SHELL & CORE: COURTHOUSE

Definition

Courthouse shell and core unit costs include the building structure, envelope, vertical circulation, public spaces, physical plant support spaces, and site improvements that constitute the facilities to house the operations of the U.S. Court and court-related agencies. Specifically, the building shell and core includes the following:

- Site improvement allowance adequate to comply with life safety and other zoning set-backs, including: ground cover, planting, irrigation systems, storm water handling systems, vehicle roadways, sidewalks, lighting, signage, fences, screens, and buffer zones (except structures directly related to parking and U.S. Marshal Sallyport);
- Building structure, including: foundation, beams, columns, floor slabs, and roof structure (including special structural bay spacing and floor-to-floor heights required to accommodate courtrooms and hearing rooms);
- Building envelope, including: insulated exterior walls, exterior glazing, and roof;
- Building standard finished ceiling and ambient lighting;
- Gypsum wallboard (GWB) on exterior perimeter walls and interior core walls; Common corridor stud walls including GWB on public sides;
- Common areas, including: entrance vestibule, main lobby, public elevator lobby, fire egress stairways and corridors, mechanical, electrical switchgear, and communication equipment rooms, public and service elevator shafts, and elevator equipment rooms;
- Public toilets;
- Electrical and mechanical systems, including: central heating, ventilation and air conditioning systems, chiller plant, cooling tower, emergency generator, and Building Automation System (BAS);
- Combination fire standpipe/sprinkler system and central fire alarm system;
- Raised floor with under-floor distribution for mechanical air supply, electrical power, and telephone and data communication systems;
- Core areas for each floor, including: potable domestic water riser, sanitary and storm drain systems, sanitary vent, electrical power distribution panels and circuits breakers in an electrical closet, designated connection point to the central fire alarm system, and a distribution backboard within a wire closet; All services provide for connections to horizontal extensions within the tenant demised areas;
- The security level for U.S. Courthouses is Level C, though associated cost parameters will be established at Level B, with costs added as a special item for security upgrades to Level C or the appropriate level determined for the specific project.

References and Design Standards

The unit costs incorporate the following references and design standards:

- 1997 U.S. Courts Design Guide;
- 1998 Facilities Standards for the Public Buildings Service;
- 1996 Edition of Standard Features and Finishes for U.S. Courts Facilities;
- 1999 Edition of EOUSA Resource Manual (U.S. Attorneys Spaces);
- 1997 Edition of U.S. Marshals Service Requirements and Specifications for Special Purpose and Support;
- International Building Code;
- GSA Public Buildings Service Pricing Desk Guide, Edition No. 2.

Building Classification and Fire Resistance

Mixed Use–Business Occupancy B2/Institutional Occupancy I-3. For the purposes of this study assume:

Low-rise:

- Sprinklered Type IB construction;
- Construction 2 hr structural frame, 2 hr exterior bearing walls, 2 hr interior bearing walls, 1 hr exterior non-bearing walls, 2 hr floor construction, 1 hr roof construction.

Mid-rise:

- Sprinklered Type IA construction;
- Construction 3 hr structure, 3 hr exterior bearing walls, 3 hr interior bearing walls, 1 hr exterior non-bearing walls, 2 hr floor construction, 1 ½ hr roof construction.

High-rise:

- Sprinklered Type IA construction;
- Construction 3 hr structure, 3 hr exterior bearing walls, 3 hr interior bearing walls, 1 hr exterior non-bearing walls, 2 hr floor construction, 1 ½ hr roof construction.

Example Program

Separate programs are provided for *low-rise*, *mid-rise*, and *high-rise* courthouse buildings. The *low-rise* courthouse building shell and core unit costs are based on the following representative building programs.

LOW-RISE COURTHOUSE CORE & SHELL

Court Components	USF
District Judge Courtroom & Associated Spaces	2,591
Courtroom	2,630
Detention	315
District Judge Chambers Suites	2,518
Senior District Judge Courtroom & Associated Spaces	2,591
Courtroom	2,630
Detention	315
Senior District Judge Chambers Suites	2,217
Magistrate Judge Courtroom & Associated Spaces	2,248
Courtroom	2,130
Detention	315
Magistrate Judge Chambers Suites	1,699
Judicial Restricted Elevators & Stairs	1,800
Juror Assembly	1,359
Grand Jury Suites	710
Grand Jury Room	650
Joint Use Spaces & ADR	661
District Clerk	8,153
Probation	7,457
Pretrial Services	2,937
Federal Public Defender	3,901
Bankruptcy Clerk	8,739
Bankruptcy Judge Courtroom & Associated Spaces	1,557
Courtroom	2,130
Bankruptcy Judge Chambers Suites	1,699
U.S. Attorney	6,436
U.S. Marshal	4,700
Main Cell Block Holding & Detention Elevators	3,405
U.S. Trustee	835
GSA	3,663
Joint Use	3,628
SUBTOTAL USF	86,620
Restricted Covered Parking Area	11,000
TOTAL USF	97,620

Construction Area Summary

The following tables provide construction area summaries for the *low-rise* courthouse building designs upon which the unit costs are based and are representative of typical courthouse building plans.

LOW-RISE COURTHOUSE BUILDING
BUILDING AREA

FLOOR	USF Enhanced Office	USF Judicial Chambers	USF Court-room	USF Detention	USF Parking	**USF SUBTOTAL TENANT SPACE**	Public Space	Common Space	Wall Thick-ness	**SUBTOTAL NON-TENANT SPACE**	GSF TOTAL NON - PARKING AREAS	GSF Inside Parking	TOTAL BUILDING GROSS AREA
BASEMENT 1					11,000	**11,000**	0	2,150	475	**2,625**	2,625	11,000	13,625
1ST FLOOR	21,685	600		2,925		**25,210**	10,105	5,041	908	**16,054**	41,264		41,264
2ND FLOOR	31,495	600	650	240		**32,985**	1,540	3,271	788	**5,599**	38,584		38,584
3RD FLOOR	8,987	8,733	9,520	1,185		**28,425**	6,160	3,211	788	**10,159**	38,584		38,584
PENTHOUSE						**0**		4,260	296	**4,556**	4,556		4,556
~~TOTAL~~	~~62,167~~	~~9,933~~	~~10,170~~	~~4,350~~	~~11,000~~	~~**97,620**~~	~~17,805~~	~~17,933~~	~~3,255~~	~~**38,993**~~	~~125,613~~	~~11,000~~	~~136,613~~
TOTAL ROUNDED	62,200	9,900	10,200	4,400	11,000	**97,600**	17,800	17,900	3,300	**39,000**	125,600	11,000	136,600

STRUCTURAL AREA

FLOOR	SLAB ON GRADE	OFFICE / CR SUP. SLAB	ROOFING	ROOF TERRACE	TOTAL STRUCT.
BASEMENT	13,625				13,625
1ST FLOOR	27,639	13,625			41,264
2ND FLOOR		38,584		2,680	41,264
3RD FLOOR		38,584			38,584
PENTHOUSE		4,556			4,556
PH ROOF			4,556		4,556
ROOF			34,028		34,028
~~TOTAL~~	~~41,264~~	~~95,340~~	~~38,584~~	~~2,680~~	~~177,877~~
TOTAL ROUNDED	41,300	95,300	38,600	2,700	177,900

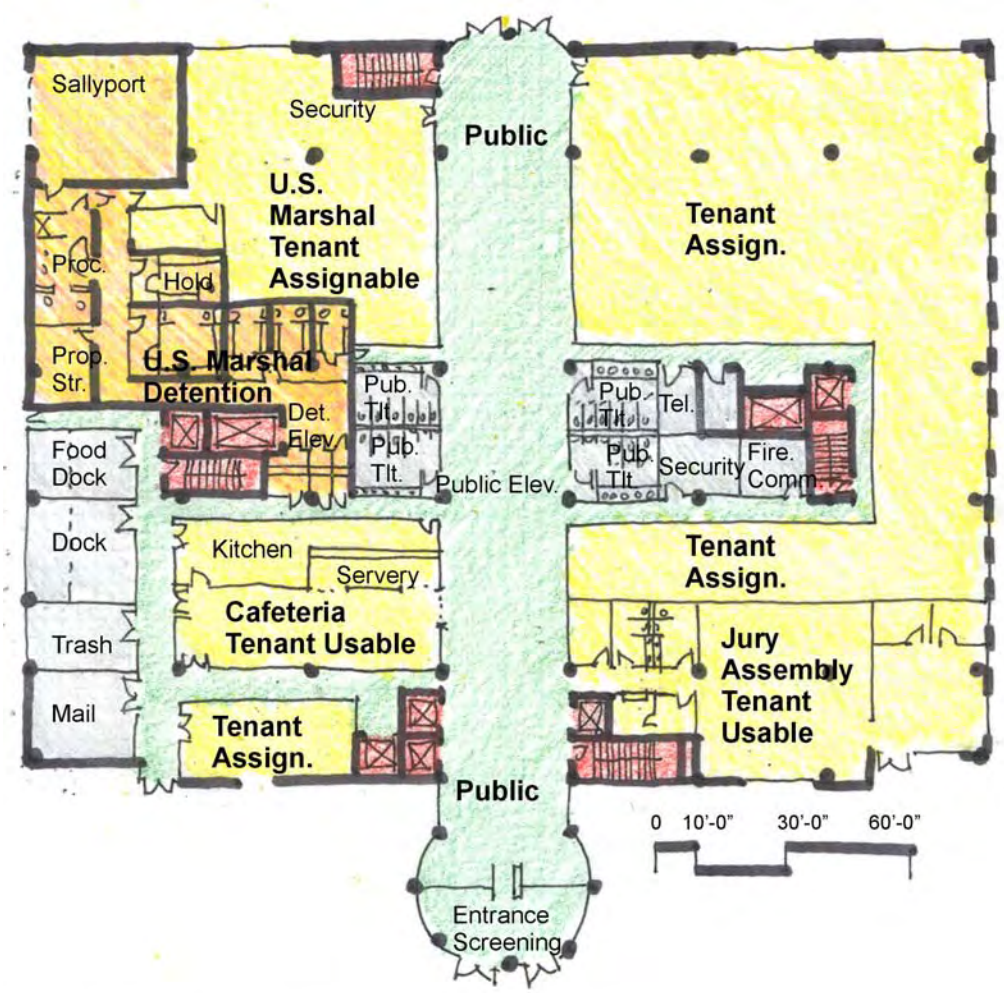
SKIN AREA

SKIN AREA	HT	EXT PERIM	EXT TOTAL	1.25 X EXT TOTAL*
BASEMENT	12.00	475	5,701	7,125
1ST FLOOR	20.00	908	18,160	22,700
2ND FLOOR	18.00	788	14,184	17,730
3RD FLOOR	20.00	788	15,760	19,700
PENTHOUSE	20.00	296	5,920	7,400
PARAPET	2.00	788	1,576	970
SUBTOTAL			61,300	**76,625**
FOUNDATION			5,700	**7,125**
TOTAL FINISHED SKIN			55,600	**69,500**

