



VHA Engineering Resourcing and Staffing Study Sponsor Presentation for National Academies Committee

VHA Office of Capital Asset Management Engineering and Support

September 26, 2018

Introductions

- Ed Litvin, Deputy to the Assistant Deputy Under Secretary for Health, Administrative Operations
- Brian Melewski, Acting Director, Office of Capital Asset Management Engineering and Support (OCAMES)
- Oleh Kowalskyj, Deputy Director Healthcare Engineering, OCAMES
- Scott Elias, Contracting Officer for Engineering Resourcing Study
- Steven Broskey, Compliance Engineer, OCAMES and COR for Engineering Resourcing Study
- Mike Reed, Center for Engineering & Occupational Safety and Health
- David Alvarez, Compliance Engineer, OCAMES
- Don Wainwright, Compliance Engineer, OCAMES
- Gary Krupa, Senior Electrical Engineer, OCAMES

Healthcare Engineering Programs: Budget and Staffing Methodology (Current State)

- Engineering Department scope and breadth varies across VHA, e.g.
 - ❖ Safety Program
 - ❖ Environmental Management Services
 - ❖ Interior Design
 - ❖ Transportation
- Organizational and Functional Charts customized locally over time
- Department level budgets at local management discretion
- Position Descriptions (PD) and performance standards developed locally
- Variation in PD accuracy and relevance to current program requirements
- Resources are strained and significant justification required for budgets and staffing
- Budget methodologies vary by facility
- Staffing methodology not developed

Healthcare Engineering Programs: Budget and Staffing Methodology (Future State)

- Nationally defined program scope and breadth
- Nationally recognized organizational framework
- Standardized position descriptions and performance standards
- **Authoritative methodology for budget and staffing**
- **National VHA engineering resourcing and staffing model**



Objectives of the NAS Consensus Study

- To compile a comprehensive inventory of program requirements that align under the purview of Healthcare Facilities Management (Engineering) Departments in VHA
- For each program identify the key variables that must be factored into the resourcing methodology
- Examples of variables include the program scope, complexity, magnitude, and performance requirements.
- Physical plant operations and maintenance variables include (but are not limited to) site layout, acreage, age and condition of buildings, number of buildings and their purpose, types and complexity of utilities, specialized systems and equipment, historic preservation and environmental considerations
- To identify the factors that differentiate VHA Facilities Management (Engineering) from private sector, and factor into the methodology

Objectives of the NAS Consensus Study

- **To develop a methodology for estimating the resources required to fulfill each of the program requirements, factoring in key variables and unique aspects**
- **To develop a comprehensive budgeting and staffing methodology that is adjustable based on site specific program characteristics and inputs**
- **The methodology will provide a tool that VHA Facilities can utilize across the system for establishing Healthcare Facilities Management (Engineering) Departments budgets and staffing levels.**

Committee Considerations

Collect, compile, and/or consider information on:

- Healthcare Engineering department program requirements that must be resourced. How can the resource requirements for each program be established in objective terms?
- Identify the variables that should be considered in budget and workforce modeling relevant to VA, and the source of such information.
- Unique operating procedures and requirements of the VA and federal government that would not be included in typical staff benchmarking for other healthcare organizations (hospitals, medical schools, medical clinics)
- Adjustments for in-house staffing versus contract service support

Committee Considerations

The committee will collect, compile, and/or consider information on:

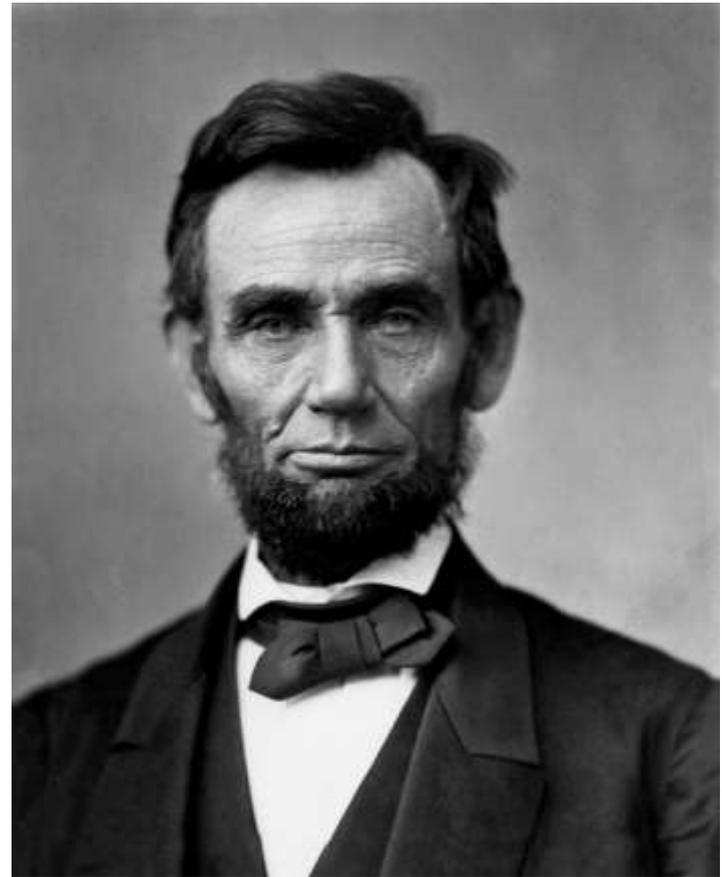
- The knowledge, skills, abilities (KSAs) and tasks performed by staff
- The present-day staffing strategies employed by VHA and other Healthcare Facilities (government and private sector)
- Any materials already produced by the VHA or other entities, including a recent consulting VHA report on staffing strategies
- Current overall and agency-relevant research concerning best staffing models that contribute most effectively to the broad system of effective operations, patient safety, and performance;
- Any relevant labor union considerations

