6	20
	6.2.13	Add composite connectors (instead of steel) in sandwich panel	10	32
	6.7.3	Add 2" XPS insulation and cement board on exterior face of footing	18	59
	7.2.4	Install independently supported balconies including post supports	389	1277
	7.2.5	Add 2" mineral wool insulation and strapping on underside of cantilevered floor joists	11.50	38

D.9.4: Incremental cost per length for modifying standard details (continued)

Detail Reference		Modification to Standard Detail	Additional Cost	
			$/ft	$/m
	7.4.1	Add 2" mineral wool insulation and strapping on exterior face of parapet	9	30
	7.4.3	Install 5" of closed cell spray foam insulation at roof instead of regular blow insulation	14	46
	7.6.3	Install XPS insulation and cement board instead of interior batt insulation	41	135
	7.6.4	Install XPS insulation and cement board instead of interior batt insulation	41	134
	5.5.3	Add fully insulated EIFS parapet	40	131

D.9.5: Incremental cost per length for modifying standard details (continued)

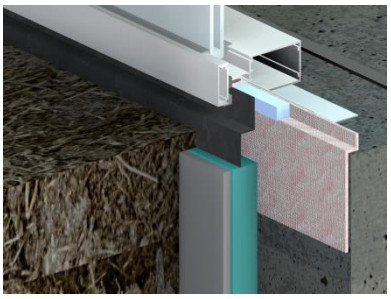
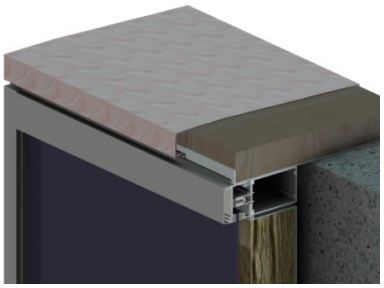
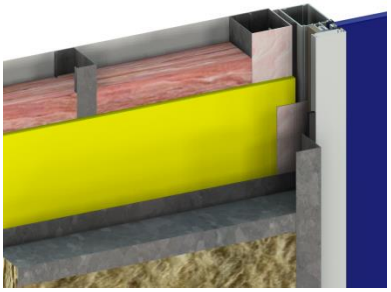
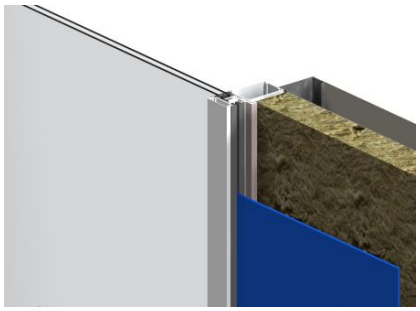
Detail Reference		Modification to Standard Detail	Additional Cost	
			$/ft	$/m
	2.5.1	Add insulation at edge of curtain-wall with a 10 mm, 610 mm wide strip of Aerogel blanket	10	33
	2.2.2	Add insulation at parapet with a 10 mm, 610 mm wide strip of Aerogel blanket	10	33
	5.4.3	Add insulation at edge of curtain-wall with two 10 mm, 610 mm wide strip of Aerogel blanket	20	66
	2.3.3	Add insulation with 10 mm thick, 305 mm wide strip of Aerogel at perimeter of spandrel	5	16

Table D.10: Glazing Costs

Type	Cost ($/ft²)	Cost ($/m²)
Spandrel Glass (up to 1000 ft²) - RS Means	17	180
Double Glazed IGU (11 to 14 ft²) - RS Means	14	151
Triple Glazed IGU	21	226

Table D.11: Isokorb Product Cost and Manufacturer Suggested Installation Time

Product	Cost ($)	Manufacturer Suggested Installation Time (min)
Rutherma DF 6/5	100	2
Isokorb KS14	200	5
Isokorb AXT1	100	2
Isokorb CM20	150	2