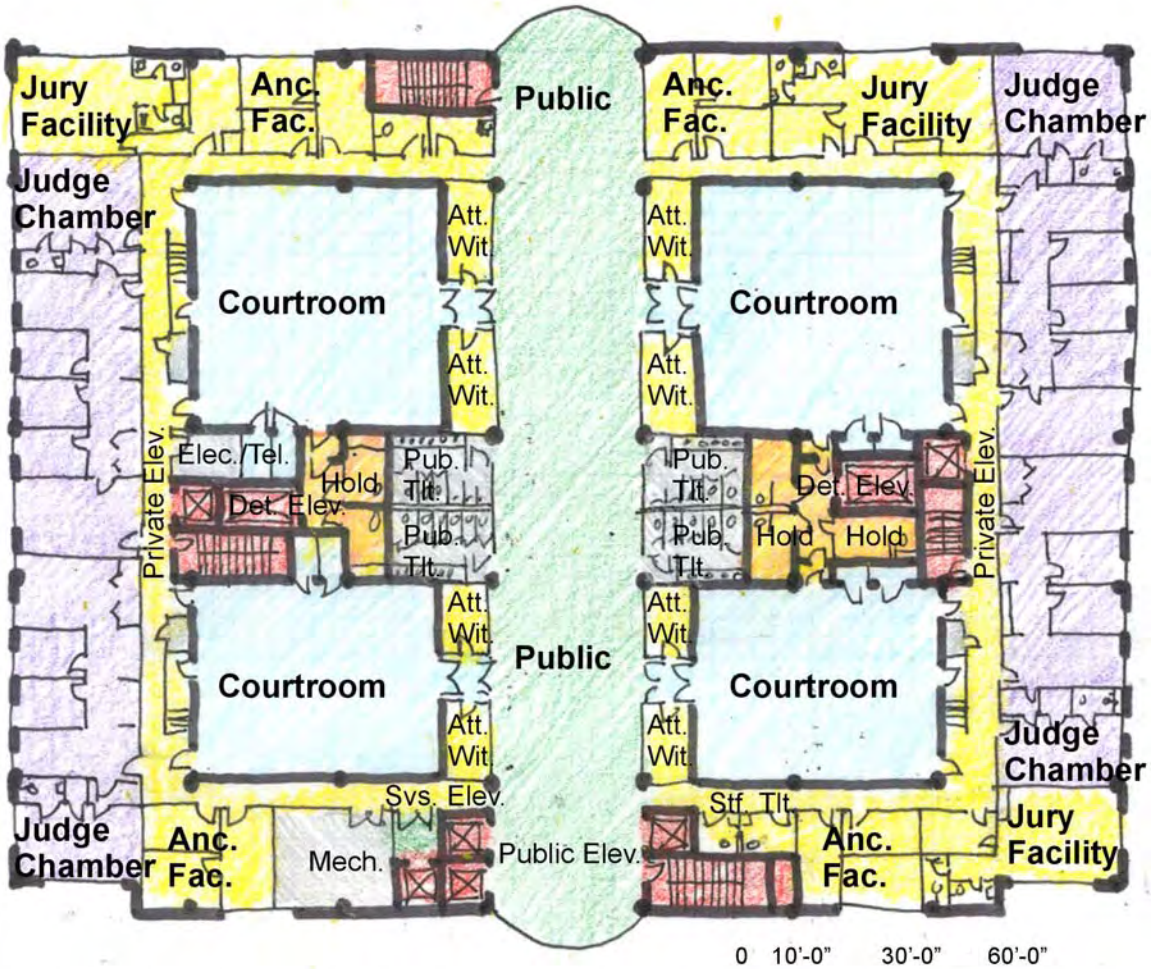
*1.25 Factor to account for the articulation of the exterior wall.

Example Plans

The following diagrams illustrate the *low-rise* courthouse designs upon which the unit costs are based and are representative of typical courthouse building plans.



Low Rise Courthouse - Ground Floor



Low Rise Courthouse - Court Floor

Example Program

Separate programs are provided for *low-rise*, *mid-rise*, and *high-rise* courthouse buildings. The *mid-rise* courthouse building shell and core unit costs are based on the following representative building programs.

MID-RISE COURTHOUSE CORE & SHELL

Court Components	USF
District Judge Courtroom & Associated Spaces	5,074
Courtroom	5,260
Detention	630
District Judge Chambers Suites	4,916
Senior District Judge Courtroom & Associated Spaces	5,074
Courtroom	5,260
Detention	630
Senior District Judge Chambers Suites	4,434
Magistrate Judge Courtroom & Associated Spaces	8,774
Courtroom	8,520
Detention	1,260
Magistrate Judge Chambers Suites	6,795
Judicial Restricted Elevators & Stairs	1,800
Juror Assembly	2,926
Grand Jury Suites	710
Grand Jury Room	650
Joint Use Spaces & ADR	833
District Clerk	9,807
Probation	9,105
Pretrial Services	4,330
Federal Public Defender	3,988
Bankruptcy Clerk	11,286
Bankruptcy Judge Courtroom & Associated Spaces	3,475
Courtroom	4,260
Bankruptcy Judge Chambers Suites	3,398
Shared Chambers Collection/Circuit Satellite Library	6,263
U.S. Attorney	14,573
U.S. Marshal	5,184
Detention	4,800
U.S. Trustee	1,575
GSA	3,663
Joint Use/Retail/Other Agencies	24,777
SUBTOTAL USF for Court and Related Agencies	174,030
Restricted Covered Parking Area	15,000
TOTAL USF	189,030

Construction Area Summary

The following tables provide construction area summaries for the *mid-rise* courthouse building designs upon which the unit costs are based and are representative of typical courthouse building plans.

MID-RISE COURTHOUSE BUILDING

BUILDING AREA

FLOOR	USF Enhanced Office	USF Judicial Chambers	USF Courtroom	USF Detention	USF Parking	**USF SUBTOTAL TENANT SPACE**	USF Public Space	USF Common Space	USF Wall Thickness	**USF SUBTOTAL NON-TENANT SPACE**	GSF TOTAL NON - PARKING AREAS	GSF Inside Parking	TOTAL BUILDING GROSS AREA
BASEMENT 1	8,847	300		3,600	15,000	**27,747**	1,650	11,454	998	**14,102**	26,849	15,000	41,849
1ST FLOOR	27,703	300		240		**28,243**	14,582	3,150	998	**18,730**	46,973		46,973
2ND FLOOR	34,186	300		240		**34,726**	3,722	3,850	998	**8,570**	43,296		43,296
3RD FLOOR	25,496	3,698	4,910	240		**34,344**	4,044	3,910	998	**8,952**	43,296		43,296
4TH FLOOR	8,774	13,358	8,520	1,500		**32,152**	6,156	3,990	998	**11,144**	43,296		43,296
5TH FLOOR	10,148	9,650	10,520	1,500		**31,818**	6,550	3,930	998	**11,478**	43,296		43,296
~~TOTAL~~	~~115,154~~	~~27,606~~	~~23,950~~	~~7,320~~	~~15,000~~	~~**189,030**~~	~~36,704~~	~~30,284~~	~~5,988~~	~~**72,976**~~	~~247,006~~	~~15,000~~	~~262,006~~
TOTAL ROUNDED	115,200	27,600	24,000	7,300	15,000	**189,000**	36,700	30,300	6,000	**73,000**	247,000	15,000	262,000

STRUCTURAL AREA

FLOOR	SLAB ON GRADE	OFFICE / CR SUP. SLAB	ROOFING	ROOF TERRACE	TOTAL STRUCT.
BASEMENT 1	41,849				41,849
1ST FLOOR	5,124	41,849			46,973
2ND FLOOR		43,296	3,677		46,973
3RD FLOOR		43,296			43,296
4TH FLOOR		43,296			43,296
5TH FLOOR		43,296			43,296
ROOF			43,296		43,296
~~TOTAL~~	~~46,973~~	~~215,033~~	~~46,973~~	~~0~~	~~308,979~~
TOTAL ROUNDED	47,000	215,000	47,000	0	309,000