Committee Deliverables

- Recommendations for budgeting and staffing to meet the mission goals of delivering high-quality patient care, and operations, that may include guidance on
- **Recommendations for budget and staffing methodologies and models**
- Recommendations for the steps needed to transition from the current staffing strategies and approaches used by the VHA to the plans for staffing recommended by the committee

VA Mission

“To care for him
who shall have
borne the battle
and for his
widow, and his
orphan”



Veterans Health Administration History

- March 3, 1865 President Abraham Lincoln signed a law to establish a national soldiers and sailors asylum.
- First national home opened November 1, 1866, near Augusta, Maine
- By 1929, the federal system of national homes had grown to 11 institutions that spanned the country and accepted Veterans of all American wars
- July 21, 1930 President Herbert Hoover signed Executive Order 5398 and elevated the Veterans Bureau to a federal administration—creating the Veterans Administration
- The VA health care system has grown from 54 hospitals in 1930 to 172 Medical Centers today
- 172 VA Medical Centers and 1,062 outpatient sites of care of varying complexity

VHA Portfolio

- 18 Veterans Integrated Service Networks
- 172 Medical Centers
- 5,639 Buildings (2,107 are Historic)
- 152,687,522 Total Gross Square Feet
- 16,383 Owned Acres

- 1,665 Leases
- 18,617,286 Net Usable Square Feet
- Annual Rent \$579,400,047

Data Source: VA Capital Asset Inventory Database, August 27, 2018



Main Station Stats

Capital Asset Inventory (CAI)

- The CAI database is the Department of Veterans Affairs (VA) official source of real property data. Each facility updates and certifies the data annually.
- Real property inventory data from CAI forms the basis for much of the service and infrastructure gaps used in the Strategic Capital Investment Planning (SCIP) process.
- CAI data is also reported to stakeholders including VA senior management, the Federal Real Property Council (FRPC), the Office of Management and Budget (OMB), the Department of Energy, the Government Accountability Office (GAO), the General Services Administration (GSA), and Congress.

Capital Asset Inventory (CAI)

- Building specific information
 - Building Number
 - Function/Title
 - Year Built
 - Year Renovated
 - Number of Floors
 - Historic Status
 - Owned/Leased
 - Gross and Departmental Square Foot
- Facility Condition Assessments and Correction Costs

Capital Asset Inventory

Example Station Summary Report

VHA Owned Buildings

<u>Station</u>		<u>Buildings</u>			<u>Land</u>
		#	SqFt	Historic	Acres
518	Bedford	61	1,156,189	48	184
523A5	BHS, Brockton	33	1,038,241	1	146
523A4	BHS, West Roxbury	17	561,306	2	30
523	Boston HS, Jamaica Plain	14	960,476	0	18
608	Manchester	14	310,177	10	30
650	Providence	35	540,998	2	50
402	Togus	65	773,799	49	476
631	VA Central Western Mass HCS	55	606,895	32	106
478	VA New England Healthcare System	0	0	0	0
689A4	VACHS, Newington	25	471,977	8	49
689	VACHS, West Haven	39	1,188,982	17	44
405	White River Junction	38	528,281	11	64
VHA 1 Total		396	8,137,321	180	1,196

