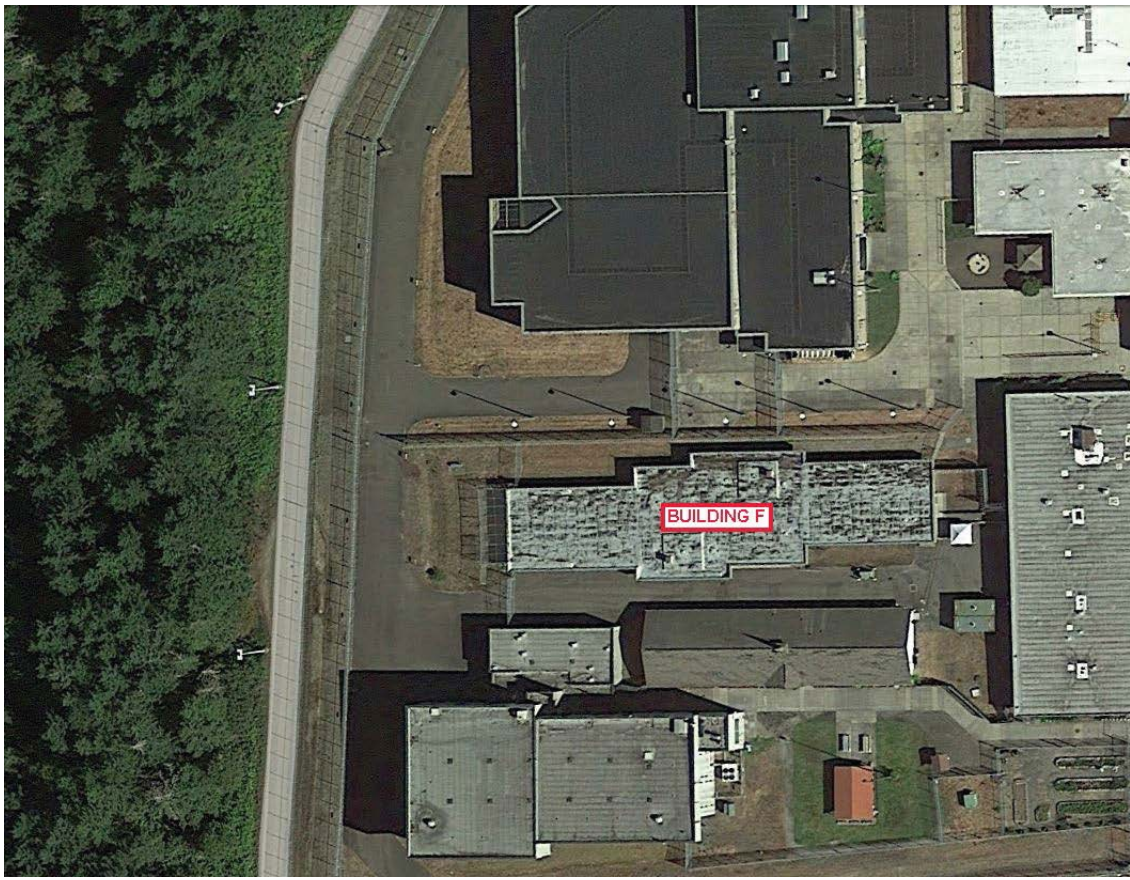


FEASIBILITY STUDY
FOR CONVERTING BUILDING 'F', INTO AN ELDER CARE
FACILITY OR BUILDING A NEW ELDER CARE FACILITY AT
WASHINGTON CORRECTION CENTER FOR WOMEN,
GIG HARBOR WASHINGTON



May 23, 2023



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WCCW Feasibility Study to Convert Building F into an Elder Care Facility or Build a New Elder Facility

FEASIBILITY STUDY CONTRIBUTORS

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COST ESTIMATOR | J B IRINGAN CONSULTING
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CONDITIONS ASSESSMENT & CONVERSION INTO AN ELDER CARE FACILITY

BUILDING 'F' - WASHINGTON CORRECTION CENTER FOR WOMEN (WCCW):

The Department of Corrections hired MSGS Architects to explore the feasibility of converting an unused dormitory building, Building F, on the WCCW campus into an Elder Care Facility to address the medical and elder life issues of their aging female incarcerated individuals (I/I's), many of whom are incarcerated for life. Building F was built as a medium security prison dormitory in 1969 and stopped being used by WCCW in 2006. The building was shut down 'cold', meaning that no part of the building was heated at any time of the year. Water pipes were drained so as to not burst the pipes during below freezing weather.

The intent of this feasibility study is to explore either converting, through extensive remodeling, Building F into an Assisted Living and Skilled Nursing Facility, or to tear down the existing structure completely and build a new Elder Care Facility in the same location. All of the land contained within the perimeter fence at WCCW already has structures or other improvements needed for the institution. The present site where Building F stands is the only location where an Elder Care Facility could be placed.

EXISTING CONDITIONS:

When Building F was built as a medium security prison, all the exterior and interior walls were made from reinforced solid concrete, 6" thick on the exterior walls and 3 5/8" thick on the interior walls. The exterior walls were covered with veneer brick on their exterior face. See figure 1 below:



Figure 1

The building has a double loaded corridor down the cell wings with heavy plate steel doors on heavy duty hinges. There is an opening in each cell door just large enough to slide a food tray through for each inmate's meal. See figure 2 below:



Figure 2



Figure 3

Within each cell, designed for a single inmate, there is a combination water closet / lavatory. See figure 3 above.

The existing doors to the cells are not appropriate in an Elder Care Facility and would need to be replaced with 3'-0" wide heavy duty insulated hollow metal doors and frames. Better for an Elder Care Facility, wider doors, 42" wide, will provide greater accessibility for all residents.

The existing water closet / lavatory combination fixtures do not meet accessibility requirements. They are not practical for an Assisted Living or Skilled Nursing Facility and would need to be replaced in any remodel with an accessible water closet and an accessible lavatory.

TWO SOLUTIONS – REMODEL BUILDING F or BUILD A NEW ELDER CARE FACILITY

Building F was built in 1969 and the costs and embodied energy used to build this building remain in the existing structure. The building is very strong, with poured concrete walls on both the exterior and interior walls, as well as concrete floor and roof structure. Remodeling the building into an Elder Care Facility would require extensive demolition of existing walls. With correct structural engineering, as this report allows for, this is completely possible. To accommodate at least (35) elder I/I's in the facility, a 1,500 SF addition to the building is needed. There is room to build this addition on the west between the west end of Building F and the perimeter road against WCCW's Perimeter Security fence. See Figure 4 below:

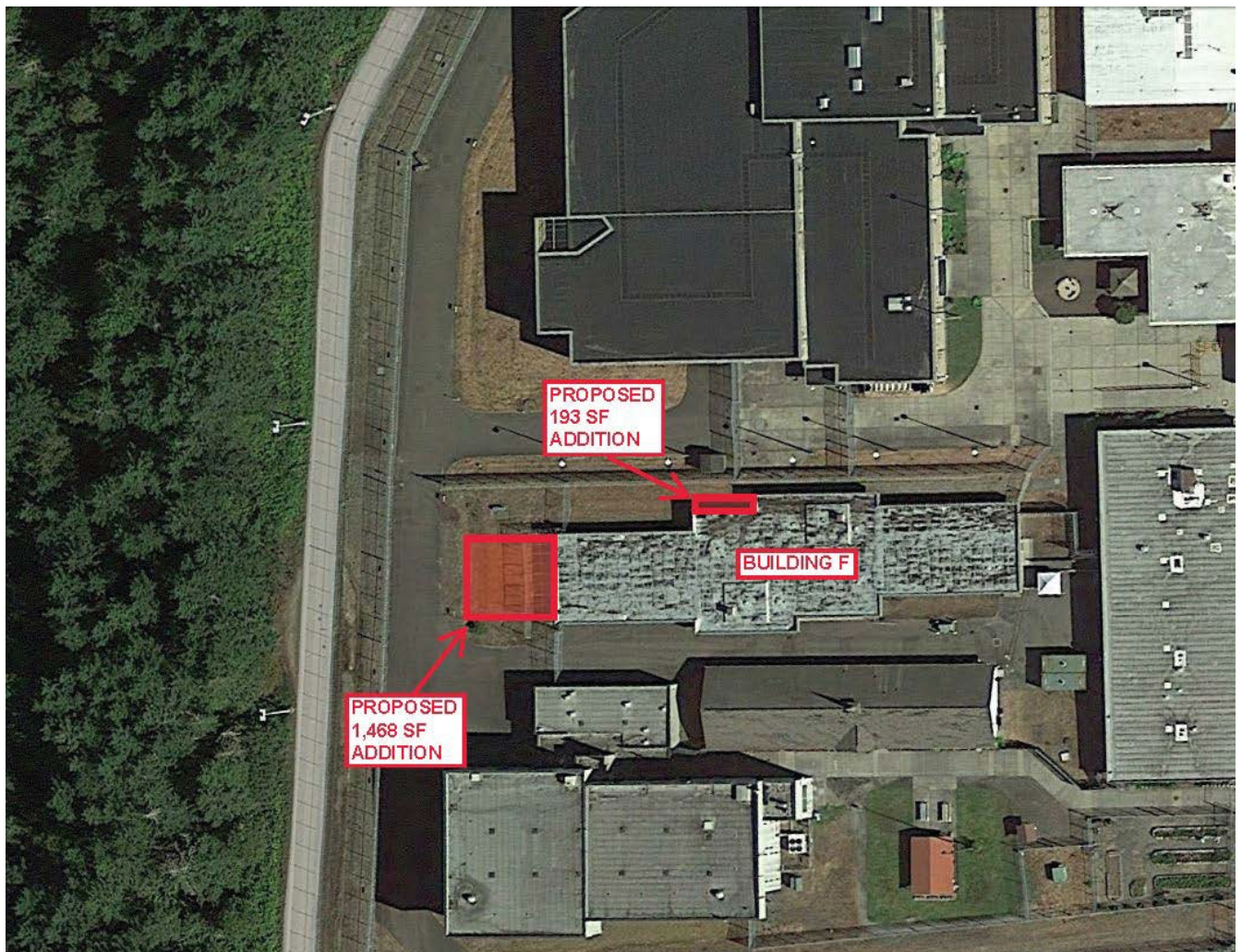


Figure 4

This Feasibility Report looks at (2) solutions to creating an Elder Care Facility at WCCW: Remodel and add on to the existing Building F, or demolish Building F entirely and build a new Elder Care Facility in the same location as Building F used to stand. For an ‘apples to apples’ comparison of construction costs, the size of the potential new building is very similar to the size of the remodeled and added onto existing Building F.

A two-story solution was explored early in the Feasibility Study, but ultimately rejected for a number of reasons. The biggest reason is that the structural engineer looked at the existing foundation of Building F and determined that to add a second story onto the building, that portion of the Building F that would be two stories would have to be 100% demolished and re-built with larger, more robust footings. Additionally, a two-story addition to the existing building would require an elevator, and two sets of stairs. A new elevator installed today, is not less than \$100,000, and probably more when all associated requirements for an elevator are accounted for. The two sets of stairs take up space needed for other functions. Finally, in an Assisted Living / Skilled Nursing Facility, the residents are not very mobile, with many needing to use a wheelchair to get around. A second story creates challenges to the residents to travel to, let alone use on a regular basis.

REMODEL EXISTING BUILDING F:

Per the superintendent of WCCW, Charlotte Headley, older women I/I’s with age related health issues, accommodate to prison life much better emotionally and physically when they are living in cells with other women. For this reason, for the majority of single occupancy cells in the existing Building F, we recommend that the walls between cells be removed to allow for 2-women and 3-women cells.

The combination lavatory / water closet fixtures that exist are completely impractical for an elder care environment. We recommend that all cells have a fully accessible water closet with the required ADA grab bars and a lavatory that also meets all required ADA clearances and heights. We recommend that all beds in all cells be hospital size beds, with the adjustable height features typical in beds of this type.

Since many of the elder I/I’s need assistance in showering, we recommend and show large single occupancy shower rooms, fully accessible, that are large enough for one or two nursing assistants to help women inmates bathe.

The ‘Day Room’ where meals are taken for those inmates that are mobile, and where daily activities take place, is centrally located in both the remodeled and new building designs, to create the easiest access to the day room, on the same level as the inmates live on.

In Appendix A of this report is a Proposed First Floor Plan of a Remodeled and Addition to existing Building F. The structure of the building is reinforced with new structural features as shown on the conceptual structural drawings in Appendix A. This remodel would replace all mechanical and electrical systems with new systems. The Basis of Design of the Structural, Mechanical and the Electrical systems are attached in Appendix C.

Current doors into the cells are 36” wide. We recommend that all cell doors be enlarged to a 42” width, to better accommodate wheelchair access. An exterior staircase to the basement, where the mechanical and electrical systems are housed is included in this design at the request of WCCW maintenance staff.

This design accommodates up to (27) I/I’s with (6) flexible offices that could be converted into I/I cells for a maximum accommodation of (39) I/I’s.

BUILD A NEW ELDER CARE FACILITY

Following the Proposed Floor Plan of a Remodeled and Addition to existing Building F, is a Proposed Floor Plan of a NEW BUILDING.

The square footage of the new building is similar to the existing remodeled building for cost comparison purposes. The central area is opened up in a more social and friendly manner as the WCCW I/I's that will be living in this facility need nursing and medical assistance on a daily basis, more than a facility that is designed to prevent I/I's from escaping. These I/I's have limited physical capacity for any sort of task.

All doors in the new building are 42" wide, to accommodate I/I's in wheelchairs. (4) large single occupancy shower rooms are included in the project, rooms large enough to allow one or two nursing aides to be in the shower room with the I/I, to help her bathe.

This design accommodates up to (31) women I/I's with (5) flexible offices that could be converted into inmates' cells for a maximum accommodation of (40) I/I's.