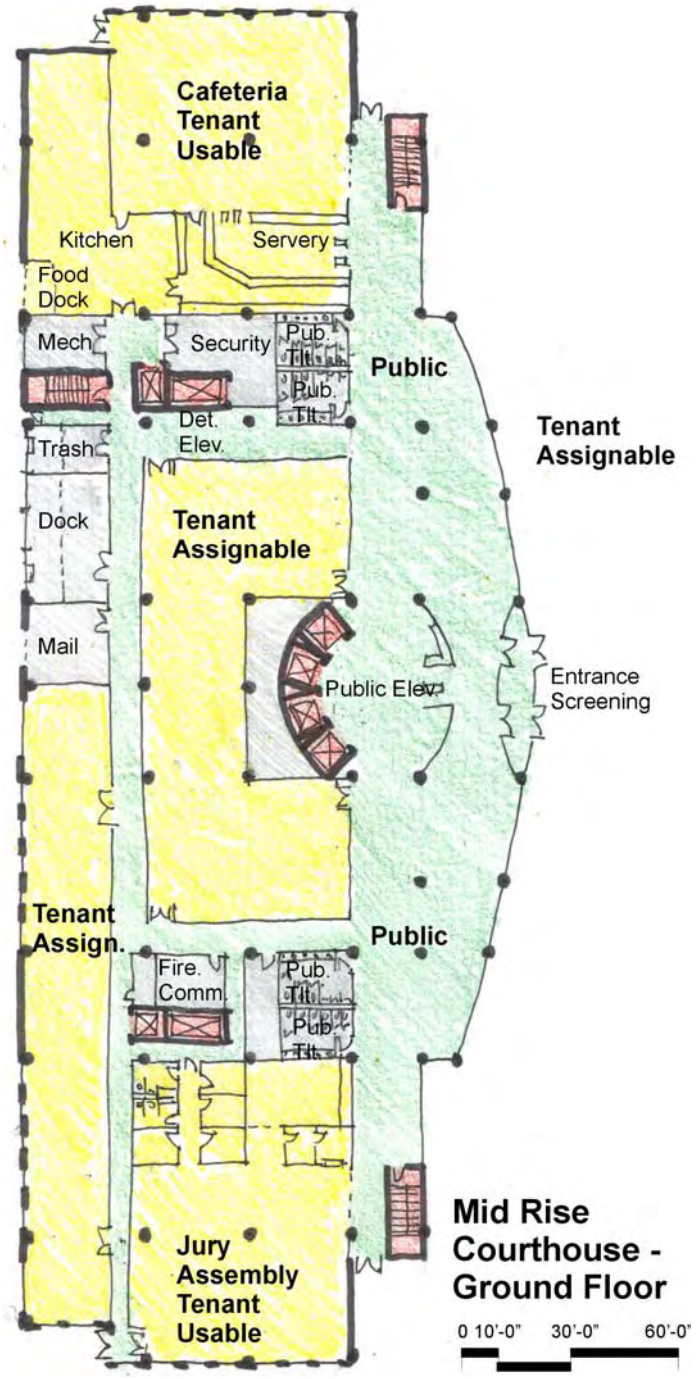
SKIN AREA

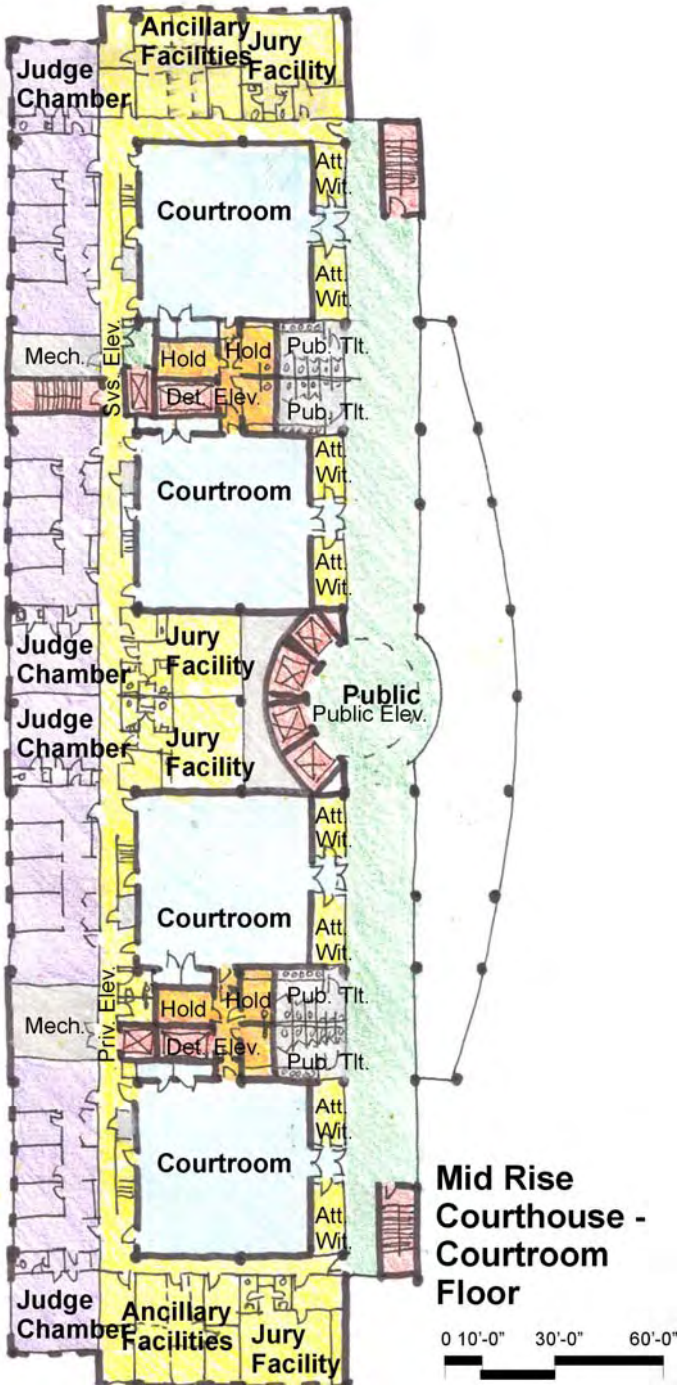
SKIN AREA	HT	EXT. PERIM	EXT. TOTAL	1.25 X EXTERIOR TOTAL*
BASEMENT 1	16.00	998	15,968	19,960
1ST FLOOR	20.00	998	19,960	24,950
2ND FLOOR	14.00	998	13,972	17,465
3RD FLOOR	20.00	998	19,960	24,950
4TH FLOOR	20.00	998	19,960	24,950
5TH FLOOR	20.00	998	19,960	24,950
PARAPET	2.00	998	19,960	2,495
SUBTOTAL			111,776	**139,720**
FOUNDATION			15,968	**19,960**
TOTAL FINISHED SKIN			95,808	**119,760**

*1.25 Factor to account for the articulation of the exterior wall.

Example Plans

The following diagrams illustrate the *mid-rise* courthouse designs upon which the unit costs are based and are representative of typical courthouse building plans.




Ancillary Facilities
Jury Facility
Judge Chamber
Courtroom
Att. Wit.
Mech.
Svs. Elev.
Hold
Det.
Elev.
Pub. Tlt.
Jury Facility
Public
Public Elev.
Priv. Elev.
Mid Rise Courthouse - Courtroom Floor
0 10'-0" 30'-0" 60'-0"

Example Program

Separate programs are provided for *low-rise*, *mid-rise*, and *high-rise* courthouse buildings. The *high-rise* courthouse building shell and core unit costs are based on the following representative building programs.

HIGH-RISE COURTHOUSE SHELL & CORE

Court Components	USF
District Judge Courtroom & Associated Spaces	10,450
Courtroom	10,520
Detention	1,260
District Judge Chambers Suites	9,651
Senior District Judge Courtroom & Associated Spaces	10,148
Courtroom	10,520
Detention	1,260
Senior District Judge Chambers Suites	8,867
Magistrate Judge Courtroom & Associated Spaces	17,548
Courtroom	17,040
Detention	2,520
Magistrate Judge Chambers Suites	13,590
Judicial Restricted Elvators & Stairs	6,300
Juror Assembly	5,278
Grand Jury Suites	710
Grand Jury Room	650
Joint Use Spaces & ADR	2,184
District Clerk	16,927
Probation	12,344
Pretrial Services	6,265
Federal Public Defender	6,722
Bankruptcy Clerk	16,434
Bankruptcy Judge Courtroom & Associated Spaces	6,536
Courtroom	8,520
Bankruptcy Judge Chambers Suites	6,795
Shared Chambers Collection/Circuit Satellite Library	8,329
U.S. Attorney	27,009
U.S. Marshal	8,200
Detention	6,760
U.S. Trustee	2,815
GSA	5,142
Joint Use	9,012
SUBTOTAL USF for Court and Related Agencies	276,306
Restricted Covered Parking Area	20,000
TOTAL USABLE SF	296,306

Construction Area Summary

The following tables provide construction area summaries for the *high-rise* courthouse building designs upon which the unit costs are based and are representative of typical courthouse building plans.

BUILDING AREA

FLOOR	USF Enhanced Office	USF Judicial Chambers	USF Courtroom	USF Detention	USF Parking	**USF SUBTOTAL TENANT SPACE**	USF Public Space	USF Common Space	USF Wall Thick-ness	**USF SUBTOTAL NON-TENANT SPACE**	GSF TOTAL NON - PARKING AREAS	GSF Inside Parking	TOTAL BUILDING GROSS AREA
BASEMENT 2					20,000	**20,000**	500	6,400	700	**7,600**	7,600	20,000	27,600
BASEMENT 1	13,342	300		4,600		**18,242**	1,780	6,879	700	**9,358**	27,600		27,600
1ST FLOOR	14,290	300		120		**14,710**	5,440	3,080	770	**9,290**	24,000		24,000
2ND FLOOR	16,927	300		120		**17,347**	2,071	3,052	680	**5,803**	23,150		23,150
3RD FLOOR	16,434	300		120		**16,854**	2,564	3,052	680	**6,296**	23,150		23,150
4TH FLOOR	4,387	3,698	4,260	750		**13,095**	2,844	2,932	680	**6,456**	19,551		19,551
5TH FLOOR	4,387	3,698	4,260	750		**13,095**	2,844	2,932	680	**6,456**	19,551		19,551
6TH FLOOR	4,387	3,698	4,260	750		**13,095**	2,844	2,932	680	**6,456**	19,551		19,551
7TH FLOOR	4,387	3,698	4,260	750		**13,095**	2,844	2,932	680	**6,456**	19,551		19,551
8TH FLOOR	13,054	300	650	120		**14,124**	1,815	2,932	680	**5,427**	19,551		19,551
9TH FLOOR	13,504	300		120		**13,924**	1,614	2,772	640	**5,026**	18,950		18,950
10TH FLOOR	113,504	300		120		**13,924**	1,614	2,772	640	**5,026**	18,950		18,950
11TH FLOOR	12,987	300		120		**13,407**	2,131	2,772	640	**5,543**	18,950		18,950
12TH FLOOR	4,676	3,698	4,260	120		**12,754**	3,025	2,532	640	**6,197**	18,950		18,950
13TH FLOOR	3,268	3,698	4,260	120		**12,754**	3,025	2,532	640	**6,197**	18,950		18,950
14TH FLOOR	5,074	300	5,260	750		**11,384**	3,234	2,572	560	**6,366**	17,750		17,750
15TH FLOOR	5,074	300	5,260	750		**11,384**	3,234	2,572	560	**6,366**	17,750		17,750
16TH FLOOR	5,225	300	5,260	750		**11,535**	3,083	2,572	560	**6,215**	17,750		17,750
17TH FLOOR	5,225	300	5,260	750		**11,535**	3,083	2,572	560	**6,215**	17,750		17,750
18TH FLOOR	2,184	9,951		120		**12,255**	1,403	2,332	560	**4,295**	16,550		16,550
19TH FLOOR		9,167				**9,167**	1,351	2,272	460	**4,083**	13,250		13,250
20TH FLOOR		8,629				**8,629**	1,409	2,152	460	**4,021**	12,650		12,650
PENTHOUSE						**0**	0	4,840	400	**5,240**	5,240		5,240
~~TOTAL~~	~~162,316~~	~~53,532~~	~~47,250~~	~~11,800~~	~~20,000~~	~~**296,306**~~	~~53,752~~	~~72,384~~	~~14,250~~	~~**140,386**~~	~~416,693~~	~~20,000~~	~~436,692~~
TOTAL ROUNDED	162,300	53,500	47,300	11,800	20,000	**296,300**	53,800	72,400	14,300	**140,400**	416,700	20,000	436,700