Capital Asset Inventory

Example Station Summary Report

VHA Leased Buildings

<u>Station</u>		<u>Leases</u>		
		#	SqFt	Annual Rent
518	Bedford	3	14,875	\$574,594
523A5	BHS, Brockton	1	2,300	\$69,984
523A4	BHS, West Roxbury	0	0	\$0
523	Boston HS, Jamaica Plain	5	85,319	\$3,763,667
608	Manchester	4	20,601	\$423,080
650	Providence	12	81,623	\$2,295,190
402	Togus	12	114,318	\$4,067,758
631	VA Central Western Mass HCS	6	81,806	\$3,072,185
478	VA New England Healthcare System	0	0	\$0
689A4	VACHS, Newington	0	0	\$0
689	VACHS, West Haven	9	43,625	\$1,301,337
405	White River Junction	7	52,321	\$1,378,645
VHA 1 Total		59	496,788	\$16,946,440

Capital Asset Inventory Example Building Report

Space Breakdown by Floor

Floor: 1

	Dept No	Department	Beds	Description	Departmental Gross Square Feet					Functionality Scoring							
					Existing	Ideal	Vacant	Excess	Need	Lay Out	Adj	Cod	Access	Priv	Flr Ht		
-		220	Cardiology	0	Medical Service	1,000	7,500	0	0	6,500	2.5	2.7	4	3	2.5	3	
+		770	Common/Lobby Space	0		5,144	5,396	0	0	252							
+		770	Common/Lobby Space	0		630	661	0	0	31	0	0	0	0	0	0	
+		420	Diagnostic Imaging	0	Includes MRI addition	13,662	15,623	0	0	1,961	2.5	2.7	4	3.5	3.5	3	
+		670	Healthcare Admin Service	0	Offices	965	800	0	165	0	3	2.7	4	3	3	3	
+		600	Logistics	0	Mail Room	750	890	0	0	140	0	0	0	0	0	0	
+		620	Medical Service Admin	0	Medical Service	3,324	1,909	0	1,415	0	3	3	4	3	3	3	
+		480	Nutrition/Food	0	Refrigeration	595	462	0	133	0	3	3	4			3	
+		590	Voluntary Service	0		164	312	0	0	148							
Total for Floor 1				0		26,234	33,553	0	1,713	9,032							

Facility Condition Assessments (FCA)

- Contracted study of all VHA facilities to assess the physical condition of buildings and systems
- Considers life expectancy, maintenance, code compliance
- All engineering departments must update when corrections are accomplished

Facility Condition Assessments (FCA)

- VISN FCAs are accomplished on a 3-year CFM coordinated cycle
- All funded projects that correct FCA deficiencies need to be entered in the CAI FCA section and linked to the deficiencies being corrected
- Funded is any project that is funded for design or construction
- Projects must be entered in the database to show progress in correcting FCA deficiencies
- FCA occurs at building level, system level, and sub-system level
- Condition Assessment “A-F” Scale
- Provides description of deficiency
- Correction costs
- Replacement costs

Facility Condition Assessments

VA Capital Asset Inventory

Department of Veterans Affairs

Program: VHA District: 5 VISN: 20 - Portland OR Station: 653 - Roseburg

Station Search:

Facility Condition Assessments

[Add FCA Building](#)
[Complete FCA Station Details](#)
[Station Projects](#)

View FCAs	Edit Bldg Info	Bldg	Current Function	Proposed Function	Yr Built	Last Reov	Fbrs	GSP	Correction Total	Replacement Total	CA1 Bldg Yab Ref	Delete
		CC	Connecting Corridors		1938	0	1	5,600	\$1,601,696	\$908,910	CC	
		Site	Site Utilities	Site Utilities				0	\$12,320,123	\$10,949,703	Site	
		T6	Plumbing Quoset		1946	0	1	1,029	\$202,047	\$311,127	T6	
		T7	Grounds Storage		1946	0	1	1,029	\$137,295	\$311,127	T7	
		T8	Plumbing Quoset		1946	0	1	1,029	\$151,323	\$311,127	T8	
		1	Main Building	Main Building	1933	1999	E	126,352	\$61,512,025	\$98,165,535	1	
		1AC	Ambulatory Care	Ambulatory Care	1994	2001	2	58,770	\$2,084,923	\$39,893,893	1AC	
		2	Continued Treatment	Continued Treatment	1933	0	3	74,474	\$25,863,312	\$43,059,059	2	
		3	Administrative Bldg.	Administrative Bldg.	1933	1960	3	13,469	\$4,654,609	\$6,357,988	3	
		4	Quarters		1933	1930	3	3,836	\$301,038	\$1,000,000	4	
		5	Quarters		1933	1930	3	3,912	\$371,334	\$1,774,217	5	
		6	Quarters		1933	1930	3	3,912	\$381,248	\$1,774,217	6	
		7	Boiler Plant	Boiler Plant	1933	0	1	6,041	\$1,136,323	\$14,620,619	7	
		8	Switchgear		1933	0	1	319	\$152,191	\$164,453	8	
		10	Engineering Office/Electric Shop	Engineering Office/Electric Shop	1933	1960	1	3,983	\$413,227	\$1,473,639	10	
		11	Laundry	Laundry	1933	0	1	13,376	\$1,438,625	\$11,475,997	11	