COST ESTIMATE:

Two cost estimates of the above described alternates, (1) remodeling the existing Building 'F', also known as SCHEME D, and (2) demolishing Building 'F' and building a new building, also known as SCHEME E, follow this page. Costs are summarized below, shown in today's construction dollars and with an escalation factor of 7.5% per year, for two years, for construction beginning on or after July 1, 2025, the beginning of the State of Washington's 2025-2027 Biennium budget cycle.

	<u>REMODEL BUILDING 'F'</u>	<u>COST per SF</u>	<u>BUILD NEW FACILITY</u>	<u>COST per SF</u>
Cost Today:	\$5,353,100	\$589.09 per SF	\$7,167,500	\$777.64 per SF
Escalated				
Cost in 2025:	\$6,186,200	\$680.77 per SF	\$8,283,000	\$898.67 per SF

CONCLUSION & RECOMMENDATION

The cost of construction today is experiencing an inflationary trend that occasionally occurs in our economy's business cycle. The construction industry experienced a similar trend in the 2007 – 2010 time period. The high inflation rate of construction costs at that time period eventually eased, but the cost per square foot of remodel or new construction did not do down, the rate of increase merely slowed.

The present rate of inflation in construction costs is also easing, as the world moves beyond the supply side issues and the resulting inflationary costs of building. As our cost estimates show, there is still significant savings to be realized in remodeling a well-built existing building for a new purpose, compared with the cost to demolish this building completely and then building a brand-new building in its place. Remodeling Building F into an Elder Care Facility with Assisted Living and Skilled Nursing wings may not provide as ideal a facility for Elder Care as is functionally possible, but the costs saving of the remodel scheme are significant, and the resulting facility is functionally very similar to a purpose-built new Elder Care facility.

Submitted by,

Bill Sloane, AIA, LEED AP
 MSGS Architects
 Olympia WA 98501



WCCW Feasibility Study to
Convert Building F into an
Elder Care Facility or
Build a New Elder Facility

APPENDIX A

COST ESTIMATE – REMODEL EXISTING BUILDING F

SUMMARY: SCH-D

Project: **WCCW - ELDER CARE FACILITY, Renovations & Additions**
 Location: Gig Harbor, WA
 Architect: MSGS Architects
 Prepared by: J B Iringan Consulting
 Bldg (SF): 9,087 SF
 Date: May 22, 2023
 Phase: Feasibility Study Estimate

SEC	DESCRIPTION	TOTAL
BUILDING:		
A10	FOUNDATIONS	90,926
A20	BASEMENT CONSTRUCTION	148,128
A30	SLAB ON GRADE	25,253
B10	FLOOR CONSTRUCTION	32,651
B20	ROOF CONSTRUCTION	57,337
B30	EXTERIOR CLOSURE	209,338
B40	ROOFING	306,751
C10	INTERIOR CONSTRUCTION	353,534
C20	STAIRCASE	25,000
C30	INTERIOR FINISHES	368,568
D20	PLUMBING	342,913
D30	HVAC	339,969
D40	FIRE PROTECTION	
D50	ELECTRICAL	855,424
E10	EQUIPMENT	3,000
E20	FURNISHINGS	12,500
TOTAL BUILDING DIRECT COST		\$3,171,293
	GENERAL CONDITIONS INCL SITE OVERHEAD	18% 570,833
	GENERAL CONTRACTOR'S OH&P, B&O Tax, Insurance	8% 299,370
	DESIGN/ESTIMATING CONTINGENCY	15% 606,224
	TIGHT SECURITY CONDITIONS PREMIUM	5% 232,386
	TOTAL BUILDING COST @ BID TODAY	9,087 SF \$537.04 \$4,880,106
SITWORK:		
F20	SELECTIVE BUILDING DEMOLITION & MISC SITE WORK	227,377
G20	SITE IMPROVEMENTS	Minor work - Allow 30,000
G30	SITE CIVIL / MECHANICAL UTILITIES	Minor work - Allow 50,000
TOTAL SITEWORK DIRECT COST		307,377
	GENERAL CONDITIONS INCL SITE OVERHEAD	18% 55,328
	GENERAL CONTRACTOR'S OH&P, B&O Tax, Insurance	8% 29,016
	DESIGN/ESTIMATING CONTINGENCY	15% 58,758
	TIGHT SECURITY CONDITIONS PREMIUM	5% 22,524
	TOTAL SITEWORK COST @ BID TODAY	\$473,004
	TOTAL BUILDING & SITEWORK COST @ BID TODAY	\$589.09 \$5,353,100

EXCLUSIONS:

Permits	Construction Management Fees
Furnishings/Equip Not Listed	Traffic Control
A/E Fees	Artwork/Installations

Legends

GSF Gross Square Feet	CY Cubic Yard
FPA Foot Print Area	SY Square Yard
UFA Upper Floor Area	ACR Acre
RA Roof Area	EA Each
XWA Exterior wall Area	PR Pair
SF Square feet	LS Lump sum
LF Lineal Feet	LBS pounds

Estimate Detail: SCH-D

Project: **WCCW - ELDER CARE FACILITY, Renovations & Additions**
 Location: Gig Harbor, WA
 Architect: MSGS Architects
 Prepared by: J B Iringan Consulting
 Bldg (SF): 9,087 SF
 Date: May 22, 2023
 Phase: Feasibility Study Estimate

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
A10	FOUNDATIONS					
	<i>New Additions:</i>					
	3' Wide strip footing w/ 3' H stem wall - basement level	125	LF	300.00	37,500	
	5' Wide strip footing w/ 3' H stem wall - basement level	29	LF	375.00	10,875	
	3' Wide strip footing w/ 3' H stem wall - 1st floor level	127	LF	300.00	38,100	
	Conc, forms & reinf		Included above			
	Excavate/trenching, native backfill		Included above			
	Waterproofing exterior face of perimeter footing	381	SF	2.35	895	
	Footing drainage with gravel around	127	LF	28.00	3,556	
A10	TOTAL FOUNDATIONS	1,661	SF		90,926	54.74
A20	BASEMENT CONSTRUCTION					
	Shoring/underpin exist foundations to install new basement - allow	300	SF	100.00	30,000	
	Gravel fill behind retaining walls	118	CY	50.00	5,911	
	8" Thick reinf concrete basement/retaining wall	1,596	SF	55.31	88,277	
	Waterproofing retaining walls with drainage composite system	1,596	SF	15.00	23,940	
A20	TOTAL BASEMENT CONSTRUCTION	1,596	SF		148,128	92.81
A30	SLAB-ON-GRADE					
	4" thick conc slab-on-grade (Basment & 1st Floor Level):	1,661	SF	15.20	25,253	93
	Gravel fill - 6" thk total, Visqueen - moisture barrier		included above			
	Slab reinf - WWF		included above			
	Fine grade/compact subgrade below slab		included above			
	Vapor barrier - 15 mil polyethylene sheathing		included above			
	Trowel, cure & finish slab on grade		included above r work - Allow			
	2" R-10 rigid insul at slab perimeter		included above r work - Allow			
	Construction & control joints		included above			
A30	TOTAL SLAB-ON-GRADE	1,661	SF		25,253	15.20
B10	FLOOR CONSTRUCTION					15
	<i>Composite floor (1st Floor- Addition)</i>					
	Steel beams & metal deck	505	SF	48.50	24,493	100
	4" Thk conc topping w/ #4 @12" OC E.W	505	SF	16.16	8,159	
	Spray fireproof under metal deck		Included above			
B10	TOTAL FLOOR CONSTRUCTION	505	UFA		32,651	64.66
B20	ROOF CONSTRUCTION					
	CMU pilasters 16" x 16"	80	LF	80.00	6,400	
	8" Thk hollow core planks, incl delivery & erection	1,661	SF	20.00	33,220	
	2-1/2" thick normal conc topping w/ WWF reinf, trowel & finish slab	1,661	SF	10.67	17,717	
B20	TOTAL ROOF CONSTRUCTION	1,661	RA		57,337	34.52
B30	EXTERIOR CLOSURE					
	8" CMU wall, solid grout, reinf	1,591	SF	27.00	42,964	
	Brick veneer	1,591	SF	38.00	60,468	
	Liquid applied weather resistant barrier	1,591	SF	1.50	2,387	

Estimate Detail: SCH-D

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
	Furring, GWb, R19 batt insul, VB to exterior perimeter wall	1,424	SF	17.85	25,414	
	CMU Parapet incl brick veneer, 3.5' high	586	SF	65.00	38,106	
	4' x 5', new Windows @ dayroom/dining	3	EA	2,700.00	8,100	
	2.5'x4' Hardened new Windows at cell rooms	12	EA	1,575.00	18,900	
	New door w/ side glass wall at new West Entry	1	EA	13,000.00	13,000	
B30	TOTAL EXTERIOR CLOSURE	2,178	XWA		209,338	96.14
B40	ROOFING					
	<i>New Additions (1468+193 = 1,661 SF):</i>					
	PVC fully adhered sheet memb roofing, VB & coverboard	1,661	SF	13.50	22,424	
	Extend roofing to the parapet (vertical side)	600	SF	10.00	6,003	
	R-45 Rigid insulation over conc plank/conc roof	1,661	SF	10.80	17,939	
	Misc flashing - allow	1,661	SF	3.50	5,814	
	Extend/repair roofing transition between existing & new structure	60	LF	35.00	2,100	
	Parapet metal coping	172	LF	28.00	4,802	
	<i>Existing Areas (7,426 SF):</i>					
	PVC fully adhered sheet memb roofing, VB coverboard	7,426	SF	13.50	100,251	
	Extend roofing to the parapet (vertical side)	1,596	SF	10.00	15,960	
	R-45 Rigid insulation over conc plank/conc roof	7,426	SF	10.80	80,201	
	Misc flashing - allow	7,426	SF	3.50	25,991	
	Parapet metal coping	456	LF	28.00	12,768	
	Sealants/caulking/fire stopping allow	1	LS	12,500.00	12,500	
B40	TOTAL ROOFING	1,661	RA		306,751	184.68
C10	INTERIOR CONSTRUCTION: Partitions, Doors, Relights, Specialties & Casework					
	New 8" CMU CMU walls to new addition	816	SF	27.00	22,032	
	Mtl studs, 5/8" GWB (impact resistant) & sound batts - new addition	833	SF	22.95	19,117	
	Mtl studs, 5/8" GWB (impact resistant) & sound batts - exist areas	2,695	SF	22.95	61,850	
	Mtl studs, 5/8" GWB (impact resistant) - exist areas	136	SF	14.00	1,904	
	SCW Interior door, HM frame & hw to support rooms	14	EA	3,600.00	50,400	
	HD Interior metal door, HM frame & hw to cell rooms	12	EA	4,200.00	50,400	
	Add for laminated glass vision panel to interior doors	26	EA	800.00	20,800	
	Add for door closers	16	EA	450.00	7,200	
	Toilet partitions & doors - Reg	3	EA	2,000.00	6,000	
	Toilet partitions & doors - ADA	2	EA	2,500.00	5,000	
	Toilet specialties to common bathrooms	6	SETS	2,500.00	15,000	
	Shower specialties to common bathrooms	5	SETS	2,000.00	10,000	
	Toilet specialties to cell rooms	15	SETS	1,500.00	22,500	
	Nurses' station/counter	36	LF	600.00	21,600	
	Guards' station/counter	16	LF	600.00	9,600	
	Vanity cabinets with solid surface counter at bathrooms	35	LF	680.00	23,800	
	Base cab with solid counter tops at staff break room	6	LF	680.00	4,080	
	Upper cab at staff break room	9	LF	250.00	2,250	
C10	TOTAL INT PARTITIONS, DOORS, RELIGHTS & CASEWORK	9,087	GSF		353,534	38.91
C20	STAIRCASE					
	New exterior stair incl railing, down to basement	1	FLT	25,000.00	25,000	
	Retaining wall, incl footing & waterproofing		included			
	Excavation, backfill & gravel around		included			
C20	TOTAL STAIRCASE	9,087	GSF		25,000	2.75
C30	INTERIOR FINISHES					
	Luxury vinyl flooring incl RB base	7,928	SF	17.00	134,781	
	CT to shower room floor incl CT base	250	SF	36.00	9,000	
	CT to shower room wall - 8' high	1,088	SF	28.00	30,464	

Estimate Detail: SCH-D

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
	Vinyl wainscot to hallway - 4' high	1,880	SF	12.00	22,560	
	GWB ceilings (impact resistant) incl framing	8,178	SF	15.00	122,675	
	Basement		No finishes			
	Paint new CMU walls (interior & exterior perimeter)	1,632	SF	1.85	3,019	
	Paint new GWB walls	8,783	SF	1.85	16,249	
	Paint existing walls	13,200	SF	1.85	24,420	
	Paint new & existing door/frame	36	LVS	150.00	5,400	
C30	TOTAL INTERIOR FINISHES	9,087	GSF		368,568	40.56
D20	PLUMBING					
	Plumbing system work, incl WC, Sink, Urinal & piping <i>Please refer to Mechanical Engineer's report for detail</i>	9,087	GSF	37.74	342,913	
D20	TOTAL PLUMBING	9,087	GSF		342,913	37.74
D30	HVAC					
	HVAC <i>Please refer to Mechanical Engineer's report for detail</i>	9,087	GSF	37.41	339,969	
D30	TOTAL HVAC	9,087	GSF		339,969	37.41
D40	FIRE PROTECTION					
	Fire sprinklering system		NIC	6.00		
D40	TOTAL FIRE PROTECTION	9,087	GSF			
D50	ELECTRICAL					
	Power, Distribution, lighting, switches	9,087	GSF	65.46	594,827	
	TAB, commissioning		Included above			
	Telecom, Security	9,087	GSF	21.01	190,927	
	Fire alarm <i>Please refer to Electrical Engineer's report for detail</i>	9,087	GSF	7.67	69,670	
D50	TOTAL ELECTRICAL	9,087	GSF		855,424	94.14
E10	EQUIPMENT					
	Kitchen appliances - allow	1	LS	3,000.00	3,000	
	Hoyer lifts		NIC			
E10	TOTAL EQUIPMENT	9,087	GSF		3,000	0.33
E20	FURNISHINGS					
	Entry mat	300	SF	20.00	6,000	
	Window blinds	1,000	SF	6.50	6,500	
E20	TOTAL FURNISHINGS	9,087	GSF		12,500	1.38
TOTAL BUILDING DIRECT COST					3,171,293	348.99