STRUCTURAL AREA

FLOOR	SLAB ON GRADE	CONC. SUP. SLAB	OFFICE / CR SUP. SLAB	ROOFING	TERRACE	ROOF TERRACE	TOTAL STRUCT.
BASEMENT 2	27,600						27,600
BASEMENT 1			27,600				27,600
1ST FLOOR			24,000		3,600		27,600
2ND FLOOR			23,150			850	24,000
3RD FLOOR			23,150				23,150
4TH FLOOR			19,550			3,600	23,150
5TH FLOOR			19,550				19,550
6TH FLOOR			19,550				19,550
7TH FLOOR			19,550				19,550
8TH FLOOR			19,550				19,550
9TH FLOOR			18,950			600	19,550
10TH FLOOR			18,950				18,950
11TH FLOOR			18,950				18,950
12TH FLOOR			18,950				18,950
13TH FLOOR			18,950				18,950
14TH FLOOR			17,750			1,200	18,950
15TH FLOOR			17,750				17,750
16TH FLOOR			17,750				17,750
17TH FLOOR			17,750				17,750
18TH FLOOR			16,550			1,200	17,750
19TH FLOOR			13,250			3,300	16,550
20TH FLOOR			12,650			600	13,250
PENTHOUSE			5,240				5,420
PH ROOF				5,240			5,240
ROOF				7,410			7,410
~~TOTAL~~	~~27,600~~	~~0~~	~~409,092~~	~~12,650~~	~~3,600~~	~~11,351~~	~~464,293~~
TOTAL ROUNDED	27,600	0	409,100	12,700	3,600	11,400	464,300

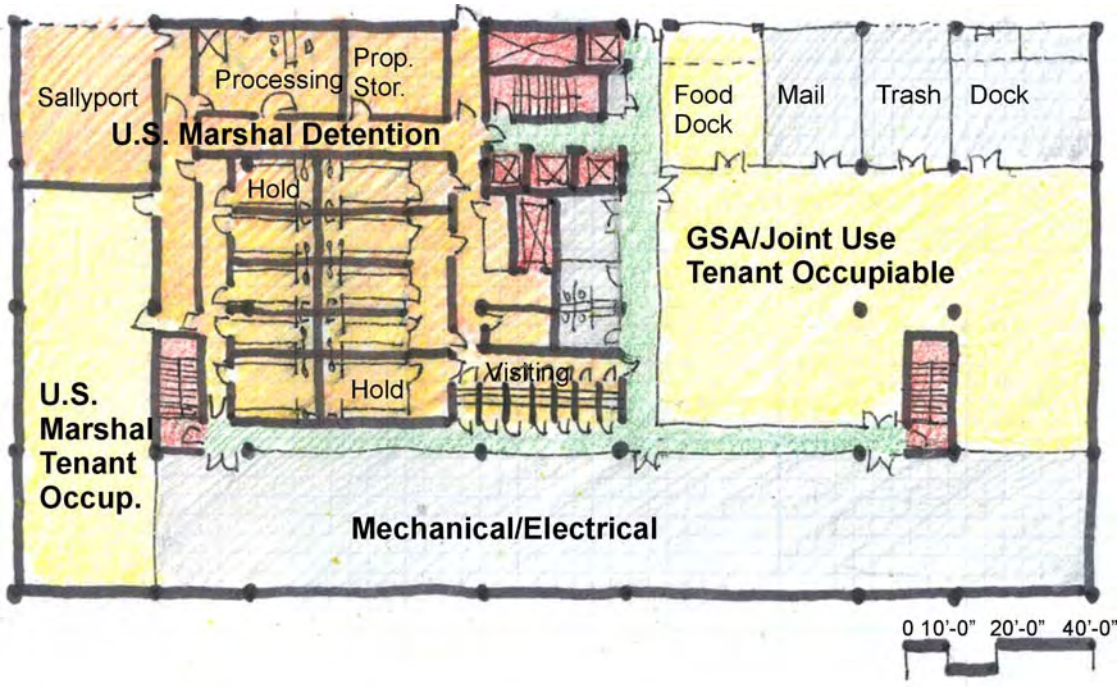
SKIN AREA

SKIN AREA	HT	EXTERIOR PERIM	EXTERIOR TOTAL	1.25 X EXTERIOR TOTAL*
BASEMENT 2	12.00	700	8,400	10,500
BASEMENT 1	16.00	700	11,200	14,000
1ST FLOOR	20.00	770	15,400	19,250
2ND FLOOR	14.00	680	9,520	11,900
3RD FLOOR	14.00	680	9,520	11,900
4TH FLOOR	20.00	680	13,600	17,000
5TH FLOOR	20.00	680	13,600	17,000
6TH FLOOR	20.00	680	13,600	17,000
7TH FLOOR	20.00	680	13,600	17,000
8TH FLOOR	14.00	680	9,520	11,900
9TH FLOOR	14.00	640	8,960	11,200
10TH FLOOR	14.00	640	8,960	11,200
11TH FLOOR	14.00	640	8,960	11,200
12TH FLOOR	20.00	640	12,800	16,000
13TH FLOOR	20.00	640	12,800	16,000
14TH FLOOR	20.00	560	11,200	14,000
15TH FLOOR	20.00	560	11,200	14,000
16TH FLOOR	20.00	560	11,200	14,000
17TH FLOOR	20.00	560	11,200	14,000
18TH FLOOR	14.00	560	7,840	9,800
19TH FLOOR	14.00	460	6,440	8,050
20TH FLOOR	14.00	460	6,440	8,050
PENTHOUSE	20.00	400	8,000	10,000
PARAPET	2.00	460	920	1,150
SUBTOTAL			244,880	**306,100**
FOUNDATION			19,600	**24,500**
TOTAL FINISHED SKIN			225,280	**281,600**

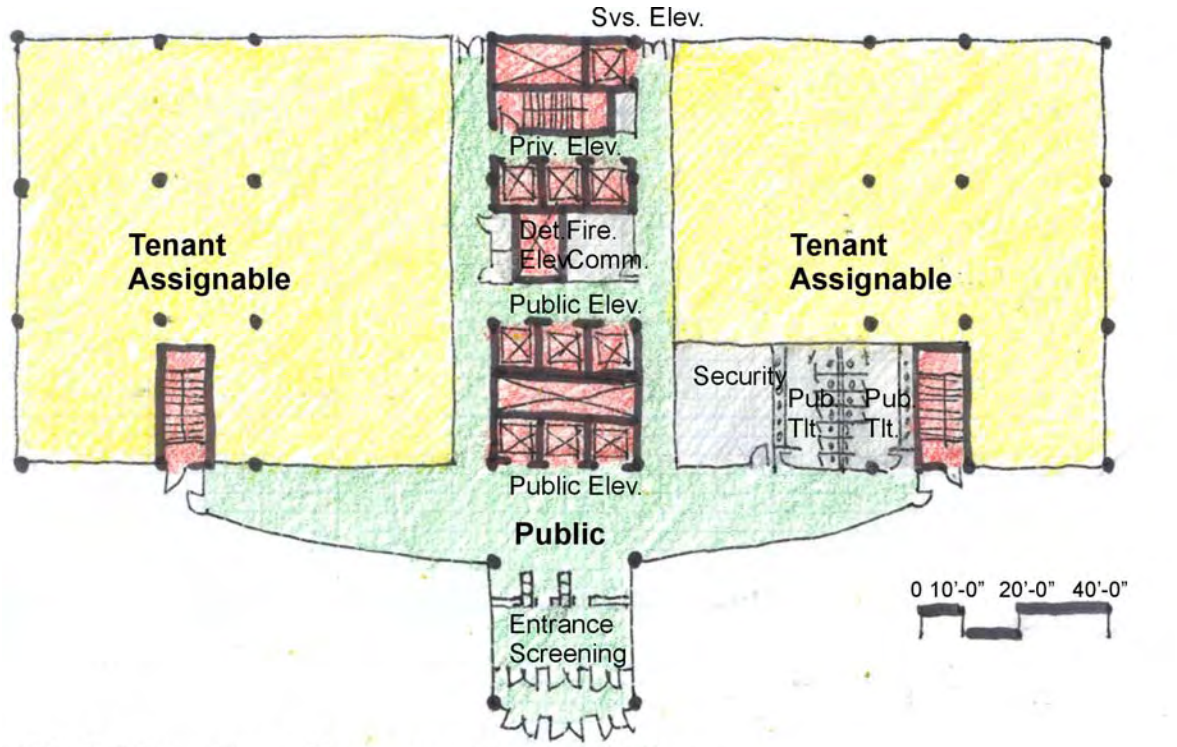
* 1.25 Factor to account for the articulation of the exterior wall.