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FCA Replacement Cost Information

Building: 1 - Main Building

System	Cost	Pend Cost
Access		
Architectural	34,357,937.14	
Electrical	15,706,485.49	
Energy		
Hazmat		
Historic		
Mechanical	14,724,830.63	
Plumbing	7,853,242.74	
Sanitary		
Steam Gen.		
Storm Water		
Structural	21,596,417.82	
Transport	3,926,620.82	
Water		
Information Technology		
Honuments & Memorials		
Total:	\$98,165,535	\$0

Facility Condition Assessments

Department of Veterans Affairs

VA Capital Asset Inventory

VHA VBA NCA Staff Reports / Search

Home Return to Station

Select Report Report Preview Search

Reports

Report Category: FCA

Select	Report Description	Last Run User Name	Last Run Report Date	Count (Last 3 Mon)
	FCA - Acceptable/Unacceptable Buildings	VHA07/VHAATGCoORA	09/05/2018	35
	FCA - Basic FCA Report	VHA20/VHAROSBROSKS	09/05/2018	414
	FCA - Basic FCA Report (by System)	VHA08/VHAMASReCHH	08/30/2018	112
	FCA - Basic FCA Report (Condensed)	VHA20/VHAROSBROSKS	09/05/2018	27
	FCA - Basic FCA Report (Missing Risk Level)	VHA01/VHAMANTEDEC	07/13/2018	1
	FCA - Basic FCA Report (WithoutPendings)	VHA23/VHAFTHStolk	09/05/2018	11
	FCA - Check for Dollars in Non D/F Pending Corrections	VHA06/VHAMAMnegrov	08/24/2018	7
	FCA - Complete Corr. Costs (FCA+Studies) - by Sta.	VHA20/VHAROSBROSKS	09/05/2018	27
	FCA - Complete Corr. Costs (FCA+Studies) - by VISN	VHA07/VHATUALYDNST	08/28/2018	2
	FCA - Complete Corr. Costs (FCA+Studies)-All VISA	VHA20/VHAROSBROSKS	09/05/2018	1
	FCA - Condition Gaps	VHA22/VHASDCROCHAE	09/05/2018	40
	FCA - Corrections Summary Report	VHA12/VHATOMHeimE	09/04/2018	38
	FCA - Costs by Bu	VHA20/VHAROSBROSKS	09/05/2018	25
	FCA - Costs by Pd (Building Level)	VHA20/VHAROSBROSKS	08/27/2018	10
	FCA - Costs by Sp (VISN/Station)	VHA12/VHAMASJacobaJ	08/09/2018	14
	FCA - Data for a V	VHA17/vhav17millep	08/30/2018	42
	FCA - Deficient System/Subsystem	VHA06/VHAMAMBaconJ	08/23/2018	44
	FCA - Details at Station by System/FCA Type	DVA/vacomsejl	09/04/2018	55
	FCA - Export for Red/Green Report data	VHA11/VHAINDSandleC	09/28/2018	36
	FCA - Pending Condition Assessments	VHA22/VHASDCROCHAE	09/05/2018	14
	FCA - Pending Condition Assessments	VHA11/VHAINDSandleC	08/28/2018	94

Search Criteria

Selected Report: FCA - Export for Red/Green Report data

Report Description: Report of FCA - Export for Red/Green Report data

Program: VHA

District: (5) VHA - Pacific

VISN: (20) Portland OR

Station: (653) Roseburg

State:

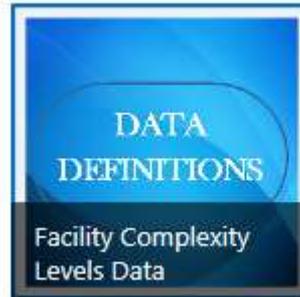


Facility Condition Assessments

Database drills down to building system and subsystem level

Building No	Function Title	GSF	System	Subsystem	Useful Lifespan	Remaining Life	Correction Cost	Condition	Description
200	GM&S Hospital	150701	Mechanical	Air Handling Equip	20	0	60640	D	Air handling units with variable pitch inlet vanes, preheat coil, cooling coils. 10% outdoor air handling units have glycol recovery coils. Air handling unit in the basement is for cooling only. This unit is reaching its useful life but is working fair.
200	GM&S Hospital	150701	Mechanical	Air Handling Equip	20	14	0	B	Units serving 3-south, 3-North, and MRI installed between 2010 and 2013 and are in good condition.