Estimate Detail: SCH-D

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
SITWORK						
F20	SELECTIVE BUILDING DEMOLITION & SITE WORK					
	Sawcut/demo exterior wall at North Elev (give room for Addition)	28	LF	100.00	2,800	
	Sawcut/demo exterior wall at West Elev (give room for Addition)	8	LF	100.00	800	
	Demo exist roofing system inc misc flashing & parapet coping	7,426	SF	5.00	37,130	
	Demo interior walls	510	LF	25.50	13,005	
	Demo doors & frames	45	EA	150.00	6,750	
	Demo exist finishes: floor, RB base, ceiling	7,426	SF	3.50	25,991	
	Load haul & dispose debris	319	CY	100.00	31,863	
	<i>Asbestos abatement & disposal:</i>					
	Asbestos containing caulk around the door frames	39	LF	5.00	195	
	Mudded pipe joints containing asbestos	270	LF	5.00	1,350	
	Floor tile mastic containing materials	2,000	SF	5.00	10,000	
	Vinyl asbestos tile	8,000	SF	5.00	40,000	
	Silver paint on roof containing asbestos	10,000	SF	3.50	35,000	
	Light ballasts containing PCB's	96	EA	25.00	2,400	
	<i>Site:</i>					
	Clear & grub - allow	1.00	LS	2,500.00	2,500	
	Sawcut/demo portion of exist SOG to give room for new basement	63	SF	5.00	315	
	Mass excavate/dispose dirt for basement	363	CY	24.00	8,711	
	Native backfill around the basement	178	CY	20.00	3,567	
	Sedimentation, Construction Entrance & Erosion control	1	LS	5,000.00	5,000	
F20	TOTAL SITE PREPARATION				227,377	5.08
G20	SITE IMPROVEMENTS					
	Misc patch & Repair on conc sidewalk- allow	1	LS	30,000.00	30,000	
G20	TOTAL SITE IMPROVEMENTS				30,000	0.67
G30	SITE CIVIL /MECHANICAL /ELECTRICAL UTILITIES					
	Incidental works on utilities 5' away from the building - allow	1	LS	50,000.00	50,000	
G30	TOTAL SITE CIVIL /MECHANICAL /ELECTRICAL UTILITIES				50,000	1.79
TOTAL SITWORK DIRECT COST					307,377	7.19



WCCW Feasibility Study to
Convert Building F into an
Elder Care Facility or
Build a New Elder Facility

APPENDIX B
COST ESTIMATE –
BUILD NEW ELDER CARE FACILITY

SUMMARY: SCH-E

Project: **WCCW - ELDER CARE FACILITY, *New Construction***
 Location Gig Harbor, WA
 Bldg (SF) 9,217 SF
 Date May 22, 2023
 Phase: Feasibility Study Estimate

SEC	DESCRIPTION	TOTAL
BUILDING:		
A10	FOUNDATIONS	370,691
A30	SLAB ON GRADE	142,826
B20	ROOF CONTRICTION	257,085
B30	EXTERIOR CLOSURE	911,690
B40	ROOFING	307,793
C10	INTERIOR CONSTRUCTION	554,768
C30	INTERIOR FINISHES	397,421
D20	PLUMBING	315,864
D30	HVAC	374,416
D40	FIRE PROTECTION	
D50	ELECTRICAL	855,424
E10	EQUIPMENT	3,000
E20	FURNISHINGS	12,370
TOTAL BUILDING DIRECT COST		\$4,503,347
	GENERAL CONDITIONS INCL SITE OVERHEAD	15% 675,502
	GENERAL CONTRACTOR'S OH&P, B&O Tax, Insurance	5% 258,942
	DESIGN/ESTIMATING CONTINGENCY	15% 815,669
	TIGHT SECURITY CONDITIONS PREMIUM	5% 312,673
TOTAL BUILDING COST @ BID TODAY		\$6,566,134

SITWORK:		
F20	BUILDING DEMOLITION & MISC SITE WORK	332,464
G20	SITE IMPROVEMENTS	Minor work - Allow 30,000
G30	SITE CIVIL / MECHANICAL UTILITIES	Minor work - Allow 50,000
TOTAL SITWORK DIRECT COST		412,464
	GENERAL CONDITIONS INCL SITE OVERHEAD	15% 61,870
	GENERAL CONTRACTOR'S OH&P, B&O Tax, Insurance	5% 23,717
	DESIGN/ESTIMATING CONTINGENCY	15% 74,708
	TIGHT SECURITY CONDITIONS PREMIUM	5% 28,638
TOTAL SITEOWRK COST @ BID TODAY		\$601,395

TOTAL BUILDING & SITWORK COST @ BID TODAY \$777.64 **\$7,167,500**

EXCLUSIONS:

Permits	Construction Management Fees
Furnishings/Equip Not Listed	Traffic Control
A/E Fees	Artwork/Installations
Escalation	

Legends

GSF Gross Square Feet	CY Cubic Yard
FPA Foot Print Area	SY Square Yard
UFA Upper Floor Area	ACR Acre
RA Roof Area	EA Each
XWA Exterior wall Area	PR Pair
SF Square feet	LS Lump sum
LF Lineal Feet	LBS pounds

Estimate Detail: SCH-E

Project: **WCCW - ELDER CARE FACILITY, *New Construction***
 Location: Gig Harbor, WA
 Bldg (SF): 9,217 SF
 Date: May 22, 2023
 Phase: Feasibility Study Estimate

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
A10	FOUNDATIONS					
	2.5' Wide strip footing w/ 3' H stem wall - perimeter wall	620	LF	275.00	170,500	
	1.5' Wide strip footing w/ 3' H stem wall - Interior load bearing	609	LF	240.00	146,160	
	1.5' Wide strip footing - non-load bearing	340	LF	95.00	32,300	
	Conc, forms & reinf, Excavate/trenching, native backfill	Included above				
	Waterproofing exterior face of perimeter footing	1,860	SF	2.35	4,371	
	Footing drainage with gravel around	620	LF	28.00	17,360	
A10	TOTAL FOUNDATIONS	9,217	SF		370,691	40.22
A30	SLAB-ON-GRADE					
	4" thick conc slab-on-grade (Basment & 1st Floor Level):	9,217	SF	15.50	142,826	
	Fine grade/compact subgrade below slab	included above				
	Gravel fill - 6" thk total	included above				
	Slab reinf - WWF	included above				
	Vapor barrier - 15 mil polyethylene sheathing	included above				
	Trowel, cure & finish slab on grade	included above				
	2" R-10 rigid insul at slab perimeter	included above				
	Construction & control joints	included above				
A30	TOTAL SLAB-ON-GRADE	9,217	SF		142,826	15.50
B20	ROOF CONSTRUCTION					
	8" Thk hollow core planks, incl Delivery & Erection	6,737	SF	15.50	104,424	
	12.5" Thk hollow core planks, incl Delivery & Erection	2,658	SF	16.50	43,857	
	2-1/2" thick normal conc topping w/ WWF reinf, trowel & finish slab	9,395	SF	10.67	100,213	
	Cast in Place Concrete Closure	203	SF	42.32	8,591	
	Misc lintel beam supports	200	LF	50.00	10,000	
B20	TOTAL ROOF CONSTRUCTION	9,217	RA		257,085	27.89
B30	EXTERIOR CLOSURE					
	8" CMU wall, solid grout, reinf	4,647	SF	27.00	125,469	
	10" CMU wall, solid grout, reinf	2,173	SF	28.00	60,844	
	Brick veneer	6,820	SF	38.00	259,160	
	Liquid applied weather resistant barrier	6,820	SF	1.50	10,230	
	Furring, 4" R19 batt insul VB and GWB to exterior perimeter wall	6,820	SF	17.85	121,737	
	8" CMU Parapet incl brick veneer, 3.5' high	2,170	SF	65.00	141,050	
	4' x 5' - Dayroom windows	7	EA	2,700.00	18,900	
	4' x 5' - Hardened Cell	42	EA	3,150.00	132,300	
	HM metal door at entry vestibule door	2	EA	8,000.00	16,000	
	HM metal door w/ side glass wall at East & West Entry	2	EA	13,000.00	26,000	
B30	TOTAL EXTERIOR CLOSURE	8,990	XWA		911,690	101.41
B40	ROOFING					
	PVC fully adhered sheet memb roofing, VB & coverboard	9,217	SF	13.50	124,430	
	Extend roofing to the parapet (vertical side)	2170	SF	10.00	21,700	
	R-45 Rigid insulation over conc plank/conc roof	9,217	SF	10.80	99,544	
	Misc flashing - allow	9,217	SF	3.50	32,260	
	Parapet metal coping	620	LF	28.00	17,360	
	Sealants/caulking/fire stopping allow	1	LS	12,500.00	12,500	
B40	TOTAL ROOFING	9,217	RA		307,793	33.39

Estimate Detail: SCH-E

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
C10	INTERIOR CONSTRUCTION: Partitions, doors, relights, specialties & casework					
	8" CMU walls - Solid grout LB wall	8,382	SF	27.00	226,314	
	10" CMU walls - solid grout LB walls	1,523	SF	28.00	42,644	
	Interior relite 8' high - dayroom	72	SF	125.00	9,000	
	SCW Interior door, HM frame & hw to support rooms	13	EA	3,600.00	46,800	
	HD Interior metal door, HM frame & hw to cell rooms	22	EA	4,200.00	92,400	
	Add for laminated glass vision panel to interior doors	35	EA	800.00	28,000	
	Add for door closers	16	EA	450.00	7,200	
	Toilet partitions & doors - Reg	2	EA	2,000.00	4,000	
	Toilet partitions & doors - ADA	1	EA	2,500.00	2,500	
	Toilet specialties to common bathrooms	5	SETS	2,500.00	12,500	
	Shower specialties to common bathrooms	4	SETS	2,000.00	8,000	
	Toilet specialties to cell rooms	22	SETS	1,500.00	33,000	
	Nurses' station/counter	42	LF	600.00	25,200	
	Vanity cabinets with solid surface counter at bathrooms	16	LF	680.00	10,880	
	Base cab with solid counter tops at staff break room	6	LF	680.00	4,080	
	Upper cab at staff break room	9	LF	250.00	2,250	
C10	TOTAL INT PARTITIONS, DOORS, RELIGHTS & CASEWORK	9,217	GSF		554,768	60.19
C30	INTERIOR FINISHES					
	Luxury vinyl flooring incl RB base	7,946	SF	18.00	143,026	
	CT to shower room floor incl CT base	398	SF	36.00	14,328	
	CT to shower room wall - 8' high	832	SF	28.00	23,296	
	Vinyl wainscot to hallway - 4' high	2,000	SF	12.00	24,000	
	GWB ceilings (impact resistant) incl framing	9,217	SF	15.00	138,255	
	Paint new CMU walls - interior	19,810	SF	1.85	36,649	
	Paint new GWB walls	6,820	SF	1.85	12,617	
	Paint doors & frames	35	LVS	150.00	5,250	
C30	TOTAL INTERIOR FINISHES	9,217	GSF		397,421	43.12
D20	PLUMBING					
	Plumbing system work, incl WC, Sink, Urinal & piping <i>Please refer to Mechanical Engineer's report for detail</i>	9,217	GSF	34.27	315,864	
D20	TOTAL PLUMBING	9,217	GSF		315,864	34.27
D30	HVAC					
	HVAC <i>Please refer to Mechanical Engineer's report for detail</i>	9,217	GSF	40.62	374,416	
D30	TOTAL HVAC	9,217	GSF		374,416	40.62
D40	FIRE PROTECTION					
	Fire sprinklering system		NIC	6.00		
D40	TOTAL FIRE PROTECTION	9,217	GSF			
D50	ELECTRICAL					
	Power, Distribution, lighting, switches, TAB & Commissioning	9,217	GSF	64.54	594,827	
	Telecom, Security	9,217	GSF	20.71	190,927	
	Fire alarm <i>Please refer to Electrical Engineer's report for detail</i>	9,217	GSF	7.56	69,670	
D50	TOTAL ELECTRICAL	9,217	GSF		855,424	92.81