Example Plans

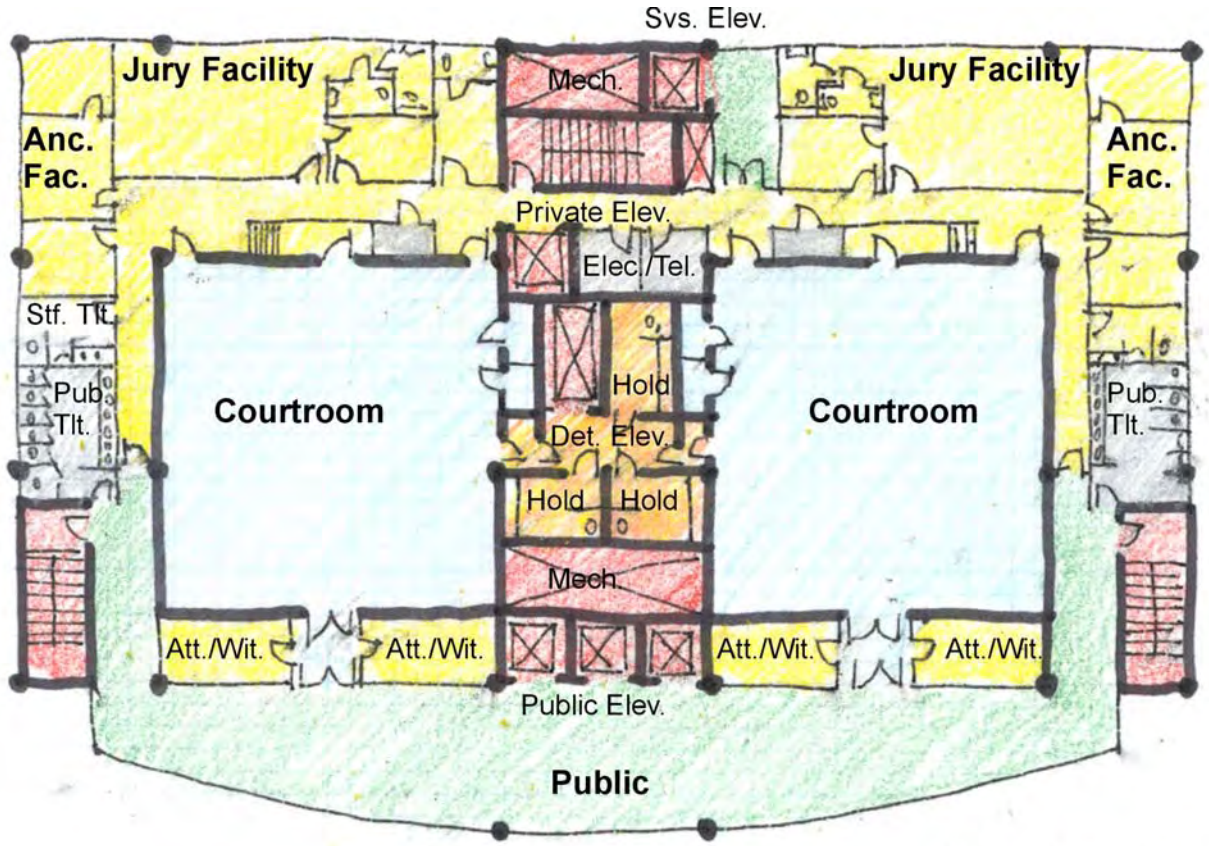
The following diagrams illustrate the *high-rise* courthouse designs upon which the unit costs are based and are representative of typical courthouse building plans.



High Rise Courthouse - Basement



High Rise Courthouse - Ground Floor



High Rise Courthouse - Court Floor

Construction Criteria

The unit costs for courthouse buildings are based on the construction quality and design features in the following table. This information has been generally arranged in Uniformat structure. Side by side comparison is provided per item for *low-rise, mid-rise, and high-rise* unit costs. Where text crosses two or three categories indicates uniform criteria between low-rise, mid-rise, and high-rise facility models. Items marked with a ☒ indicate features required by government mandate for which there is "no market comparable."

Category	Low-rise	Mid-rise	High-rise
Substructure Foundation			
Standard Foundation	■ Allowable soil bearing pressure of 2 tons/SF was assumed for spread footings; with this bearing pressure there were no feasible spread footing designs for the mid-rise and high-rise buildings; deep foundations were considered for those buildings		
	■ Reinforced concrete spread footing ■ Grade beam below frost line at perimeter wall	■ A 14" diameter pipe pile 75'- 0" (l) filled with concrete with a capacity of 150 tons was assumed for deep foundations; The length of the pile is totally arbitrary	
	■ Spread footings material allowance 70 PSF concrete and 2.0 PSF reinforcing	■ 1 pile per 240 SF building area	■ 1 pile per 70 SF building area
Substructure Envelope			
	■ 12'- 0" excavated subgrade level with elevator pits	■ 16'- 0" excavated subgrade level with elevator pits	
Basement Walls	■ 12'- 0" (d) by 1'- 0" (w) reinforced concrete wall resting on spread footings	■ 16'- 0" (d) by 1'- 0" (w) reinforced concrete wall resting on spread footings	■ 16'- 0" (d) by 1'- 6" (w) reinforced concrete wall resting on spread footings
	■ Water resistant membrane with rigid insulation, with sealant sloped at footing ■ Gravel drainage course with filter mat over 4" drainage tile		
Slab on Grade	■ 3000 PSI 4" concrete slab with welded wire fabric (20-25% fly ash) ■ Moisture barrier ■ Gravel base and compacted fill ■ Sealant at joints and wall junctures		
Shell Superstructure			
Structural Frame	■ Below grade structure cast-in-place concrete (20-25% fly ash) ■ Steel is A572 grade 50 ☒ All steel tonnages were calculated per progressive collapse requirements ■ Insulated wide flange steel column and beam structure ■ K bracing insulated wide flange steel member lateral support		

Category	Low-rise	Mid-rise	High-rise
	■ Sprayed on fire protection insulation ☒ Beam to column connections around the perimeter of the building must be moment connections capable of developing the full bending capacity of the beam		
	■ Steel Tonnage: 9.3 PSF floors; 7.6 PSF roof; 2.0 PSF columns	■ Steel Tonnage: 10.1 PSF floors; 8.4 PSF roof; 2.2 PSF columns	■ Steel Tonnage: 9.7 PSF floors; 8.1 PSF roof; 5.0 PSF columns
	☒ Steel Tonnage: 9.5 PSF floors; 8.2 PSF roof; 2.5 PSF columns	☒ Steel Tonnage: 10.1 PSF floors; 8.6 PSF roof; 3.0 PSF columns	☒ Steel Tonnage: 10.5 PSF floors; 9.3 PSF roof; 6.7 PSF columns
Floor Construction	■ Composite concrete on 20 gauge steel floor deck (20-25% fly ash) ■ Structural frame with floor openings in deck for elevators		
Roof Construction	■ Composite concrete on 20 gauge steel floor deck (20-25% fly ash) ■ Roof terraces use pavers with waterproofing and insulation		
Stair Construction	■ Metal pan stair tread with landings at raised floor level		
Shell Exterior Closure			
Exterior Wall	■ Floor 1: stone ■ Upper floors: precast concrete panel ■ Stone detailing at main entrance, building outside corners, cornice, and window sills/heads	■ Floors 1-2: stone ■ Upper floors: precast concrete panel ■ Stone detailing at main entrance, building outside corners, and cornices at building parapet	■ Floors 1-3: stone ■ Upper floors: precast concrete panel ■ Stone detailing at main entrance, building outside corners, and cornices at building parapet
	■ 3” handset stone on 8” CMU backup grouted and reinforced; 1” board type insulation; $^{5}/_{8}$” GWB on interior face on metal furring ■ Precast panels to be factory cast with special colorant additive, sandblast finish, with chamfered corners sloped sills and quick mitered joints; 1” board type insulation with waterproofing; metal stud backup with ½” GWB interior face; batt insulation with vapor barrier in metal stud cavity ■ Floor and ceiling interface to stud wall caulked and sealed with low VOC material ■ 2’- 0” parapet at building set-back and roof edges		
Corner Stone	■ Stone with chiseled lettering		
Exterior Glazing			
Fenestration	■ 40% glazing/60% skin [for all]		
Curtain Wall System	■ Aluminum framing with 3-coat baked painted finish ■ Glass to be insulated double glazed units with annealed coated low-e glass; U-factor for glazing = 0.32; shading coefficient for glazing = 0.35 ■ Rail at 38” above the floor		
Window System	■ Aluminum framed punched window system ■ Glass to be insulated double glazed units with annealed coated low-e glass; U-factor for glazing = 0.32; shading coefficient for glazing = 0.35 ■ Sill at 30” above the floor		

Category	Low-rise	Mid-rise	High-rise
Exterior Doors			
Entrance Vestibule	■ Double set of automatic sliding doors including track, operator, jamb and door panels ■ Overhead concealed electrical linear operator ■ 7'- 0" (w) by 7'- 0" (h) ■ Sliding panel to be aluminum frame glass panel with intermediate rail; Door panel to swing out 90º for emergency egress ■ Glass to be safety tempered coated low-e glass ■ Provide keyed lock with panic release and automatic access control via card reader system		
Glazed Exterior Doors	■ Aluminum frame glass panel with intermediate rail ■ Glass to be safety tempered coated low-e glass ■ Keyed lever lockset with panic release bar on inside and automatic access control via card reader system ■ Automatic closers		
Non-Glazed Emergency Egress Doors	■ Hollow metal 1¾" insulated 3'- 0" (w) by 7'- 0" (h) ■ 16 gauge steel frame with thermal break ■ Keyed lever lockset with panic release bar on inside and automatic access control via card reader system ■ Automatic closers		
Fire Doors	■ Overhead coiling fire doors ■ Concealed overhead installation ■ 20 gauge metal interlocking slats ■ Nylon smoke seals ■ Visual and audio enunciator to warn of operation		
Coiling Overhead Dock Doors	■ Concealed overhead coiling door ■ 26 gauge flat metal slats ■ Motor operation ■ Bottom lock ■ Weather seals at the bottom, guides and hood		
Vents and Areaways	■ Architectural drainable steel louvers with 6" deep adjustable blades with rain gutter		
Penthouse Enclosure	■ Box steel louver penthouse enclosure with 6" adjustable louvers		
Exterior Soffit	■ Plaster on metal lath supported on metal stud framing system		
Shell Enclosure Roof			
Roof Covering	■ 24 gauge copper interlocking standing seam metal roof with concealed hold down clips ■ Z purlin support	■ EPDM single ply membrane and flashing ■ Gravel ballast	
Insulation	■ Two layers 2" thick closed cell polystyrene rigid insulation		
Canopies	■ 18 gauge steel canopy with cantilever cable support struts		