Facility Complexity Level Model



[OPES Website](#)

VHA Facility Complexity Model History, Purpose, and Uses

Model History

- Complexity model adopted for use in 1989
 - Run every 3 years on behalf of the NLC-Workforce Committee
 - OPES has run the data since 2005
 - This is a clinical complexity model
- Methodology has remained consistent since 2008 (most recent three runs)
 - Identify variables that measure facility complexity from a national source
 - Use indexing (Z-Score) and weighting techniques to determine an overall complexity index score at the administrative parent facility level
 - Complexity index used to define facility level 'break points' and classify into five complexity levels (1a, 1b, 1c, 2, and 3)

VHA Facility Complexity Model History, Purpose, and Uses

Model Purpose and Uses

- Purpose
 - Peer groupings based on facility complexity
 - Emphasis is on clinical complexity
- Uses
 - Establish SES Pay Bands for facility senior leadership teams
 - Perform program and organizational analyses (performance measures, research analysis, operational models)

Note: Many treat this as the only approved “peer grouping” tool (independent of its appropriateness for the specific use).

VHA Facility Complexity Model

FY17 Model Variables

Patient Population Measures:

- 1. VERA Pro-Rated Patient (PRP)
- 3. Patient Risk*
- 9. Mental Health Program**

Clinical Services Complexity Measures:

- 2. Acute Care (2 data sources)
 - 2.1 Intensive Care Unit (ICU) Level
 - 2.2 Surgical (OR) Complexity Level
- 7. Complex Clinical Programs
 - See box to right
- 8. Care in the Community Program**

Education & Research Measures:

- 4. Total Resident Slots*
- 5. Revised HHI Resident Slots
- 6. Research Dollars

Complex Clinical Programs

- 7.01. SCI Centers
- 7.02. Blind Rehab Centers
- 7.03. Cardiac Surgical Programs
- 7.04. Interventional Cardiac Cath Lab
- 7.05. Neurosurgery
- 7.06. VA Transplant Centers
- 7.07. Radiation Oncology
- 7.08. Interventional Radiology*
- 7.09. Polytrauma Centers*
- 7.10. VA/DoD Sharing*
- 7.11. Multi-Campus
- 7.12. Rural Facility**

* Indicates change in methodology for FY17

** Indicates new model variable for FY17

VHA Facility Complexity Model

FY17 Model Variables

Patient Population Measures

Workload Measure

Allocation Resource Center (ARC) PRP

- ARC uses PRPs for assigning patients to facilities in the Veterans Equitable Resource Allocation (VERA) model
 - This is the gold standard for weighted workload within VHA
 - Veterans are pro-rated based on their cost to parent facilities
- [ARC website](#)
- Data based on End of FY16 (prior year) ARC PRP

Patient Risk Measure

Facility Risk Model Score

- OPES annually develops a risk model at the patient level that adjusts for the relative cost of patients
- Risk score is aggregated to the facility level to identify relative patient severity
- [OPES risk website](#)
- Data based on FY16 (prior year) age and diagnosis information

VHA Facility Complexity Model

FY17 Model Variables

Patient Population Measures

Mental Health Program % of MH Patients

- Percentage of patient population using mental health services counts as 50% of the mental health program measure
 - Source is OPES Mental Health Dashboard
 - MH Unique defined as patients with an encounter in a 500 series clinic stop
 - Total unique patients comes from VSSC's Unique Patients Cube
- Each part of the MH variable is indexed, weighted, and combined to obtain the final measure

Count of MH Programs

- Count of MH programs is 50% of the mental health program measure
 - MHICM (formerly a complex clinical program)
 - From a program office list, includes RANGE programs
 - High Volume Inpatient Acute Psych (formerly a complex clinical program)
 - From workload data
 - Presence of a domiciliary
 - From Site Classification
 - Presence of inpatient psychiatry beds
 - From bed control database

VHA Facility Complexity Model

FY17 Model Variables

Clinical Services Complexity Measures

Facility ICU Level Inpatient Evaluation Center (IPEC)

- Facility Intensive Care Unit (ICU) Levels are maintained by IPEC
 - Ensures that the ICUs at facilities have the required equipment and staff
 - The ICU level indicates the complexity of the ICU cases that can be handled by the hospital
 - ICU levels scored based on complexity (Level 1 -4; Level 1 = most acute; Level 4 = least acute)
- [IPEC Website](#)
- Data based on end of FY16 (prior year) ICU Levels

Facility OR Complexity Level National Surgery Office (NSO)

- Operating Room (OR) Complexity Levels are maintained by NSO
 - Ensures that surgical sites meet the VHA requirements for particular surgical procedures to ensure patient safety
 - Three inpatient OR complexity levels: (Standard, Intermediate, and Complex)
 - Two ambulatory OR complexity levels (Amb. Basic and Amb. Advanced)
- [NSO Operative Complexity Website](#)
- Data based on end of FY16 (prior year) OR Complexity Levels

VHA Facility Complexity Model

FY17 Model Variables

Clinical Services Complexity Measures (Continued)

Complex Clinical Programs are a list of programs that the modelers have identified as ones that increase administrative complexity. Generally, sites are either counted as having a program or not.