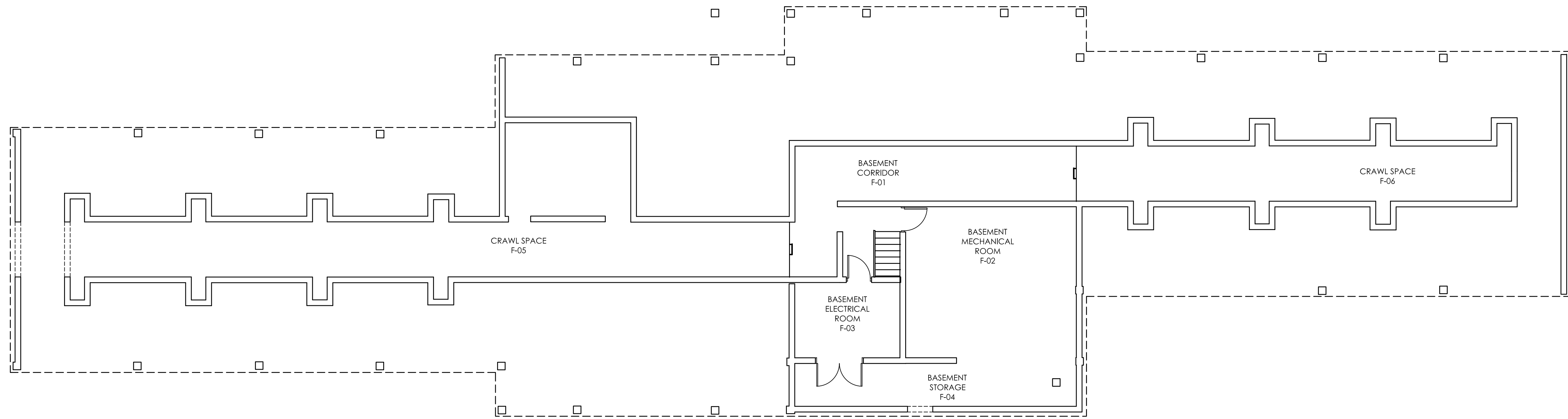
Estimate Detail: SCH-E

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
E10	EQUIPMENT					
	Kitchen appliances - allow	1	LS	3,000.00	3,000	
	Hoyer lifts		NIC			
E10	TOTAL EQUIPMENT	9,217	GSF		3,000	0.33
E20	FURNISHINGS					
	Entry mat	300	SF	20.00	6,000	
	Window blinds	980	SF	6.50	6,370	
E20	TOTAL FURNISHINGS	9,217	GSF		12,370	1.34
TOTAL BUILDING DIRECT COST					4,508,347	489.13
SITWORK						
F20	BUILDING DEMOLITION & SITE PREPARATION					
	Demo dispose exist building - incl basement & 1st Floor	107,370	CF	0.85	91,265	
	Demo footing of the existing building	7,537	SF	5.00	37,685	
	Demo slab on grade of the existing building	7,537	LF	2.50	18,843	
	Load haul & dispose debris	349	CY	100.00	34,894	
	<i>Asbestos abatement & disposal:</i>					
	Asbestos containing caulk around the door frames	39	LF	5.00	195	
	Mudded pipe joints containing asbestos	270	LF	5.00	1,350	
	Floor tile mastic containing materials	2,000	SF	5.00	10,000	
	Vinyl asbestos tile	8,000	SF	5.00	40,000	
	Silver paint on roof containing asbestos	10,000	SF	3.50	35,000	
	Light ballasts containing PCB's	96	EA	25.00	2,400	
	<i>Site:</i>					
	Clear & grub - allow	1.00	LS	2,500.00	2,500	
	structural fill - to the footprint of the new building	1,185	CY	45.00	53,333	
	Sedimentation, Construction Entrance & Erosion control	1	LS	5,000.00	5,000	
F20	TOTAL SITE PREPARATION				332,464	7.43
G20	SITE IMPROVEMENTS					
	Misc patch & Repair on conc sidewalk- allow	1	LS	30,000.00	30,000	
G20	TOTAL SITE IMPROVEMENTS				30,000	0.67
G30	SITE CIVIL /MECHANICAL /ELECTRICAL UTILITIES					
	Incidental works on utilities 5' away from the building - allow	1	LS	50,000.00	50,000	
G30	TOTAL SITE CIVIL /MECHANICAL /ELECTRICAL UTILITIES				50,000	1.79
TOTAL SITWORK DIRECT COST					412,464	9.65

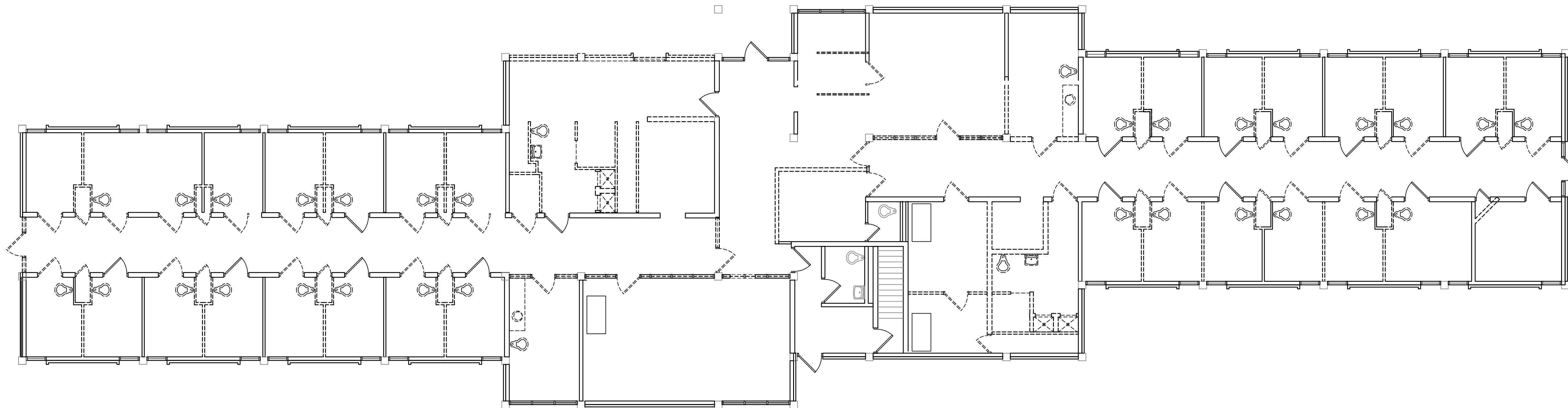


WCCW Feasibility Study to
Convert Building F into an
Elder Care Facility or
Build a New Elder Facility

**APPENDIX C –
ARCHITECTURAL & STRUCTURAL DRAWING
REMODEL EXISTING BUILDING 'F'**





DEMOLITION BASEMENT FLOOR PLAN - SCHEME D




DEMOLITION FIRST FLOOR PLAN - SCHEME D

7,426 S.F.

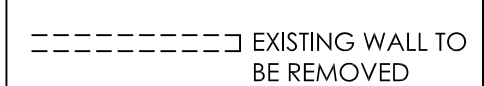
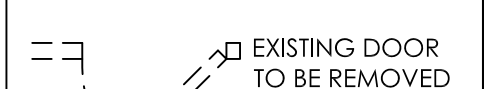
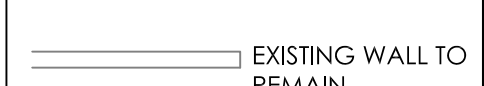



 SCALE: 1/8" = 1'-0"

WASHINGTON CORRECTION CENTER FOR WOMEN - ASSISTED LIVING & SKILLED NURSING FACILITY

Keynotes

General Notes:

- Legend:
-  EXISTING WALL TO BE REMOVED
 -  EXISTING DOOR TO BE REMOVED
 -  EXISTING WALL TO REMAIN
 -  EXISTING DOOR TO REMAIN

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Prelim Design 04/27/23

Revisions Closing Date

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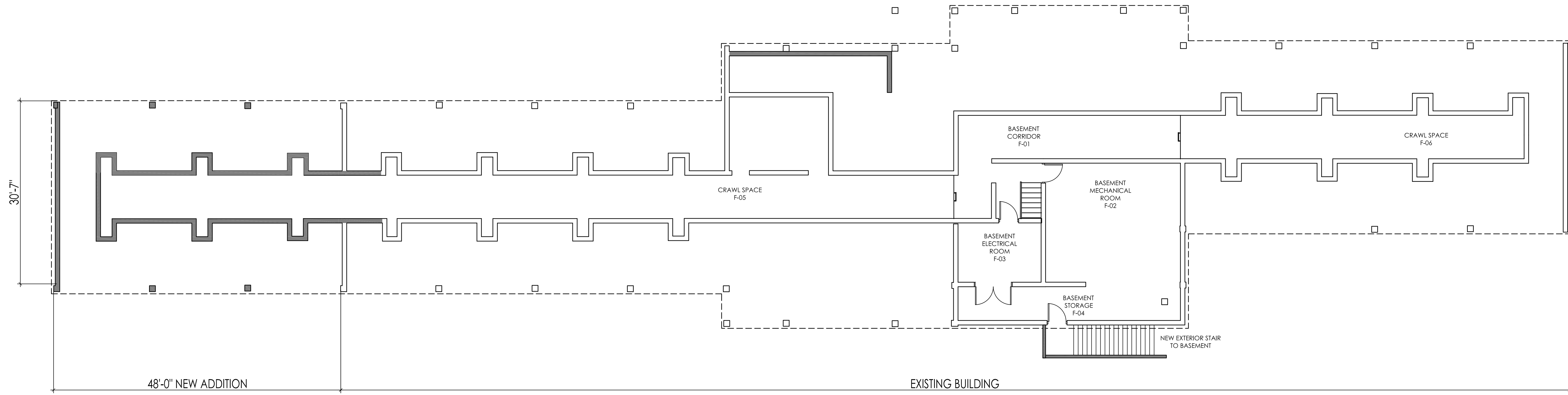
Sheet Title

BASEMENT & FIRST FLOOR DEMOLITION PLANS

Sheet No.

SCH-D

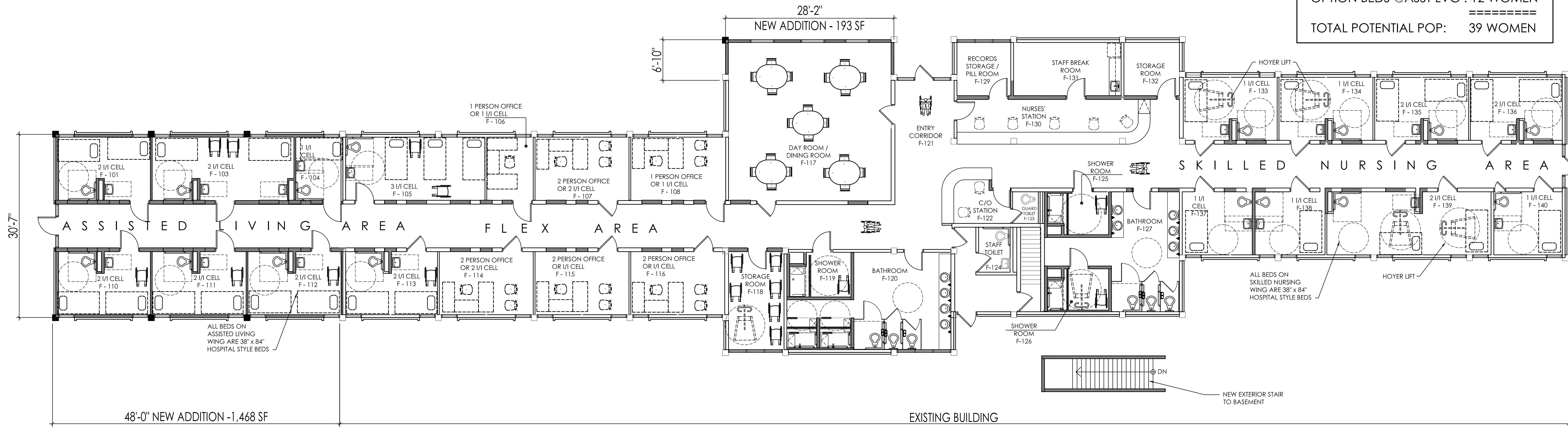
MSGS Project No. 22-152



PROPOSED BASEMENT FLOOR PLAN - SCHEME D
 A2.10 1/8" = 1'-0"

OCCUPANCY NUMBERS

ASSISTED LIVING WING:	16 WOMEN
SKILLED NURSING WING:	11 WOMEN
=====	
TOTAL POPULATION:	27 WOMEN
OPTION BEDS @ASST LVG:	12 WOMEN
=====	
TOTAL POTENTIAL POP:	39 WOMEN



PROPOSED FIRST FLOOR PLAN - SCHEME D
 A2.10 1/8" = 1'-0"

9,087 SF
 SCALE: 1/8" = 1'-0"

General Notes:

- Legend:
- EXISTING WALL TO REMAIN
 - EXISTING DOOR TO REMAIN
 - NEW WALL
 - NEW DOOR AND FRAME

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Prelim. Design 05/24/23

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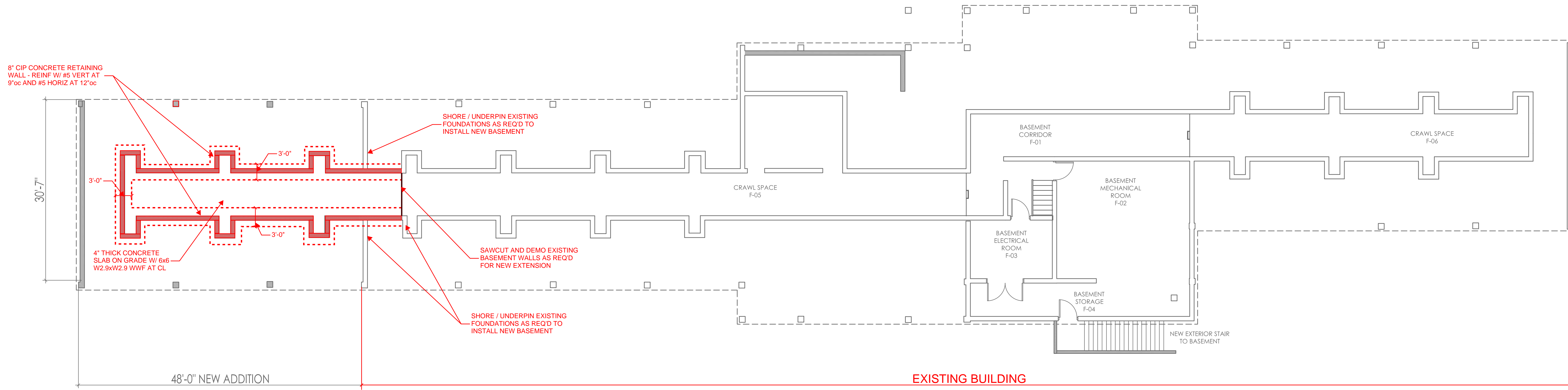
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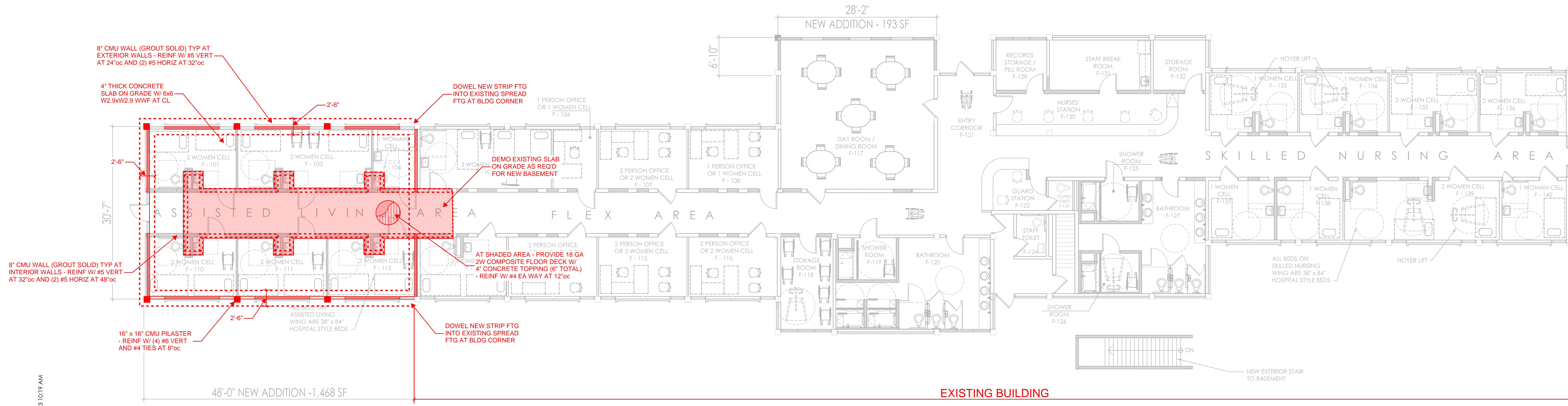
BASEMENT & FIRST FLOOR PLANS