Category	Low-rise	Mid-rise	High-rise
Roof Access	■ Interior permanent stair extending up from emergency egress stairs with standard exterior metal door		
Smoke Hatch	■ 14 gauge painted steel hatch and curb unit		
Skylights for Atria	■ Structural rafter system; coated aluminum structural welded members; double glazed insulated units with ¼" tempered low-e coated glass outside pane with ¼" laminated glass inside pane		
Interior Construction			
Partitions			
Entrance Vestibule, Public Lobby and Exit Corridors, Exterior of Tenant Demising Partitions, Public Toilets, Security Office, Vending/Concession Area, Building Maintenance, Loading Dock, Mail Room	■ Structural slab-to-slab construction of $^{5}/_{8}$" GWB on metal studs at 24" OC ■ Acoustical insulation filling the GWB wall cavity		
Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room	■ Structural slab-to-slab ■ 1 hr fire rated ■ 55 STC ■ GWB construction with 2 layers ½" GWB both sides on metal studs 24" OC ■ Acoustical insulation filling the wall cavity		
Fire Command, Janitor Closets, Electrical Closets, Telephone Closets, Trash Room, General Storage	■ Structural slab-to-slab construction of $^{5}/_{8}$" GWB on metal studs at 24" OC		
Ventilation, Plumbing, And Vertical Backbone Shafts	■ 2 hr 50 STC rated Type X GWB shaft wall system, with one layer 1" shaft wall and one layer ½" GWB		
Emergency Egress Stairs and Elevator Shafts	■ 1 layer ½" GWB on metal furring on 6" CMU		
Doors			
Security Office, Fire Command, Janitor Closets, Electrical Closets, Telephone Closets	■ Fire rated solid core 1¾" quarter sliced hardwood veneer doors 3'- 0" (w) by 7'- 0" (h) ■ Door frames to be solid hardwood, stained and sealed ■ Hardware to be locksets with levers ■ Key locks		

Category	Low-rise	Mid-rise	High-rise
Public Toilets, Vending/Concession Area	■ Solid core 1¾" quarter sliced hardwood veneer doors 3'- 0" (w) by 7'- 0" (h) ■ Door frames to be solid hardwood, stained and sealed ■ Hardware to be push plates with automatic closures		
Counter Shutters at Security Office	■ Coiling overhead wood slat door ■ Hardwood slats ■ Manual operations ■ Deadbolt lock		
Building Maintenance, Loading Dock, Mail Room, Trash Room and General Storage	■ 1" ABS plastic clad wood core double service doors 6'- 0" (w) by 7'- 0" (h) ■ 250º cam hinge system ■ Acrylic view window ■ Impact plates and cart bumpers		
Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room	■ Fire rated double hollow metal 1¾" doors 6'- 0" (w) by 7'- 0" (h) ■ 16 gauge welded metal frames ■ Hardware to be locksets with levers ■ Key locks		
Emergency Egress Stair Doors	■ Fire rated solid core 1¾" hardwood veneer doors 3'- 0" (w) by 7'- 0" (h) ■ 16 gauge welded metal frames ■ Hardware to be panic release with levers opposite side ■ Automatic closers		
Specialties			
Specialties – Handrail			
Emergency Egress Stairs	■ Welded pipe handrail		
Specialties – Toilet Accessories	■ Stainless steel ceiling hung partitions ■ Toilet paper holder ■ Seat cover dispenser ■ Feminine napkin disposal and dispenser (female toilets only) ■ Paper towel dispenser combination waste receptacle ■ Soap dispenser ■ Mirror with stainless steel edging ■ ADAAG compliant grab bars ■ Fold down infant changing table		
Specialties – Fire Extinguisher Cabinets	■ Fire extinguisher cabinets in storage rooms and equipment rooms		
Signage			
Building Directory	■ Touch screen computer monitor programmed building directory ■ Stone veneer pedestal case		
Great Seal	■ Plaster cast 5'- 0" diameter		

Category	Low-rise	Mid-rise	High-rise
Interior United States Flag	■ Cantilever pole aluminum mounted ■ Manual operated		
Dedication Plaque	■ Bronze 4 SF with raised brass letters		
Floor Identification	■ Dimensional brass letters mounted on wall with ADAAG compliant tactile Braille signage		
Emergency Egress	■ Etched on plastic laminate signage system panel with ADAAG compliant tactile Braille signage		
Room Identification for Major Public Spaces	■ Room identification signage to be routed letters in stone inset in raised wood wall panel with ADAAG compliant tactile Braille inset signage		
Room Identification	■ Signage system to be building standard modular vinyl lettering on plastic laminate signage frame system with ADAAG compliant tactile Braille vinyl signage modules		
Telephone Enclosure	■ Steel dividers with stainless steel shelf and perforated interior face with acoustical material		
Raised Floor	☒ All non-core areas and core electrical, telephone and computer LAN closets ☒ Exclude core areas of public lobby, public toilets, mechanical fan rooms, janitor closets, and storage rooms ☒ 1½" thick concrete filled metal pans at 24" modules ☒ 18" high raised floor ☒ Pedestal and stringerless support ☒ UL rated conduit ☒ Provide leak detection below raised floor area, one sensor per 5,000 SF		
Raised Floor Without Services	☒ 18" high raised floor ☒ 4" CMU 2'- 0" OC ☒ 20 gauge composite metal deck ☒ Include public lobby, public toilets, mechanical fan rooms, janitor closets, and storage rooms		
Interior Finishes			
Walls			
Main Lobby, Main Elevator Lobby	■ Wall surface to have 5 foot high 1¼" stone wainscot with Type II vinyl wall covering above		
Court Floor Elevator Lobby, Office Floor Elevator Lobby, Court Floor Public Corridor, Office Floor Public Corridors	■ Wall surface to have hardwood molded trim and base with Type II vinyl wall covering		
Public Toilets	■ $^{3}/_{8}$" textured porcelain tile base and wainscot with paint above		
Vending/Concession Area	■ Painted with vinyl cove base		

Category	Low-rise	Mid-rise	High-rise
Security Office, Egress Corridors	■ Painted with vinyl cove base		
Building Maintenance, Loading Dock, Mail Room, Trash Room, General Storage	■ Painted with vinyl cove base and vinyl chair rail guard and vinyl corner guards		
Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room, Fire Command, Janitor Closets, Electrical Closets, Telephone Closets	■ Painted with vinyl cove base and steel corner guards		
Floors			
Entrance Vestibule	■ Entrance to have 1” terrazzo 12” by 12” tile flooring ■ Drained entrance grid with structural aluminum rails, drain pan and carpet tread inserts of monofilament solution died nylon fusion bonded to backing		
Main Lobby, Main Elevator Lobby, Court Floor Elevator Lobby	■ Terrazzo tile		
Office Floor Elevator Lobby, Court Floor Public Corridor	■ Terrazzo tile		
Office Floor Public Corridors	■ Inset broadloom carpet ■ 32 ounce per square yard face weight ■ Yarn dyed color ■ Fourth generation nylon yarn ■ Bonded construction with cushioned back		
Public Toilets	■ $^{3}/_{8}$” textured porcelain tile with granite tile banded pattern		
Vending/Concession Area, Copier Area	■ Vinyl composition tile		
Security Office, Egress Corridors	■ Carpet tile ■ 32 ounce per square yard face weight ■ Yarn dyed color ■ Fourth generation nylon yarn ■ Bonded construction with cushioned back		

Category	Low-rise	Mid-rise	High-rise
Building Maintenance, Mail Room, Trash Room, General Storage, Janitor Closets, Fire Command	■ Vinyl composition tile		
Loading Dock, Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room	■ Sealed concrete		
Electrical Closets, Telephone Closets	■ Anti-static plastic laminate raised floor panel		
Ceiling			
Entrance Vestibule	■ Plaster ceiling		
Main Lobby, Main Elevator Lobby, Court Floor Elevator Lobby, Office Floor Elevator Lobby, Court Floor Public Corridor	■ Painted GWB		
Office Floor Public Corridors	■ Suspended 24” by 24” acoustical tile ceiling		
Public Toilets	■ Painted GWB ■ Soffit over counter areas		
Vending/Concession Area, Security Office	■ Suspended 24” by 24” acoustical tile ceiling ■ Painted GWB soffit above equipment and counter areas		
Egress Corridors	■ Suspended 24” by 24” acoustical tile ceiling		
Building Maintenance Office, Mail Room, Fire Command	■ Suspended 24” by 24” acoustical tile ceiling		

Category	Low-rise	Mid-rise	High-rise
Building Maintenance Shop Area, Trash Room, General Storage, Loading Dock, Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room, Janitor Closets, Electrical Closets, Telephone Closet	■ Exposed structure above		
Conveying Systems			
Elevators			
Public Elevators	■ Holed hydraulic Elevator	■ Geared traction	■ Gearless traction
	■ Elevator cab allowance: $31,500/per cab (Oct '00 dollars)		
Service Elevators	■ Holed hydraulic elevator	■ Geared elevator	■ Geared traction
	■ Elevator cab allowance: $5,000/per cab (Oct '00 dollars)		
Escalator	■ No escalator	■ 32" (w) step with nominal 40" (w) escalator system serving floors one through two ■ 3 step flat transition ■ Clear span from top to bottom ■ Structural glass balustrade and skirt lighting	
Plumbing			
Utility Service: Domestic Water Supply	■ One domestic water service connecting to local utility ☒ Two domestic cold water services shall be provided connecting to the public utilities in the adjacent streets ■ Domestic cold water services shall be fully metered in accordance with local requirements ■ Domestic water services shall be equipped with reduced pressure type backflow preventors located on the first level above grade		
Utility Service: Storm Drainage and Sewerage Systems	■ Multiple sanitary and storm water (primary and secondary) house drains services shall be provided from the building and connect to public utilities in adjacent streets		
Utility Service: Natural Gas	■ A natural gas service shall be extended into the building and be metered in accordance with local requirements ■ Shut-off valve at gas service entry point		
Domestic Cold Water System	■ Shall be pressurized by a factory prefabricated tri-plex constant pressure pumping system ■ Building shall be divided into multiple zones with pressure reducing valves as required to maintain a maximum pressure of 50-70 PSI to any fixture		