1. Spinal Cord Injury (SCI) Program
 - [SCI Program Office List](#)
2. Blind Rehabilitation Program
 - [Blind Rehab Program Office List](#)
3. Cardiac Surgery Program
 - [NSO Program Office List](#)
4. Cardiac Cath Lab
 - [Cardiac Program Office \(CART\) List](#)
5. Neurosurgery Program
 - [NSO Program Office List](#)
6. Transplant Center
 - [NSO Program Office List](#)
7. Radiation Oncology
 - [Radiation Oncology Program Office List](#)
8. Interventional Radiology
 - Workload Based ([Program Office Website](#))
9. Polytrauma Center
 - Directive Based ([Program Office Website](#))
10. VA/DoD Sharing
 - Financial Data
11. Multi-Campus
 - [VHA Site Classification Data](#)
12. Rural Facility
 - [VHA Site Classification Data](#) and Workload Based

VHA Facility Complexity Model

FY17 Model Variables

Clinical Services Complexity Measures (continued)

Care in the Community Program (CITC)

% of Patients Using CITC

- Percentage of patient population using CITC services counts as 75% of the CITC program measure
 - Source is unique patients cube
 - Patients identified as core patients through fee or choice services divided by total core unique patients
- Data based on end of FY16 pull as of 7/17/17

Cost per CITC Patient

- Cost per patients using CITC services counts as 25% of the CITC program measure
 - Data source: FBCS MEDSAS Files excluding choice act obligations (SAS code available upon request); ARC TPA payment spreadsheet; Unique Patients Cube
 - CITC payments are defined based on payment date and summed at the parent facility level then divided by core uniques
- Data based on end of FY16 pull as of 7/17/17

VHA Facility Complexity Model

FY17 Model Variables

Education and Research Complexity Measures

Education Measures

Resident Slots and Herfindahl Index (HHI)

- Total residents variable counts the total number of resident slots allowed/assigned to each facility by the Accreditation Council for Graduate Medical Education (ACGME) and adjusted allied health residents (AH)
 - Maintained by the Office of Academic Affairs
 - Data from Academic Year 15-16
- HHI of residency programs is a calculation of spread across different specialties. This variable measures the complexity of running multiple residency programs across specialties (GME Only).
 - Maintained by OPES

Research Measures

VERA Research Reimbursement

- The VERA Research Support uses actual grant dollars to determine how much research support should be given to a parent facility in the VERA model. The Facility Complexity Model uses this number as a proxy to measure the amount of research that is being done at a given facility.
- [ARC website](#)
- Data based on FY17 VERA Model Data

VHA Facility Complexity Model Methodology

Z-Scores and Variable Weights

- The Facility Complexity Model uses z-scores (index scores) to standardize the variables:

$$Z - Score =$$

$$\frac{\text{Facility Variable Value} - \text{VHA Mean Variable Value}}{\text{VHA Variable Standard Deviation}}$$

- Index scores are calculated for each variable independently to obtain an index score for each variable at each facility
 - Once the scores are calculated, they are weighted based on importance
 - Weights are based on input from VHA national committee
- The weighted index scores are added together to obtain an overall complexity index

FY 2017 Complexity Model Variables and Weights					
Category Weights	Complexity Model Category	Var Ref	Variable Name	Data Source: Year	Variable Weights
0.45	1. Patient Population	1.	VERA Pro-Rated Person (PRP)	EOFY 2016 Historical PRPs	0.25
		3.	CCS Risk Patient Risk Score	FY 2016	0.13
		9.	Mental Health Program	FY 2016	0.07
0.40	2. Clinical Services Complexity	2.	2.1) Intensive Care Unit Level and 2.2) Surgical (OR) Complexity Level	2.1) As of 10/1/16; and 2.2) As of 12/21/16	0.15
		7.	Complex Clinical Programs	VACO Program Offices; Treating Specialty File; VHA Directive	0.20
		8.	Care in the Community (CITC) Program	FY 2016	0.05
		4.	Total Weighted Resident Slots	Academic Year FY 2015-2016	0.05
0.15	3. Education & Research	5.	Revised HHI Resident Slots	Formula on Academic Year FY 2015-2016	0.05
		6.	VERA Research Reimbursement Dollars	FY 2016 Data / FY 2017 VERA	0.05