SCH-D

MSGS Project No. 22-152



PROPOSED BASEMENT FLOOR PLAN - SCHEME D
 A2.10 1/8" = 1'-0"



PROPOSED FIRST FLOOR PLAN - SCHEME D
 A2.10 1/8" = 1'-0"

Keynotes

General Notes:

Legend:

- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN
- NEW WALL
- NEW DOOR AND FRAME

PRELIMINARY
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Prelim. Design 04/27/23

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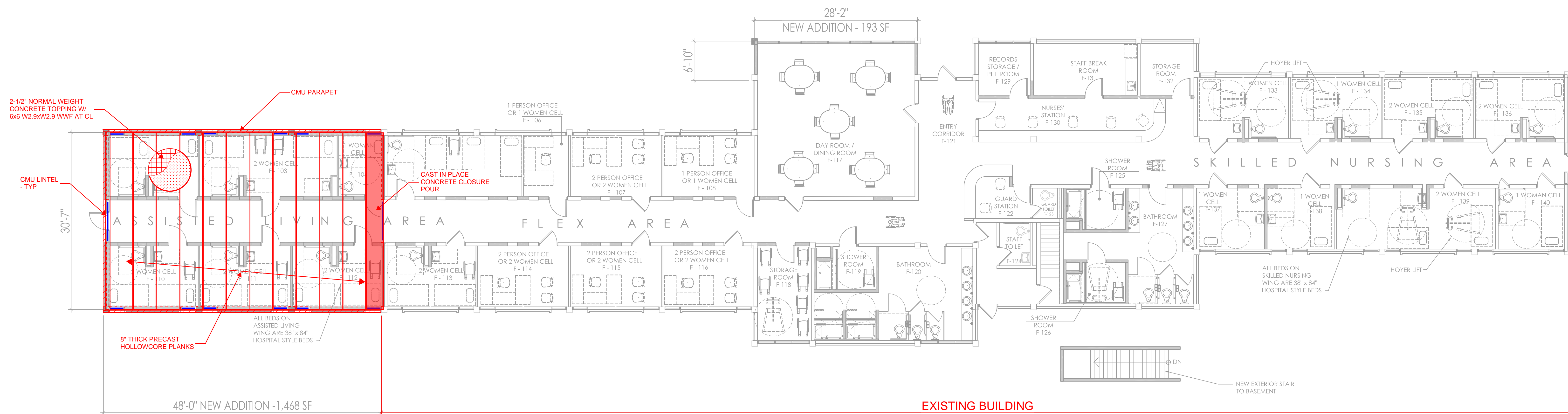
BASEMENT & FIRST FLOOR PLANS
SCHEME D

Sheet No.
S1.1D

MSGS Project No.
 22-152

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9,087 SF
 SCALE: 1/8" = 1'-0"

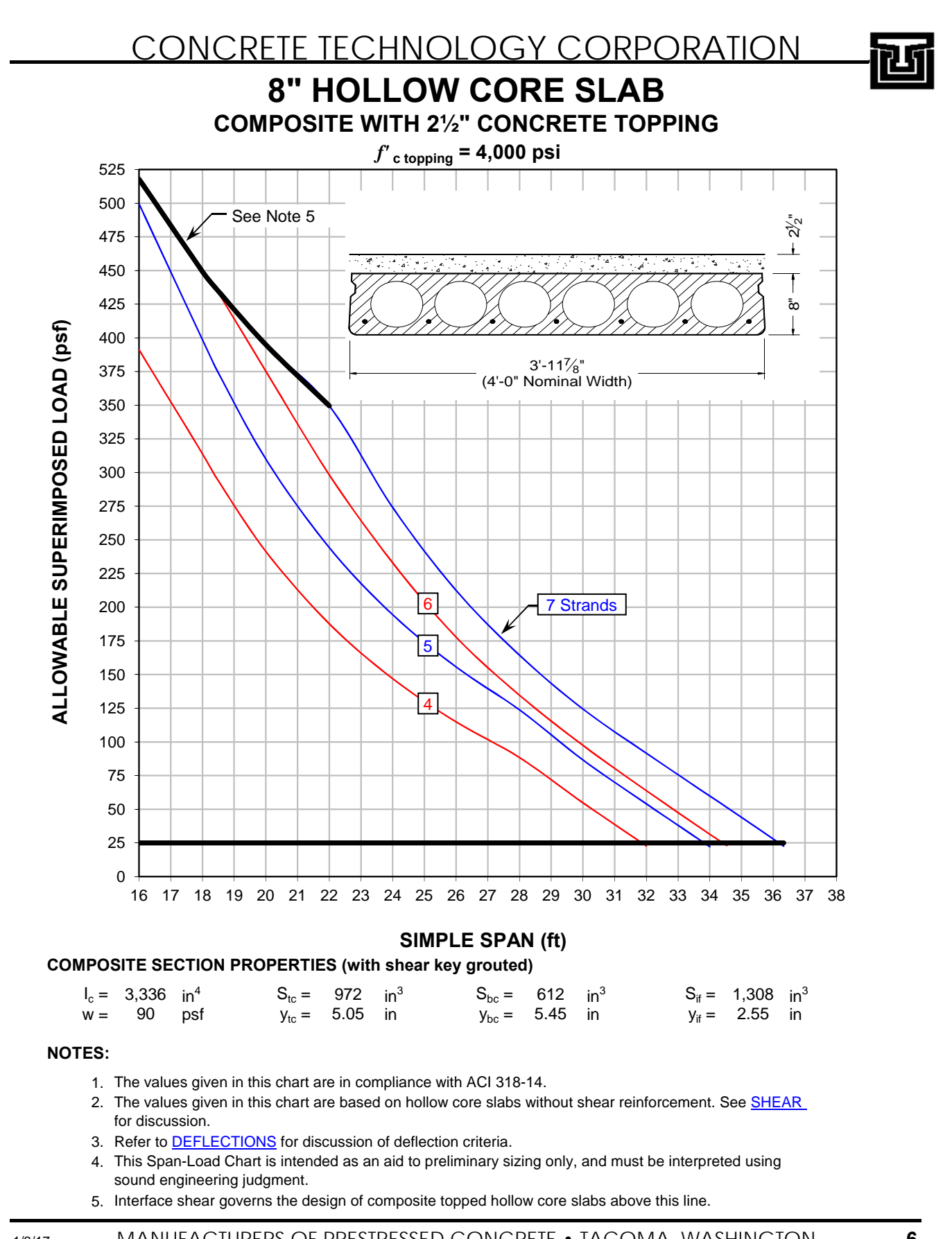


2-1/2" NORMAL WEIGHT CONCRETE TOPPING W/ 6x6 W2.9xW2.9 WWF AT CL
 CMU PARAPET
 CMU LINTEL - TYP
 8" THICK PRECAST HOLLOWCORE PLANKS
 ALL BEDS ON ASSISTED LIVING WING ARE 38" x 84" HOSPITAL STYLE BEDS
 CAST IN PLACE CONCRETE CLOSURE POUR

PROPOSED ROOF PLAN - SCHEME D
 1
 A2.10 1/8" = 1'-0"

9,087 SF
 0 4' 8' 16'
 SCALE: 1/8" = 1'-0"

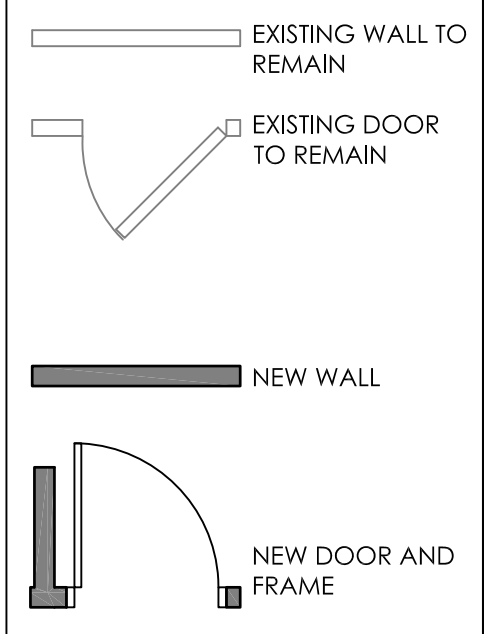
WASHINGTON CORRECTION CENTER FOR WOMEN - ASSISTED LIVING & SKILLED NURSING FACILITY



Keynotes

General Notes:

Legend:



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Sheet Title

ROOF FRAMING
 PLAN
 SCHEME D

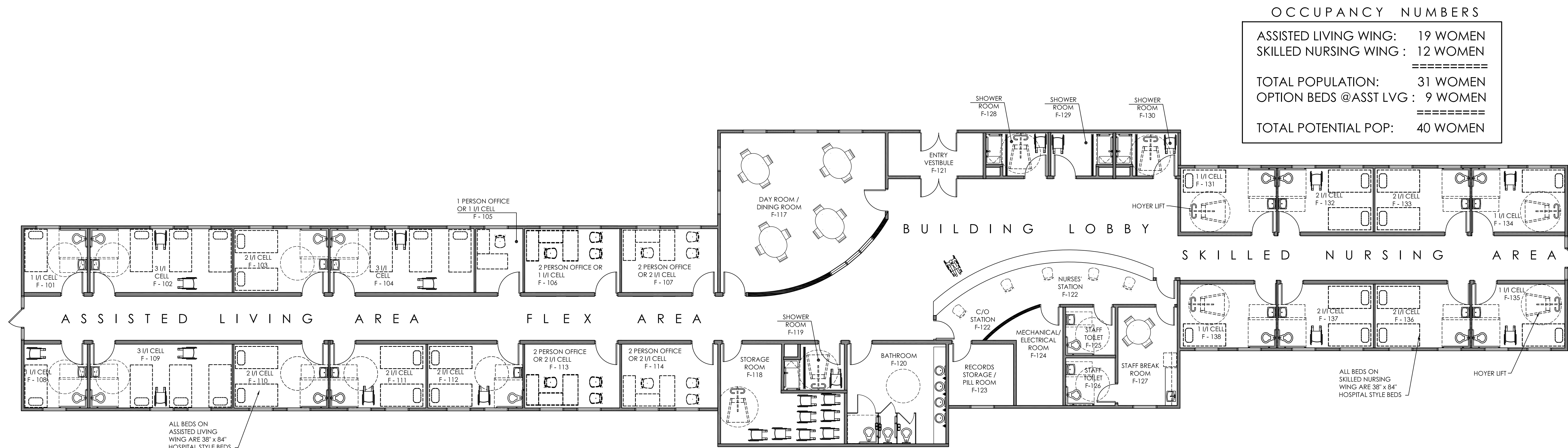
Sheet No.
S2.1D

MSGS Project No.
 22-152



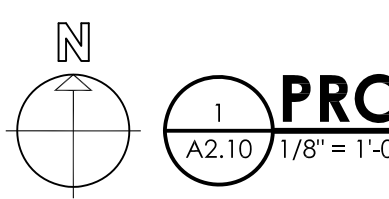
WCCW Feasibility Study to
Convert Building F into an
Elder Care Facility or
Build a New Elder Facility

**APPENDIX D –
ARCHITECTURAL & STRUCTURAL DRAWING
BUILD NEW ELDER CARE FACILITY**



OCCUPANCY NUMBERS

ASSISTED LIVING WING:	19 WOMEN
SKILLED NURSING WING:	12 WOMEN
TOTAL POPULATION:	31 WOMEN
OPTION BEDS @ASST LVG:	9 WOMEN
TOTAL POTENTIAL POP:	40 WOMEN



PROPOSED FIRST FLOOR PLAN - NEW BUILDING - SCHEME E

9,217 SF

0 4 8 16
SCALE: 1/8" = 1'-0"

WASHINGTON CORRECTION CENTER FOR WOMEN - ASSISTED LIVING & SKILLED NURSING FACILITY

Keynotes

General Notes:

Legend:

PRELIMINARY
NOT FOR CONSTRUCTION

Prelim. Design 05/24/23

Revisions Closing Date

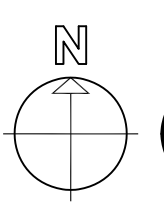
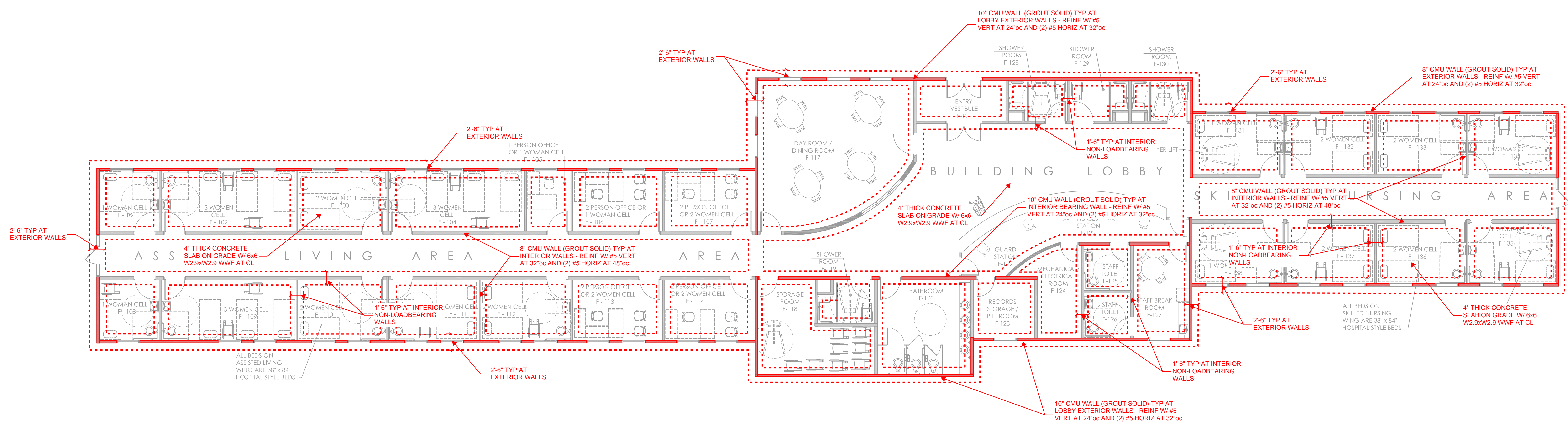
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FIRST FLOOR PLAN

Sheet No.
SCH-E

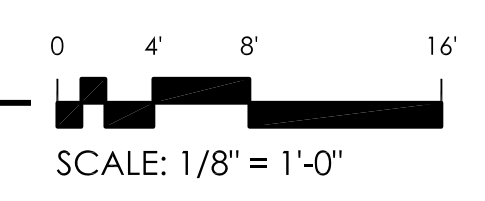
MSGS Project No.
22-152

Keynotes



PROPOSED FIRST FLOOR PLAN - NEW BUILDING - SCHEME E
 1
 A2.10 1/8" = 1'-0"

9,217 SF



WASHINGTON CORRECTION CENTER FOR WOMEN - ASSISTED LIVING & SKILLED NURSING FACILITY

General Notes:

PRELIMINARY
 NOT FOR CONSTRUCTION

Prelim. Design 04/27/23

Legend:

Revisions Closing Date

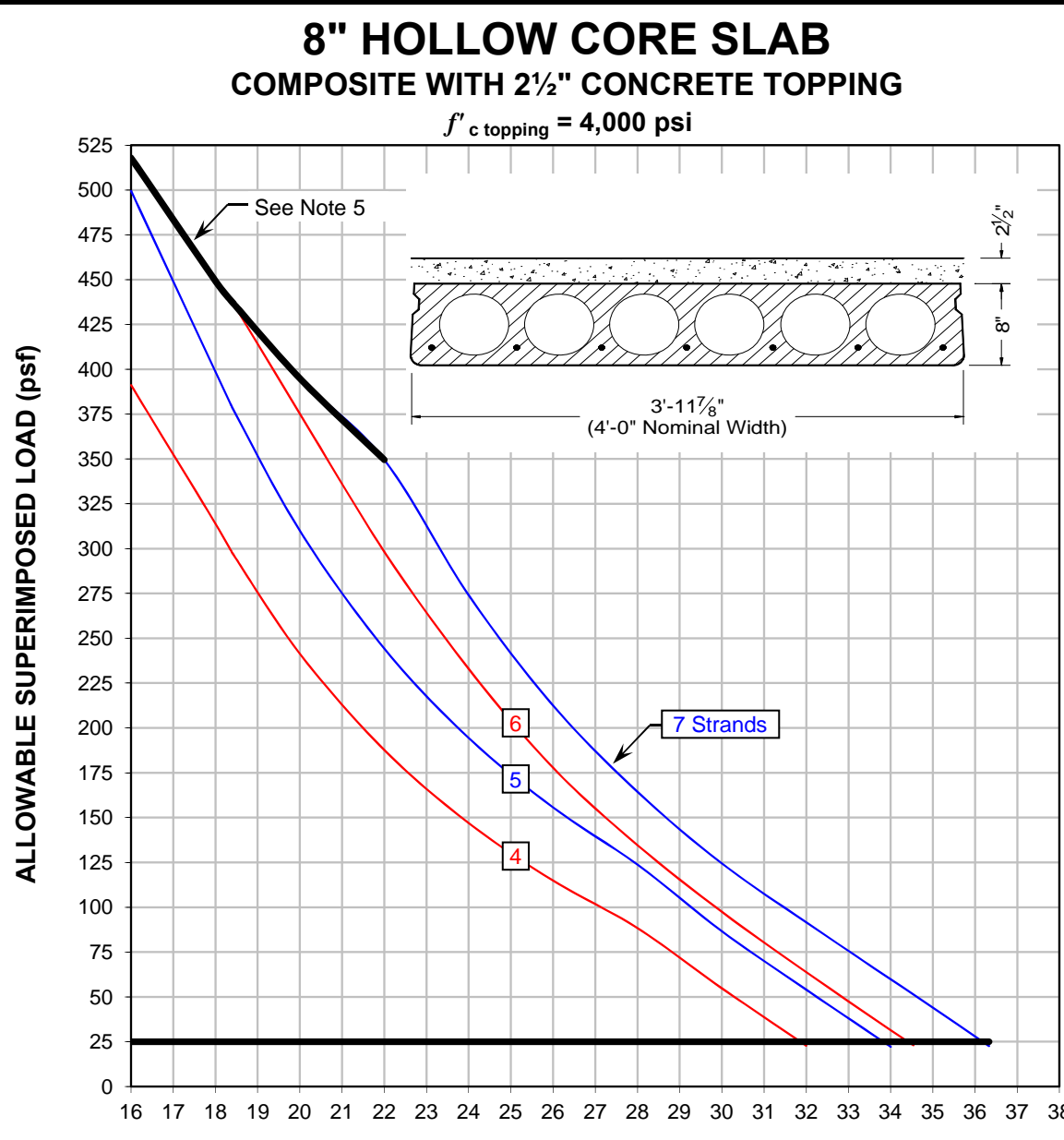
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Sheet Title

FIRST FLOOR PLAN
SCHEME E

Sheet No.
S1.1E

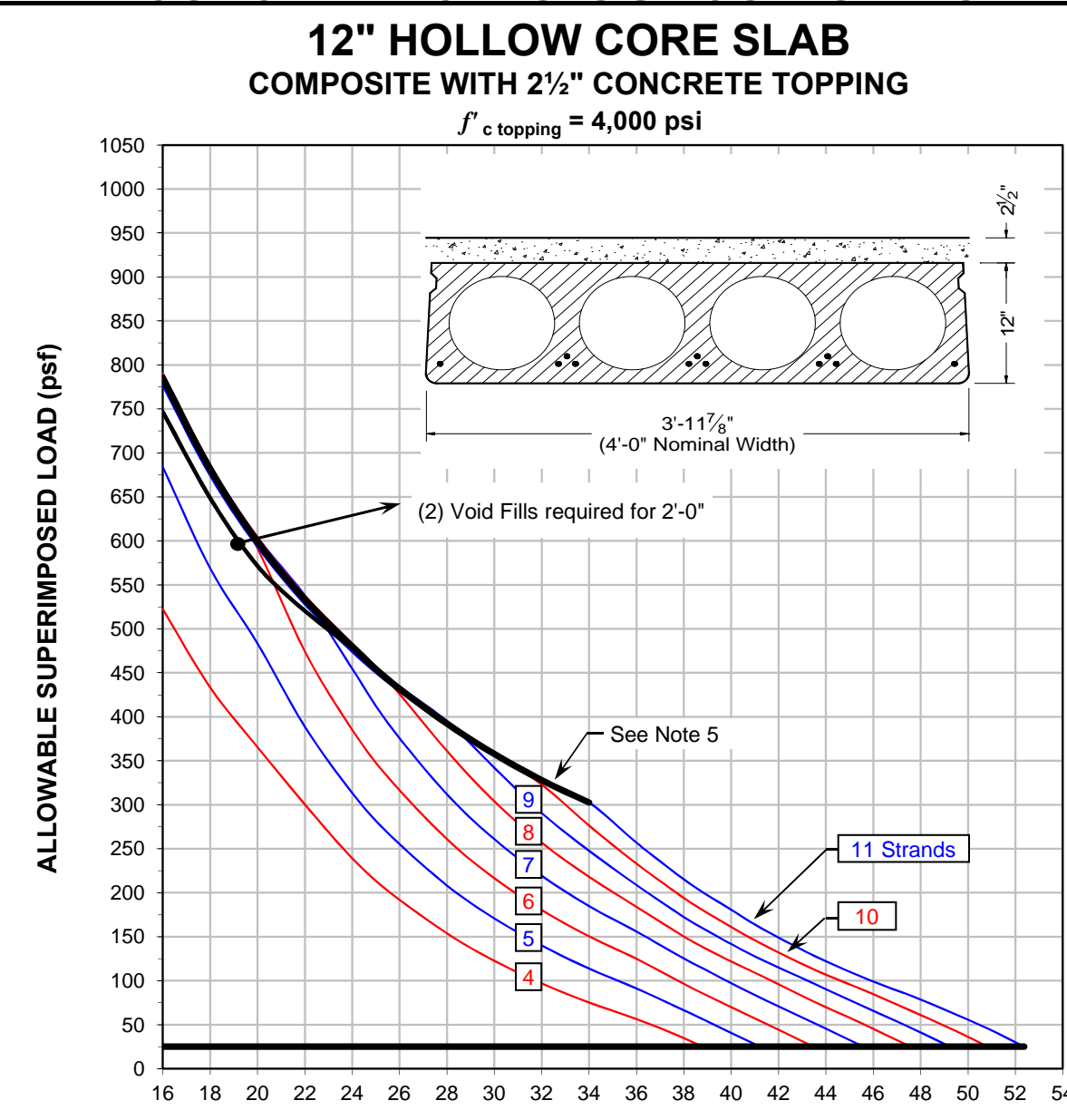
MSGS Project No.
 22-152



COMPOSITE SECTION PROPERTIES (with shear key grouted)

$I_c = 3,336 \text{ in}^4$	$S_{xc} = 972 \text{ in}^3$	$S_{xc} = 612 \text{ in}^3$	$S_y = 1,308 \text{ in}^3$
$w = 90 \text{ psf}$	$y_{xc} = 5.05 \text{ in}$	$y_{xc} = 5.45 \text{ in}$	$y_t = 2.55 \text{ in}$

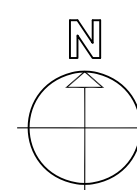
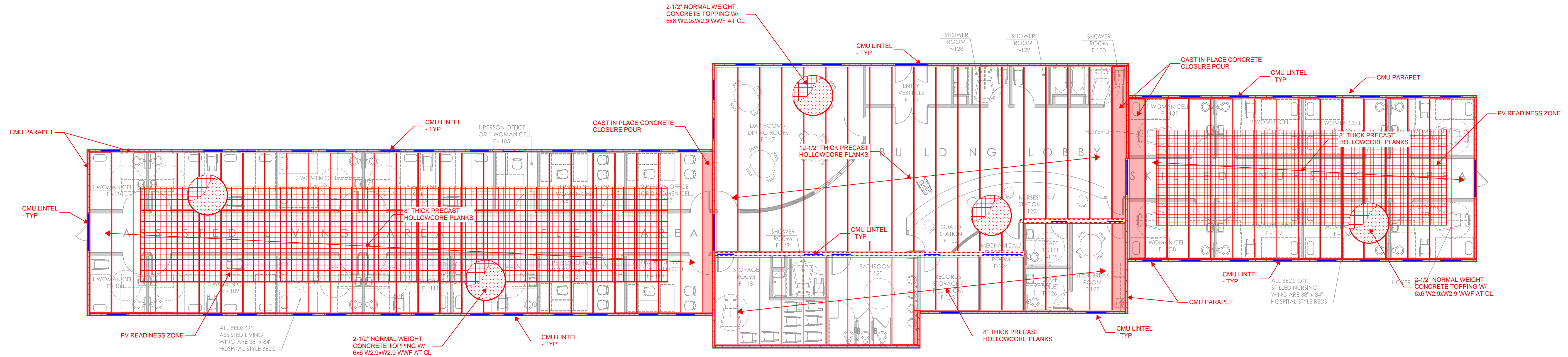
- NOTES:**
- The values given in this chart are in compliance with ACI 318-14.
 - The values given in this chart are based on hollow core slabs without shear reinforcement. See **SHEAR** for discussion.
 - Refer to **DEFLECTIONS** for discussion of deflection criteria.
 - This Span-Load Chart is intended as an aid to preliminary sizing only, and must be interpreted using sound engineering judgment.
 - Interface shear governs the design of composite topped hollow core slabs above this line.



COMPOSITE SECTION PROPERTIES (with shear key grouted)

$I_c = 8,656 \text{ in}^4$	$S_{xc} = 1,844 \text{ in}^3$	$S_{xc} = 1,140 \text{ in}^3$	$S_y = 1,965 \text{ in}^3$
$w = 111 \text{ psf}$	$y_{xc} = 6.90 \text{ in}$	$y_{xc} = 7.60 \text{ in}$	$y_t = 4.40 \text{ in}$

- NOTES:**
- The values given in this chart are in compliance with ACI 318-14.
 - The values given in this chart are based on hollow core slabs without shear reinforcement. See **SHEAR** for discussion.
 - Refer to **DEFLECTIONS** for discussion of deflection criteria.
 - This Span-Load Chart is intended as an aid to preliminary sizing only, and must be interpreted using sound engineering judgment.
 - Interface shear governs the design of composite topped hollow core slabs above this line.