Category	Low-rise	Mid-rise	High-rise
	■ All domestic water connections to non-potable applications shall be provided with suitable backflow preventors ■ Provide non-freeze hydrants around the base of the building; Hydrants shall be located on each side of main entrance and spaced approximately 100º OC around the building		
Domestic Hot Water System	■ A multi-zone central domestic hot water distribution system with supply and recirculation piping shall be provided to serve all fixtures and equipment requiring hot water; Recirculation shall be provided to any fixture located greater than 50-feet from a circulated main or riser		
Sanitary Drainage Systems	■ All areas below grade shall be provided with duplex sewage ejector stations; Each ejector pump shall be sized for 100% capacity and be provided with emergency power		
Vending/Concession Area	■ Cold water supply with shutoff		
Drinking Fountains	■ Wall mounted fountain with chiller		
Public Toilets	■ Inset counter-mounted porcelain sink ■ Cold water; hot water supplied by central hot water system ■ Lever faucet ■ Porcelain floor mounted flush-valve water closet ■ Floor drain with primer		
Mechanical Room, UPS Battery Rooms	■ Floor drain with primer ■ Emergency eye wash and deluge shower		
HVAC			
General	■ For unit cost purposes, the HVAC costs (cooling capacity) associated with various Courthouse spaces (as detailed in the other space type TI sections) are carried in shell and core costs; for other space types differential HVAC costs are included in TI ■ All HVAC systems and equipment shall at minimum comply with the energy performance criteria within the "Facilities Standards for the Public Buildings Service" supporting an assigned energy performance goal ■ System and equipment selections indicated below are for the purposes of this unit cost study only; Alternate system and equipment options should be investigated on a specific building project for improved efficiency of operation, and enhanced life cycle economic performance		
Design Conditions and Loads	■ Outdoor design conditions shall be as per GSA Standards ■ Courtrooms and related areas: Summer 74-76 °F db/45-55% RH; Winter 70-74 °F db/25-35% RH, 55 °F db (unoccupied hours) ■ Ventilation rates shall meet or exceed all required codes and standards, including ASHRAE-62, but in no case be less than 20 CFM of outside air per occupant ■ Space-heating boilers have been sized assuming a design load of 20 BTU per hour per gross square foot of building ■ Central cooling equipment for the courthouse has been sized on the basis of 1 ton of refrigeration per 400 gross square feet of conditioned floor area for unit cost purposes; However, designers shall minimize cooling capacity to the degree possible while also satisfying all design criteria		

Category	Low-rise	Mid-rise	High-rise
Energy Supply	■ Dual fuel gas/oil ■ A complete fuel oil pumping system shall be provided for the emergency generators and boilers and shall include fuel oil storage tanks, piping, valves, duplex fuel oil pump and day tank ■ Tanks to be buried underground double-walled fiberglass tanks with leak detection system ■ See Plumbing–Utility Service: Natural Gas for criteria		
Heat Generating Systems	■ Heating system shall be hot water type generated by dual fuel boilers (natural gas and #2 fuel oil); Provide oil storage tank ■ Hot water shall be distributed to perimeter fan coil units and perimeter fan powered VAV boxes with heating coil ■ Heating water shall be distributed by two hot water pumps through two pipe reverse return system; Hot water to glycol heat exchanger with two pumps (one standby) shall be provided ■ For unit cost purposes, two space-heating boilers are assumed with each rated at approximately 67 percent of peak heating load; Boiler capacities used in this study are as follows; Capacities shown are in BHP (boiler horsepower where 1 BHP = 33,475 Btu/h)		
	■ Low-rise: 2 at 55 BHP	■ Mid-rise: 2 at 105 BHP	■ High-rise: 2 at 180 BHP
Cooling Generating Systems	■ Refrigeration machines shall be electrically driven chillers ■ For unit cost purposes, and to allow for operational efficiency and flexibility, three chillers are to be provided sized for 50%, 50%, and 20% of the peak cooling load; Chiller capacities used in this study are as follows:		
	■ Low-rise: 2 at 210 Tons	■ Mid-rise: 2 at 390 Tons; 1 at 130 Tons	■ High-rise: 3 at 450 Tons
	☒ Low-rise: 2 at 170 Tons; 1 at 70 Tons	☒ Mid-rise: 2 at 325 Tons; 1 at 130 Tons	☒ High-rise: 2 at 560 Tons; 1 at 220 Tons
	■ Plate-and-frame heat exchanger provided for free-cooling application ■ Cooling towers shall be forced draft type steel frame, fireproof fill		
Piping and Pumping	■ Distribution pumping shall utilize two-pipe reverse return arrangements ■ Pumps to be horizontal split case; provide mechanical seals for all water pumps		
	■ Low-Rise primary only chilled water piping and pumping	■ Mid-Rise and High-Rise primary and secondary chilled water piping and pumping arrangement	
Air Distribution System			
Air Supply, Discharge Locations	■ Above ceiling distribution throughout ☒ Raised floor areas, including courtroom and related judicial spaces, office space, non-core areas—pressurized raised floor plenum air supply, with ceiling return air plenum ■ Core areas (public lobby, elevator lobby, public restrooms, and utilitarian areas located on sub grade levels)–ducted ceiling air supply with adjustable slot diffusers and ceiling return air plenum		

Category	Low-rise	Mid-rise	High-rise
Air Handling Unit	■ Maximum capacity of AHUs to be 25,000 CFM ■ The air handling system(s) will consist of variable air volume air conditioning units providing conditioned air on each floor for space cooling and ventilation; Each unit will consist of a supply air fan, filters, chilled water coil, sound attenuation and controls; Fan motors shall be driven by Variable Frequency Drives (VFD) for efficient electrical operation ■ Minimum outside air for each fan room will be supplied from a central outside air fan system that includes filters, cooling coil, and heating coil ☒ Humidifier		
Perimeter Systems	■ Perimeter heating system shall be fan-powered boxes with hot water heater ☒ Perimeter heating system shall be above floor hydronic fin tube radiation ■ Air supply terminals in perimeter zones of underfloor air supply systems shall be fan-powered (activated by manual wall switches) to provide increased air flow and better response to cooling loads		
Air Supply, Misc.	■ Systems shall be equipped with return air fans ■ Zones will be no more than 2,000 SF or a maximum of three enclosed offices ■ Perimeter zones will not exceed 15'- 0" from exterior wall ■ Separate zones for each elevator lobby and public lobby ■ Positively pressurized entrance vestibule ■ Ventilated mechanical rooms, elevator equipment rooms, and emergency generator room ventilation ■ Air curtains at dock entrances		
Materials	■ Sheet metal work: gauges and bracing shall conform to ASHRAE and SMACNA standards ■ Pipe: chilled water, condenser water, steam and hot water piping schedule 40 standard with steel ASTM A53 lap welded or seamless black steel ■ Valves: furnish and install all the valves necessary for the control and easy maintenance of all piping and equipment ■ Expansion loops: shall be provided for all piping systems ■ Grilles, registers and diffusers: provide all required ■ Raised floor areas to have low pressure high induction diffusers ■ Dampers: provide all dampers required for proper balancing of systems and all fire and fire/smoke dampers required by code ■ Fans: centrifugal fans shall be air foil type; adjustable sheaves below 50 HP ■ Air filters: 25-30% efficiency prefilters and 80-85% final filters shall be provided in each air handling unit ■ Insulation for sheet metal: all medium pressure supply air ductwork from fan discharge to pressure reducing device (including flexible connections) and low-pressure ductwork shall be insulated; All supply, return, spill, outside air intake and exhaust plenums shall be insulated		
Exhaust Air	■ Toilets and vending/concession areas: provide direct 100% exhaust operated by Building Automation System ■ Emergency generator vertical exhaust ■ UPS battery room to have 100% direct exhaust		

Category	Low-rise	Mid-rise	High-rise
Dedicated Ventilation System	☒ The dedicated ventilation system shall consist of a 4,000 cfm air handling unit on each floor of the three building types (i.e., low rise, mid rise, and high rise); The unit shall be in the same mechanical room as the main air handling unit, which means the mechanical room will have to be enlarged slightly ☒ The unit shall include hot water preheat coil, cooling coil, and hot water reheat coil; It shall also include all DDC controls; Include ductwork to connect to under floor system; Also include ductwork to connect outside air shaft		
Controls	■ Building Automation Systems: all building systems shall be monitored or controlled or interfaced through the Building Automation System (BAS); The BAS consists of an Energy Management System (EMS), Security System and Fire Protection System; System selection shall be expandable and allow communication with other automation systems ■ The EMS will have Central Processing Unit (CPU), monitor, local permanently mounted alphanumeric keyboard, printer, control, and feedback functions; Software programs will be used for control; All systems will be provided with redundant backup ■ The EMS shall utilize Direct Digital Controls (DDC) for system control; Monitoring the systems will be accomplished with a central terminal in the BAS office ■ Alarm: the BAS system shall notify the operator of equipment failures and high/low operating conditions in all systems ■ Provide override controls for all thermostats		
Fire Protection			
Service	■ Two services connecting to public utilities in adjacent streets ■ Fully metered in accordance with local requirements ■ Equipped with reduced pressure type backflow preventors located on the first level above grade		
Fire Suppression	■ Combination fire standpipe/sprinkler system throughout the building pressurized by automatic electric fire pump and jockey pump ■ Fire pump shall be supplied with normal and emergency power and an automatic transfer switch ■ Automatic wet pipe sprinkler system throughout, except areas subject to freezing where a dry pipe system shall be used ■ Recessed automatic glass bulb quick response type sprinkler heads; provide one sprinkler head for every 100 SF of finished space; ■ See Specialties–Raised Floor for leak detection requirements ■ Elevator machine room, elevator shafts and electrical switchgear rooms with sprinkler systems; cooling towers with deluge type sprinkler system ■ Fire department hose valves at stairways shall consist of a hose valve within the stair and an additional valve on the corridor side of the stairwell ■ Siamese connections per code ■ Tamper switches on all fire protection control valves ■ Each sprinkler floor system connection to standpipe riser and main provided with OS&Y gate valve with tamper switch, check valve, water flow alarm, inspectors test and drain, drain with sight glass ■ Multipurpose ABC dry chemical fire extinguisher in recessed cabinets in storage rooms and equipment rooms		