Facility Complexity Model Definitions

Complexity Level	Facility Description
1a-Highest complexity	Facilities with high volume, high risk patients, most complex clinical programs, and large research and teaching programs
1b-High complexity	Facilities with medium-high volume, high risk patients, many complex clinical programs, and medium-large research and teaching programs
1c-Mid-High complexity	Facilities with medium-high volume, medium risk patients, some complex clinical programs, and medium sized research and teaching programs
2-Medium complexity	Facilities with medium volume, low risk patients, few complex clinical programs, and small or no research and teaching programs
3-Low complexity	Facilities with low volume, low risk patients, few or no complex clinical programs, and small or no research and teaching programs

Facility Complexity Level Counts

OPES Complexity Level	# Parent Facilities
1a	39
1b	21
1c	32
2	20
3	28
	140
VA Site Tracking System (VAST)	
VAMC Count	172
Mutli-Division Sites	31

VA Site Tracking Database (VAST)

- VAST is the authoritative source of all VHA Service Sites (with a unique physical address)
- Used for all data offices, internal and external communications and web sites.
- The tool provides access to locating VHA Sites of Care and assists in locating service for internal customers.
- Additionally, the data contained within the VAST assists Leadership and Program Offices with inquiries from Congress and other stakeholders.

VA Site Tracking Database (VAST)

Official Count of Sites of Care by Classification

Inpatient Sites of Care	
Inpatient/Residential/Extended Classification Totals	181
VA Medical Centers (VAMC)	172
VA Residential Care Sites (VA Domiciliary or Mental Health R RTPs) (Stand-Alone) <i>(Does not include the co-located programs within a VAMC)</i>	8
VA Extended Care Sites (also called Community Living Centers (CLCs)) (Stand-Alone) <i>(Does not include the co-located programs within a VAMC)</i>	1
Outpatient Sites of Care	
Outpatient Classification Totals	1,062
Health Care Centers (HCCs)	23
Multi-Specialty Community Based Outpatient Clinics (MS-CBOCs)	211
Primary Care Community Based Outpatient Clinics (PC-CBOCs)	514
Other Outpatient Services (OOS) Sites	314
Total All Sites of Care	1,243

Source: VHA Site Tracking Database, Third Quarter FY 2018



CAPRES - Presentation to the National Academy of Science – VHA Engineering Capital Resource Survey

Michael B. Reed, BSEE, CHFM
September 2018

OVERVIEW

CAPITAL RESOURCE SURVEY

CAPRES History:

CAPRES is an annual survey completed by Chief Engineers for each VHA Medical Center/Healthcare System and has been around for a number of years (in 2004 it was changed to a computerized database format).

The survey is comprised of engineering FTEE, material cost, contract costs, building square footage and related information. With required fields changing almost every year.

CAPRES is meant to be used primarily by Chief Engineers/Associate Directors to benchmark their engineering programs against other similar programs in VHA, normally by complexity and/or square footage.

Much of the data is now pre-populated from other VHA databases.

CAPRES Overview

- **Basic information** – Facility Contact Information, Complexity Level, Total Medical Center FTEE, Outpatient Visits, FY Medical Center Expenditures, etc.
- **Facility Square Footage** – Owned Gross, Leased Gross, Out-leased and Vacant
- **Owned Building Square Footage by age** – Less than 10 Years, 10 to 50 Years and Older than 50 Years
- **Capital Costs** – Construction obligations for Major (>\$10,000,000), Minor (expand Sq Ft and <\$10,000,000), CSI (high profile clinical projects) and NRM (repair existing infrastructure) Construction and Lease Cost information
- **Facility Condition Assessment (FCA)** – Outstanding Costs to Correct (Scores D and F only)
- **FCA Corrections** – Amount of \$ Corrections Made in the Survey Year
- **FTEE/Labor Cost** – Breakout by Engineering Section
- **Expenditures** - for Engineering In-house Labor
- **Expenditure** - for Engineering Materials, Services and One time Contracts
- **Reports** - Various Groupings of the Data
- ❖ *Excerpt of CAPRES Data from FY 2017*



Microsoft Excel
Worksheet

CAPRES Overview – Number of VHA Medical Centers/Health Care Systems by Complexity Level In CAPRES Survey

Complexity Level	Number of VHA Medical Centers/Health Care Systems by Complexity
1a*	39
1b	21
1c	32
2	20
3	28
Total	140
* 1a is the most complex	

<http://opes.vssc.med.va.gov/FacilityComplexityLevels/Pages/default.aspx>

Owned Gross Square Footage (GSF) by Site Complexity Category

Owned Gross Square Footage (GSF) by Site Complexity Category					
	1a	1b	1c	2	3
Average MC Size	1,705,760	1,086,858	1,140,339	702,033	674,038
Median MC Size	1,532,739	1,025,520	1,007,517	534,544	601,670
Minimum	662,376	506,427	402,002	309,638	223,720
Maximum	3,907,259	2,472,643	2,295,429	1,520,771	1,805,098