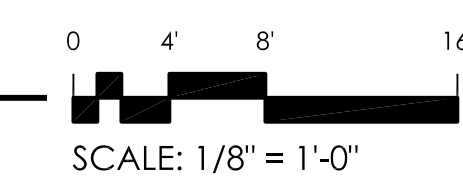


PROPOSED ROOF PLAN - SCHEME E

1/2" = 1'-0"

WASHINGTON CORRECTION CENTER FOR WOMEN - ASSISTED LIVING & SKILLED NURSING FACILITY

9,217 SF



General Notes:

Legend:

PRELIMINARY
NOT FOR CONSTRUCTION

Prelim. Design 04/27/23

Revisions Closing Date

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Sheet Title

ROOF FRAMING PLAN SCHEME E

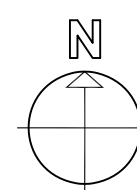
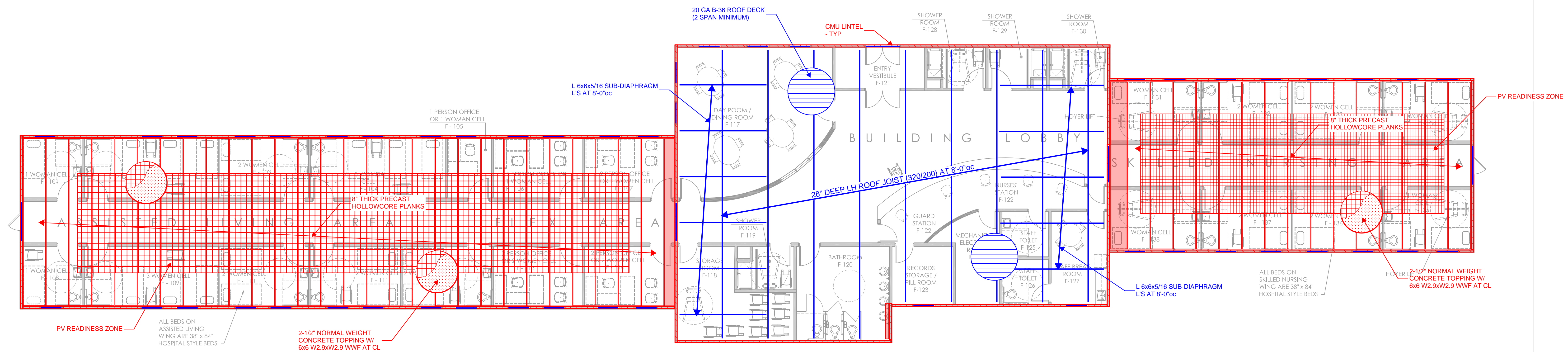
Sheet No.

S2.1E

MSGS Project No.

22-152

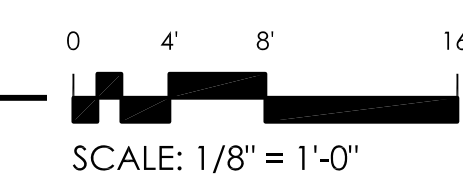
Keynotes



PROPOSED ROOF PLAN - SCHEME E

1
 A2.10 1/8" = 1'-0"

9,217 SF



WASHINGTON CORRECTION CENTER FOR WOMEN - ASSISTED LIVING & SKILLED NURSING FACILITY

ALTERNATE ROOF FRAMING CONCEPT - STEEL ROOF FRAMING AT LOBBY AREA

Keynotes

General Notes:

Legend:

PRELIMINARY
 NOT FOR CONSTRUCTION

Prelim. Design 04/27/23

Revisions Closing Date

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Sheet Title

ROOF FRAMING PLAN
SCHEME E

Sheet No.

S2.2E

MSGS Project No.
 22-152



WCCW Feasibility Study to
Convert Building F into an
Elder Care Facility or
Build a New Elder Facility

APPENDIX E – STRUCTURAL, MECHANICAL & ELECTRICAL DESIGN NARRATIVE



Structural Narrative
WCCW Elder Care Facility
Project Principal Andrew D. McEachern, P.E., S.E.

Design Criteria

Design Codes and Standards

Codes and Standards: Structural design and construction shall be in accordance with the applicable sections of the following codes and standards as adopted and amended by the local building authority: International Building Code, 2018 Edition.

Structural Design Criteria:

Live Load Criteria:

Roof (Min Blanket Snow):	25 psf
Slab on Grade:	125 psf
Concrete Deck at Basement Lid	125 psf

Wind Load Criteria:

Basic Wind Speed:	104 mph
Risk Category:	III
Wind Exposure:	B

Seismic Criteria:

Risk Category:	III
Seismic Importance Factor:	1.25
$S_s = 1.507$	$S_1 = 0.527$
$S_{ds} = 1.205$	$S_{d1} = N/A$
Site Class:	D – default (assumed)
Seismic Design Category:	D

Soil Criteria:

Soil Bearing Capacity: 1,500 psf minimum (assumed) allow 33% increase for loads from wind or seismic origin.

Project Description

The structural scope of work for this project involves either an addition to an existing one-story detention facility (with a partial basement), or a completely new one-story detention facility. It is the intention of the structural design to satisfy the force levels of the IBC 2018. The structural system for either building option will include the following:

Roof Framing

- Due to the security requirements for the facility, we have assumed that the new roof structure will closely match the construction of the existing facility. Precast hollow core roof planks will span between exterior loadbearing wall elements. The roof planks will be topped with a 2-1/2" thick reinforced topping slab to act as a horizontal diaphragm for resisting lateral forces.
- Reinforced concrete closure slabs will be used at discrete areas of the roof as needed to accommodate short or irregular slab spans as well as vertical penetrations.

Alternate Roof Framing

- If security considerations allow for a steel roof system, it is possible to frame the new roof with open web steel joists. This alternate roof system will consist of light gage metal deck spanning between open web steel joists (or wide flange joists). The joists will be able to span the full width of the building, and bear on the exterior load-bearing CMU walls.

Exterior Walls

- The exterior walls for the facility will utilize reinforced concrete masonry (CMU) walls. For security requirements, we anticipate that the walls will be grouted solid. These walls will be designed to support the roof loads above, and will also act as shearwalls to resist lateral loads from the roof structure.

Interior Walls

- A majority of the interior wall framing will be considered non-structural wall elements. The typical roof framing is anticipated to span between exterior load-bearing walls. The interior walls may consist of reinforced CMU walls where necessary for security requirements, or light gage steel studs walls where appropriate. These walls will be designed to allow vertical and lateral movement of the roof structure without delivering loads into the interior partitions (i.e. slip tracks or equivalent).
- At the Building Lobby, several of the interior walls will be used to support the roof structure. These bearing walls will be reinforced CMU framing similar to the exterior wall systems.

Foundations

- Based upon the original as-built drawings for the existing building, we have assumed that the new structures will be supported on conventional shallow foundations. Conventional strip footings will be located beneath all loadbearing wall elements. Discrete spread footings will be provided at any column locations.
- The interior floor of the building will consist of a conventional cast in place concrete slab on grade.
- At interior non-loadbearing CMU walls, a thickened slab strip footing will be provided integral with the interior slab on grade.

Basement Construction

- For the addition option, a narrow basement addition is indicated running down the central hallway of the building. The new basement walls will consist of conventional

cast in place concrete retaining walls. The retaining walls will be supported on continuous strip footings.

- The basement floor will consist of a cast in place concrete slab on grade.
- At the main floor level, the lid of the basement will be constructed with an elevated concrete slab. The slab construction will consist of a reinforced concrete topping slab placed over a light gage form deck.

MECHANICAL & ELECTRICAL DESIGN NARRATIVE – P2S:



1.0 INTRODUCTION

This project involves the renovation of the Washington Correctional Center for Women. Currently the building is a single story 7,426 square foot facility located in Gig Harbor, WA used to house inmates. There are two proposed alternatives for the renovation of the facility:

- **Renovation Scheme D** – Renovation Scheme D involves demolishing the all existing mechanical, electrical, and plumbing systems located in the facility. The existing structure is to remain. A 1,468 square foot addition shall be provided on the west side of the building and a 193 square foot addition shall be provided on the north side of the building. The resulting building shall be a total of 9,087 square feet. Mechanical, electrical, and plumbing systems shall be provided to serve the renovated building.
- **Renovation Scheme E** – Renovation Scheme E involves the complete demolition of the existing facility including the mechanical, electrical, and plumbing systems in addition the demolishing the existing structure. The new facility shall be a 9,217 square feet and mechanical, electrical, and plumbing systems shall be provided to serve provided spaces.

1.1 Codes and Standards

The following codes and standards apply to this project:

- International Building Code (IBC)—2018
- International Mechanical Code (IMC)—2018
- Uniform Plumbing Code (UPC)—2018
- Washington State Energy Code (IECC)(WAC 51-11C)—2018
- International Fire Code (IFC)—2018
- ADA Standards for Accessible Design (ADA)—2010
- ANSI/ASHRAE Standard 55, *Thermal Environmental Conditions for Human Occupancy* (ASHRAE)—2020
- ANSI/ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality* (ASHRAE)—2019
- ANSI/ASHRAE 90.1, *Standard for Energy Conservation in New Building Design* (AHSRAE)—2019
- NFPA 101, *Life Safety Code* (NFPA)—2018
- NFPA 13, *Fire Sprinkler Systems*—2019

MECHANICAL DESIGN

1.2 General

Mechanical work on this project will depend on which of two alternatives are chosen for the building's overall renovation strategy.

- **Renovation Scheme D** – Variable air volume (VAV) system. Split system heat pump air handling unit located in basement. Condensing unit located on the exterior of the building.
- **Renovation Scheme E** – Variable air volume (VAV) system. Packaged heat pump air handling unit located on roof.

Depending on the system chosen, specific rooms requiring 24/7 cooling may be provided with dedicated air conditioning systems. This will allow the building's overall HVAC system to enter "unoccupied" setback mode and reduce energy usage.

1.2.1 Design Conditions

Outdoor Spaces

Source: 2017 ASHRAE Fundamentals Weather Data for Tacoma Narrows Airport (WMO#: 727938),.

- Summer (cooling): 0.4% frequency of occurrence for dry-bulb temperature and mean coincident wet-bulb temperature. 83.8 degrees F DB and 64.3 degrees F WB.
- Winter (heating): 99.6% frequency for mean coincident dry-bulb temperature. 27.7 degrees F.

Indoor Spaces

- Offices, breakrooms, living spaces, work areas, lobbies, and corridors: 75 degrees F, 50% RH cooling and 68°F, 30% RH heating.
- Electrical equipment rooms: 75 degrees F, 50% RH cooling.
- Mechanical spaces: 80 degrees F cooling and 55 degrees F heating.

Note: relative humidity (RH) is noted above for criteria; there is no planned humidity control.

1.3 Proposed HVAC Alternatives

The following sections describe the proposed HVAC systems for the two renovation alternatives.

1.3.1 Renovation Scheme D

A variable air volume (VAV) system shall be provided to serve the facility. The system shall consist of a air-handling unit which shall be located in the basement mechanical room. The air handling unit shall be provided with a split system heat pump with the refrigerant coil located in the unit and a condensing unit located on the exterior of the building.

Supply and return ductwork shall be routed from the air-handling unit through the basement crawl space to serve each of the rooms in the facility. Supply air shall branch off of the main and shall be

connected to a low wall supply grille located in each of the spaces. Provided low wall supply grilles shall be tamper-proof. A VAV box shall be provided for each of the supply air branches. Return air grilles shall be provided in the corridors. Return air shall transfer from each room and shall accumulate in the corridor to be returned to the air handling unit.

General building exhaust will be provided by rooftop upblast exhaust fans. All provided exhaust grilles shall be tamper-proof. All equipment requiring electrical connections shall be 208V.

1.3.2 Renovation Scheme E

A variable air volume (VAV) system shall be provided to serve the facility. The system shall consist of a packaged heat pump air-handling unit which shall be located on the roof of the building.

Supply and return ductwork shall be routed from the air-handling unit through the corridors to serve each of the rooms in the facility. Supply air shall branch off of the main and shall be connected to a side wall supply grille located in each of the spaces. A VAV box shall be provided for each of the supply air branches. Return air grilles shall be provided in the corridors. Return air shall transfer from each room and shall accumulate in the corridor to be returned to the air handling unit.

General building exhaust will be provided by rooftop upblast exhaust fans. All provided exhaust grilles shall be tamper-proof. All equipment requiring electrical connections shall be 208V.

1.3.3 Control System

A Direct Digital Control (DDC) system will be provided for the central Building Automation System (BAS). The DDC system will control and monitor the HVAC systems serving the building. Additionally, select plumbing equipment (e.g., water heater, circulation pump, etc.) will also be controlled and monitored.

2.0 PLUMBING DESIGN

2.1 General

The plumbing design will conform to the requirements of the 2015 International Plumbing Code. For both Renovation Scheme D and Renovation Scheme E a complete plumbing system shall be provided for the facility consisting of plumbing fixtures, domestic cold water piping, domestic hot water piping, heating water equipment, sanitary waste piping and equipment, vent piping, and associated appurtenances.

2.2 Domestic Hot and Cold Water Systems

The domestic water supply water pressure should be verified. A reduced pressure backflow assembly (RPBA) device will be installed at the point of entry for cross-contamination control. Domestic hot and cold water will be piped throughout the building to all plumbing fixtures as required. The provided fixtures shall include water closets, lavatories, showers, and breakroom sinks. The building shall be provided with an electric, storage-type water heater to provide domestic hot water for the building. The

water heater shall be located in the building's mechanical room. The facility shall also be provided with a hot water recirculation system. The system shall include an in-line hot water circulation pump a shall have piping routed to the furthest point in the domestic hot water system to continuously circulate hot water through the building.