Category	Low-rise	Mid-rise	High-rise
Fire Alarm System	■ Addressable type, electronic fully supervised multiplexing type employing high frequency carrier applied to dedicated wires for the distribution of its multiplex coded signals ■ Fire safety system command center in room on lobby level with direct access for fire fighters; Room to receive local alarms; Remote annunciator panels located in U.S. Marshal's control room and engineer's control room ■ Fire protection alarm system devices shall be located in accordance with the following: manual fire alarm pull station adjacent to exit door on each floor; space smoke detectors (analog type) in all elevator lobbies, electrical switchgear, transformer vaults, and telephone exchanges; intercom (Fire Warden) stations on each floor and in each mechanical room; duct smoke detectors (analog type) in air handling systems in excess of 2000 CFM; water flow detectors in sprinkler piping; tamper switches on valves in sprinkler piping; automatic control (stopping) of air handling systems in response to signal from the fire protective alarm system and automatic starting of smoke exhaust and pressurization fan systems; manual control of fans from the fire command center; combination voice evacuation speaker and visual devices throughout the floors, visual signaling device (strobe) in each toilet; elevator recall to ground floor		
Smoke Evacuation	■ Ceiling hatches in stairwells ■ Automatic opening ventilation louvers at stairwell bases ■ System actuated ventilation fans ■ Stair pressurization and elevator hoistway smoke exhaust		
Electrical			
Electrical Service	■ Suitable for receiving secondary power at the $^{480}/_{277}$ volt level from facilities provided by the utility company		
Service and Distribution Equipment	■ Single supply connection main switchboards ■ All required subsidiary panelboards (power, distribution, lighting and appliance) ■ Automatic power factor correction equipment for each switchboard to maintain a 90% power factor ■ Incorporate copper busses and copper wiring throughout ■ 480 volts, three phase for all motors ½ horsepower and larger ■ 277 volts single phase to all fluorescent (and other discharge type lamp) lighting fixtures ■ Power conditioning and transient suppression (PCTS) devices for each main switchboard, main emergency distribution panelboard and each $^{120}/_{208}$ appliance panelboard ■ Three phase dry type 115 degree C transformers (480-$^{120}/_{208}$) for all normal power requirements ■ Three phase dry type K-13 rated transformers (480-$^{120}/_{208}$) for all panelboards serving office automation equipment and work stations ■ $^{120}/_{208}$ volt appliance panelboards serving office automation (electronic) equipment shall be suitable for "harmonic rich" line to neutral loads ■ Provide driven rod grounding system with counterpoise cable ■ Provide master labeled UL96 lightning protection system ■ Plug-in bus duct risers will be utilized for distributing normal power to each of the floors		
Emergency Power			
Generator Unit	■ Diesel-driven emergency generator unit with paralleling switchgears for multiple generators; Capacities for shell and core as follows:		

Category	Low-rise	Mid-rise	High-rise
	■ 250 KW unit	■ 400 KW unit	■ 600 KW unit
	■ Automatic transfer switches (by-pass isolation type) arranged to maintain the emergency power distribution system energized from the normal utility company source or the generating set ■ Remote emergency alarm panel for each generator located at the building control center		
Uninterruptible Power Systems	■ Provide separate uninterruptible power systems complete with U.P.S. modules, 30 minute battery backup, maintenance bypass switchgear and interconnecting circuitry for the following: BAS computer/data and communications; life safety (egress lighting; security systems		
Electrical Outlets			
Corridors and Lobby Spaces	■ Wall mounted duplex outlets every 50'- 0" OC ■ Provide a dedicated line duplex electrical outlet at the public lobby for metal detector and x-ray security screening equipment ■ Provide recessed duplex wall receptacle for clock in each lobby and corridor		
Vending/Concession Area	■ One quadplex counter splash mounted electrical outlet ■ One duplex wall outlet for each vending machine ■ Dedicated circuit for any appliance rated above 10 amps		
Electrical and Communication Closets	■ Two dedicated duplex outlets on emergency power, plus additional outlets for every 5'- 0" of wall space ■ Provide a separate 120-volt panel with master switch, and four to five 20-amp circuits should be included for each telephone and LAN system for each separate agency (U.S. Courts, U.S. Marshals Service, U.S. Attorneys, U.S. Trustees, GSA)		
Maintenance Shop, Mail Room	■ Provide counter plug mold strips with outlets at every 18" OC		
Public Toilets	■ Ground fault electrical duplex outlet		
Lighting			
Entry Vestibule	■ Recessed down lamps compact fluorescent lamps, one per every 10 SF		
Main Lobby, Main Elevator Lobby, Court Floor Elevator Lobby, Office Floor Elevator Lobby, Court Floor Public Corridor	■ Metal halide uplighting		
Tenant Assignable Areas, Office Floor Public Corridors, Egress Corridors	■ Parabolic fluorescent 24" (w) by 48" (l) recessed ceiling fixtures with two T-8 lamps and electronic ballasts located every 80 SF (or T-5 equivalent)		
Public Toilets	■ Recessed fluorescent perimeter cove light fixture with lamp located in the soffit above the lavatory and the toilet		
Vending/Concession Area/Concession Stand, Security Office	■ Parabolic fluorescent 24" (w) by 48" (l) recessed ceiling fixtures with two T-8 lamps and electronic ballasts located every 80 SF (or T-5 equivalent) ■ Recessed fluorescent light fixture located in the soffit above the counter		

Category	Low-rise	Mid-rise	High-rise
Building Maintenance Office, Mail Room, Fire Command	■ Parabolic fluorescent 24"(w) by 48" (l) recessed ceiling fixtures with two T-8 lamps and electronic ballasts located every 80 SF (or T-5 equivalent)		
Building Maintenance Shop Area, Trash Room, General Storage, Loading Dock, Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room, Janitor Closets, Electrical Closets, Telephone Closet	■ Suspended fluorescent 24" (w) by 48" (l) recessed ceiling fixtures with two T-8 lamps and electronic ballasts located every 80 SF (or T-5 equivalent)		
Telephone and Communication Outlets			
Public Lobby	■ Telephone connections for security screening post ■ Public pay telephone connections ■ One data connection for electronic building directory		
Security Office, Building Maintenance Office, Mail Room	■ Conduit for one telephone line ■ Conduit for one LAN connection		
Telephone Room	■ Four 4" conduits between floors ■ Conduit for one telephone line ■ Mounting board for telephone and LAN switch connections		
Mechanical Room	■ Conduit for one telephone line ■ Conduit for one LAN connection for BAS computer		
Security Devices			
General	■ GSA to provide exterior intrusion detection system, including CCTV cameras, door position detectors and lock keeper detectors on all exterior doors, glass break sensors on all exterior glazing, and volumetric motion sensors outside each door; For interior security, GSA to provide as part of the building shell conduit, power and mounting support for interior security devices including control consoles, and X-ray baggage and metal walkthrough detection systems		
Entry Vestibule, Entry Door from Restricted Parking, Dock Man Door and Cargo Overhead Door	■ Card reader access control system ■ Intrusion detection system with door position detector and lock keeper detector and glass break sensors ■ Intercom and duress alarm ■ Closed circuit television monitor ■ Volumetric motion sensor		

Category	Low-rise	Mid-rise	High-rise
Emergency Egress Doors	■ Intrusion detection system with door position detectors and lock keeper detector ■ Glass break sensors ■ Closed circuit television monitor		
Building Perimeter	■ Glass break sensors ■ Closed circuit television monitor		
Public Lobby	■ Closed circuit television monitor ■ Glass break sensor ■ Metal detector ■ X-ray baggage inspection equipment		
Security Office	■ Monitors for intrusion detection systems, duress alarms, intercoms, closed circuit television cameras, fire alarms, and card access controls		
Restricted Corridors, Egress and Communicating Stairs	■ Power and conduit connections for card reader access control system, equipment provided by USMS ■ Power and conduit connections for door position detector and lock keeper detectors equipment provided by USMS ■ Power and conduit connections for closed circuit television camera equipment provided by USMS		
Mail Room	■ X-ray package inspection system ■ Door position detector and lock keeper detector		
Equipment Room, Mechanical Room, Electrical Switchgear Room, Emergency Generator Room, Fire Command	■ Door position detector and lock keeper detector		
Elevator	■ Remote floor recall override		
Commercial Equipment			
Window Washing Equipment	■ Fixed parapet mounted davit sockets at each column line		
	■ Davit allowance $15,000 (Oct ’00 dollars)		■ Davit allowance $25,000 (Oct ’00 dollars)
Dock Loading Equipment	■ Dock leveler, electro-hydraulic operation		
Furnishings			
Casework			
Courtroom	■ All millwork to be AWI premium grade hardwood veneer panels with solid hardwood dimensional lumber caps		
Public Toilets	■ Cantilevered plastic laminate counter with integral rolled front edge and splash		
Vending/Concession Area, Security Office	■ AWI premium grade hardwood veneer base and upper cabinets ■ Plastic laminate counter with splash		

Category	Low-rise	Mid-rise	High-rise
Building Maintenance, Mail Room	■ Painted metal cabinet with plastic laminate counter		
Building Site Work			
General	■ Site work allowance carried in estimate to cover such items as: roadways, walkways and plazas, vegetation, site lighting, and site utilities ■ Site allowance assumes a 50'-0" setback around the entire perimeter and space to accommodate 30-year expansion ■ Site allowance is based on a site area to GSF ratio of:		
	■ 75%	■ 33%	■ 15%
	■ 30'- 0" (h) aluminum pole with internal halyard and spread footing base for U.S. flag ■ Outside parking (structured and surface) is not included in site work allowances and is treated as a separate space type		
Roadways	■ Concrete 12'- 0" (w) lanes with curbs		
Parking	■ Concrete parking with landscaped trees and shrubs in intermediate islands		
Walkways and Plazas	■ Concrete walkways		
Fountains	■ Round fountain in entrance plaza		
Protective Barriers	■ 3'- 0" grade change with concrete retaining wall between street and plaza/building entrance		
Vegetation	■ Grass ground cover ■ Accent annual flowerbeds and flowering shrubs along entrance paths ■ Perimeter indigenous trees		
Site Lighting	■ Metal halide high mast general lighting ■ Metal halide building security flood lighting		