2.3 Sanitary Waste and Vent Systems

A complete sanitary waste and vent system shall serve the facility. Waste piping shall be routed from each of the provided plumbing fixtures and shall be connected to an underground sanitary sewer main. The provide sanitary sewer main shall be connected to the existing city sewer main. Vent piping shall be provided for each of the plumbing fixtures. Fixtures shall vent to a common vent system which shall be routed throughout the building and shall terminate above the roof.

Trap primers will be provided on all floor drains to prevent P-traps from drying up and sewer gases from entering the building.

2.4 Plumbing Fixtures

The provided plumbing fixtures shall be low flow. All water closets and lavatories located in the cells shall be ADA-compliant and shall be ligature resistant and tamper-proof. The showers, water closets, and lavatories located in the comment restroom shall also be ADA-compliant and shall be ligature resistant and tamper-proof.

3.0 ELECTRICAL SYSTEM DESIGN

3.1 General

A complete operational electrical system provided will meet all the requirements of the design scope and comply with code requirements. For Renovation Scheme D and E, a complete electrical system will replace the existing obsolete electrical system and consists of new electrical equipment, electrical outlets, interior and exterior light fixtures and controls, and power to HVAC, telecom/security equipment, fire alarm panels, plumbing equipment and other miscellaneous loads. All these systems will be designed to provide the user with maximum flexibility. All equipment that forms part of these systems will be selected for durability and maintenance ease consistent with the current design standards.

3.2 Existing Site Utility Services

The existing incoming power pole utility serves an existing 12.47kV main service distribution switchgear located in remote Building 'D'. Power is distributed from the 12.47kV main service distribution switchgear to 12.47kV distribution switchgear located in Buildings 'B', 'F', 'G' and 'C' via underground conduits and manholes distributed throughout the site. These 12.47kV switchgear serve various buildings on campus via medium voltage transformers. The 12.47kV switchgear located in Building 'B' serves the project scope Building 'F' electrical loads via a pad mount 12.47kV-480/277V, 3 phase, 4 wire

medium voltage transformer. The main building distribution panelboards and other equipment serving the Building 'F' electrical loads are located in the basement electrical room.

All campus building emergency loads are provided emergency power and normal power via a loop system consisting of a main Automatic Transfer Switch (ATS), selector switches, and 12.47kV-480/277V transformers. Three generators feed all campus loads requiring emergency power. Emergency is provided to Building 'F' via a 100A breaker from a 400A, 480/277V emergency switchboard located in Building 'B'. Building 'B' is fed from Building 'D' which in turn is fed from Building 'E'. Building 'E' is fed from a 500kVA transformer connected to the campus emergency loop system.

3.3 New Electrical System Design

3.3.1 Site Distribution System

Electrical Power to remodeled Building 'F' will be provided from an existing 12.47KV switchgear located in Building 'B' via an upsized pad mount medium voltage transformer located outside Building 'F' in a protected fenced enclosure. The location of the new medium voltage transformer would require coordination with Architect and client. New 12.47KV and 600V feeders will be provided in underground conduits between Buildings 'B' and 'F' to serve the Building 'F' electrical distribution system.

3.3.2 Building Electrical System Capacity

The following is the electrical load calculation based on the square footage and the occupancy of the building to be renovated.

Main Service Load Calculation

Total Area of the Building	9,087 sq ft
Lighting and Receptacle Load (8W/SF)	73KVA
Mechanical Load	76.7 KVA
Total Connected Building Load (with 25% spare capacity)	187.5 KVA, 520 A @208V, 3 ph, 4 W

3.3.3 New Building Electrical System

Based on the load calculations, a new 800A, 208/120V, 3 phase, 4 wire main switchboard will be provided in the main electrical room in the basement, fed from a new 225kVA, 12.47kV-208/120V, 3 phase, 4 wire pad mount medium voltage transformer located exterior to the Building 'F'. The 800A main switchboard will serve a 100A, 208/120V, 3 phase, 4 wire panel to serve lighting loads, a 100A, 208/120V, 3 phase, 4 wire panel to serve telecom/security loads, a 400A, 208/120V, 3 phase, 4 wire distribution panel for all mechanical loads, two 200A, 208/120V, 3 phase, 4 wire panel to serve receptacles and other miscellaneous loads. 400A, 200A panels and 100A telecom panel will be located in the first-floor electrical room and 100A lighting panel will be located in the basement electrical room.

3.3.4 Emergency System

Emergency power for Building 'F' will be derived from the existing 400A, 480/277V switchboard located in Building 'B'. This would require further coordination with the owner and investigation on existing loads on upstream switchboards and generators. Emergency switchboard in Building 'B' will serve a 225A, 208/120V, 3 phase, 4 wire panel via a 75KVA, 480-208/120V, 3ph, 4 wire dry type transformer to provide power to life safety loads like egress lighting, exit signs, door locks as applicable, and communication/telecom/security systems.

Emergency exit signs will be provided at all exits and emergency egress lighting will be provided along the path of egress. Security exterior lighting will be on emergency power. Power to door locks and telecom/security systems will be provided via Uninterruptible Power Source (UPS) to avoid re-booting of computers and security systems. The run-time of UPS will be decided during the design based on coordination with owner.

The following are the design voltage criteria that will be followed for the building:

- Primary Voltage: 12.47KV, 3 phase, 3 wire
- Secondary voltages, Normal/Emergency: 208Y/120V, 3 phase, 4 wire
- Distribution Voltages: Large motors (3/4 HP & larger)—208V, 3-phase
- Small motors (1/3 HP & smaller): 120V & 208V
- Lighting: LED—120V, 1 phase
- Receptacles, general purpose: 120V, 1 phase
- Receptacles, special purpose: 208V, 1-phase
- HVAC mixing boxes/VAV Boxes: 208V, 1 phase
- Misc. power: 120V and 208V, 1 phase or 3 phase

3.3.5 Electrical Requirements

All exposed electrical, fire alarm, lighting, and telecom devices will be provided with a lockable cover and be tamper-proof.

The electrical design will be based on using the following conduit types:

- Galvanized rigid steel (GRS) conduit in exterior and for work embedded in concrete
- Rigid non-metallic conduit (PVC) for all underground exterior work
- Electrical metallic tubing (EMT) for interior concealed work or above eight feet exposed
- Rigid Metallic Conduits (RGS) for interior exposed work
- Flexible metal conduit for interior work in short lengths (less than 6 feet) for the connection of recessed lighting fixtures, motors, separate building structures, and any vibrating equipment
- Liquid-tight flexible metal conduit wherever moisture may be present.

4.0 TELECOMMUNICATION SYSTEM DESIGN

4.1 General

This document serves as the basis of design for the telecommunications system WCCW Building F. The objective is to provide a secure, efficient, and reliable telecommunications infrastructure to support the operational needs of the facility. The design will comply with applicable codes, standards, and guidelines specific to correctional facilities in Washington State.

The telecommunications design for this facility will conform to the following codes and standards –

1. National Electrical Code (NEC)
2. National Fire Alarm and Signaling Code (NFPA 72)
3. Telecommunications Industry Association (TIA) Standards
4. Building Industry Consulting Service International (BICSI) Standards
5. Federal Communications Commission (FCC) Regulations
6. State and Local Building Codes
7. Washington State Department of Corrections (DOC) Guidelines

4.2 Design Principles

- Security: The design will prioritize the security of the telecommunications system to prevent unauthorized access, ensure confidentiality, and minimize the risk of tampering or misuse.
- Reliability: The telecommunications system will be designed to ensure continuous operation, minimize downtime, and provide redundancy where necessary.
- Scalability: The design will accommodate future growth and evolving technological requirements of the facility.
- Compliance: All design elements will adhere to relevant codes, standards, regulations, and guidelines established by local authorities, the Washington State Department of Corrections, and all other applicable entities.
- Structured Cabling: The facility will implement a structured cabling system based on TIA-568 standards, including appropriate pathways, spaces, and distribution equipment.
- Fiber Optic Backbone: A fiber optic backbone will be deployed to support high-speed data transmission, ensuring reliable communication between critical areas of the facility.
- Copper Cabling: Copper cabling will be used where necessary for voice and low-speed data connections, following TIA-568 standards.
- Outside Plant Cabling: If required, outside plant cabling will be deployed with appropriate grounding and protection to connect the facility to external telecommunications networks.

4.3 Voice Communications

- Telephone System: A reliable and secure telephone system infrastructure will be implemented, allowing authorized users to make internal and external calls. Call monitoring and recording

capabilities may be required for security purposes. The operating telephone system itself is by the Owner.

- Public Address System: A public address (PA) system will be installed throughout all areas of the facility for announcements, emergency mass notifications, and general communications. This PA system speakers shall interface with the Jail Door Control System (Jail Door Control System design by others)

4.4 Data Communications

- Local Area Network (LAN): A robust and secure LAN will be designed to provide network connectivity within the facility, supporting critical applications and services.
- Wireless Network: A wireless network infrastructure will be established, enabling secure wireless communication for authorized users and devices, while maintaining separation from public networks.
- Internet Connectivity: Secure internet connectivity will be provided, utilizing appropriate firewalls and content filtering mechanisms to restrict unauthorized access and ensure compliance with facility policies.

4.5 Emergency Communications

- Emergency Notification: The telecommunications system will support emergency notification capabilities, including integration with the PA system, to quickly disseminate critical information during emergencies.
- Redundancy and Resilience: Redundant communication paths, backup power supply, and failover mechanisms will be implemented to ensure continuous emergency communication even during power outages or equipment failures.

5.0 PHYSICAL SECURITY DESIGN

5.1 Intrusion Detection

- Intrusion detection design shall consist of sensors to detect –
 - Unauthorized portal openings – Door / Window Position Sensors
 - Presence of unauthorized personnel in controlled spaces – Infrared Motion Detectors
 - Panic or Duress condition among staff members – Panic Button, or “Man Down” system.
- Intrusion sensors in a correctional facility are typically integrated into the Jail Door Control System

5.2 Access Control

For a correctional facility, access control is typically a centralized function of the Jail Door Control System. Door locking mechanisms are typically pneumatic or electro-mechanical, and are typically “at the door” access consists of a key override for the Jail Door Control System.

5.3 Video Surveillance

- Video Surveillance shall be designed as to provide coverage of all areas within the facility.
- The video system shall follow typical design concepts including placement of cameras and streaming video data to a Video Management System (VMS).
- All cameras shall be integrated into the Jail Door Control system for automated display and/or touchscreen camera selection from the Jail Door Control System workstation(s)

6.0 LIGHTING DESIGN

Light fixtures will be LED and systems will be selected for efficiency, durability, ease of maintenance, vandal resistance, and provide no hold points. All light fixtures will be provided with local battery packs for continuous lighting back up during the switch over of normal power to generator power.

6.1.1 Light Sources

LED fixtures will meet State of Washington standards and be UL/CSA listed. Light fixtures will be provided with vandal resistant 8/10 gage steel cage with security screws.

Interior Lighting

Lighting fixtures will be LED, with a rated life of 50,000 hours and 80 CRI minimum. The color temperature will be 3500K.

Exterior Lighting

LEDs equal to 4000K will be used for wall packs with 70 CRI minimum and full cut-off to prevent light from going up into the sky.

The illumination levels will follow IES recommendations for correctional facilities.

6.1.2 Egress Lighting Design

All emergency light fixtures and exit signs will be served from the emergency generator power. Exit signs will be provided according to the path of egress requirements. All emergency light fixture controls will be wired so that emergency lights will be switched during normal conditions and remain unswitched and full ON during an emergency. For that purpose, UL924 relays will be provided for emergency light fixtures. All exit signs will be connected to an unswitched circuit and remain powered in normal and emergency conditions.

6.1.3 Lighting Control Systems

All lighting controls will be accessible only to building staff. Light fixtures in sleeping areas shall have controls that allow dimming for night and accommodate staff observation needs. All light fixtures shall have master controls and be accessible to staff in an emergency. The lighting control panel will be connected to the BMS or DDC system. All exposed lighting and control devices will be provided with a cover and be tamper-proof. Lighting control panel will be located in the first floor electrical room.

7.0 FIRE ALARM SYSTEM

The remodeled building will be provided with a complete manual/addressable fire alarm system with horn strobes. The system will conform to current Building, Fire, and NFPA 72 Codes.

The fire alarm system will be independent with full command and control from the campus command center. This system should report back to an existing main campus Fire Alarm Panel via fiber or copper line to match existing.

The fire alarm system for Building 'F' will include the following:

One remote LCD alphanumeric annunciator at the main building entrance with an eighty-character digital readout indicating which device is in alarm or trouble mode is required. Exact location will be coordinated with the State Fire Marshal.

The Fire Alarm Control Panel (FACP) will be provided with an eighty-character digital readout indicating which device is in alarm or trouble mode. The new building's fire alarm system will use the same fire alarm control panel manufacturer with compatible components and devices similar to other buildings nearby. The fire alarm control panel, power supplies, and accessories will be placed in the first-floor electrical room of the building.

It is required that the following devices be installed per latest WSBC and WSFC codes:

- Monitoring, control, and power: fire alarm control panel, battery backup.
- Initiating devices: manual pull stations, smoke and heat detectors, duct detectors, etc.
- Indicating devices: horn, strobes, etc.
- Modules and relays will be provided for HVAC shutdown on the equipment itself.
- All electrically-operated doors will be interlocked with the fire alarm system. Door locks will not be provided with automatic release during fire alarm event.
- The system will be installed in dedicated and marked conduits (red stripes at each end is required). All fire alarm boxes are required to have red covers. New initiating and indicating devices will be placed throughout the floors to meet current code requirements.
- All fire alarm pull stations will be lockable and be accessible only to building staff per code. All exposed fire alarm devices will be provided with a tamper-proof cover.
- Initiating and notification devices will be provided in non-prison cell spaces per NFPA 72. Prison cell spaces will be provided with smoke detectors with vandal resistant covers.