Total Medical Center FTEE by Complexity Group

Total Medical Center FTEE					
COMPLEXITY:	1a	1b	1c	2	3
> 0 and ≤ 1,000	1	0	1	3	16
> 1,000 and ≤ 2,000	0	8	19	17	14
> 2,000 and ≤ 3,000	14	8	7	0	0
> 3,000 and ≤ 4,000	16	3	0	0	0
> 4,000 and ≤ 5,000	6	1	0	0	0
> 5,000 and ≤ 6,000	2	0	0	0	0
TOTALS	39	20	27	20	30
Average	3,295	2,171	1,951	1,295	1,009
Minimum	1,644	1,293	998	628	507
Maximum	5,693	3,032	3,671	2,326	2,864

Leased Gross Square Feet(GSF) by Complexity

Leased Gross Square Feet (GSF) by Complexity and Facility					
	1a	1b	1c	2	3
Average	183,908	124,107	98,489	89,438	55,635
Median	133,906	106,243	69,058	64,025	37,763
Minimum	27,703	13,315	14,151	12,342	6,309
Maximum	622,172	344,023	273,760	431,775	340,330

CAPRES Overview – VHA Owned Square Footage by Age

	Bldg. Sq. Ft. by Age	% of Total
< 10 Years Old	14,911,173	9.9%
10 to 50 Years Old	53,468,063	35.4%
>50 Years Old	82,862,162	54.8%

54% of VHA Owned Square Footage is over 50 Years old

Engineering – In-House Labor

Average In-House Labor Costs*						
Complexity	Office of the Chief	Maintenance and Repair	Grounds	Transportation	Plant Operations	Project Administration
1a	\$1,943,388	\$3,968,941	\$301,950	\$839,610	\$1,240,045	\$1,003,345
1b	\$1,373,609	\$2,525,070	\$103,394	\$721,044	\$920,688	\$645,567
1c	\$969,594	\$2,955,942	\$330,641	\$594,360	\$992,740	\$663,562
2	\$918,189	\$1,550,275	\$149,650	\$417,828	\$641,805	\$384,983
3	\$616,103	\$1,597,779	\$197,429	\$480,351	\$607,177	\$393,530

*Salary information is in paid hours (includes overtime)

Engineering Material, Contracts and Service Costs

Average Material, Contracts and Service Costs							
Complexity	Office of the Chief	Maintenance and Repair	Grounds	Transportation	Plant Operations	Project Administration	Energy Engineer
All	\$423,697	\$2,662,359	\$133,546	\$471,752	\$571,536	\$200,177	\$14
1a	\$597,418	\$3,674,196	\$194,341	\$691,306	\$1,301,044	\$275,184	\$194,863
1b	\$334,904	\$2,715,142	\$77,938	\$899,005	\$687,244	\$71,124	\$80
1c	\$251,467	\$2,400,590	\$102,889	\$479,411	\$209,171	\$137,392	\$0
2	\$216,998	\$1,297,264	\$71,572	\$260,213	\$611,845	\$69,888	\$232
3	\$243,070	\$1,089,174	\$257,044	\$248,965	\$338,393	\$124,002	\$0

Number of Engineering of Positions by Complexity

Average Total number of Positions*					
Complexity	1a	1b	1c	2	3
Degreed Engineers	6.95	4.4	5.73	3.82	3.32
Construction Administration	9.13	6.37	6.57	3.49	4.17
Electric Shop	8.44	6.15	6.33	3.18	3.52
HVAC Shop	7.89	5.65	6.14	3.43	3.18
Carpentry Shop	9.87	6.89	8.68	4.46	3.72
Plumbing shop	7.07	4.4	5.2	2.46	3.51
Boiler Plant	4.54	2.65	4.01	3.82	4.4
Chiller Plant	1.85	0.45	2.86	0.89	0.13
Combined Chiller and Boiler	4.01	2.4	2.39	0.82	1.23

*Based on paid hours

CAPRES – FTEE/10,000 Gross Square Feet

Complexity	Owned Gross Square Feet (Average)	Engineering FTEE (Average)	FTEE/10,000 Owned Gross Square Feet
1a	1,582,409	104.5	0.66
1b	1,267,487	65.6	0.52
1c	1,031,705	77.5	0.75
2	653,371	49.1	0.75
3	627,333	47.5	0.76

Outpatient Visits - by Site Complexity Category

Outpatient Visits by Site Complexity Category						
	VHA Overall	1a	1b	1c	2	3
Average	593,409	924,144	635,576	593,940	401,723	298,057
Median	535,977	819,403	589,505	513,876	401,291	255,454
Max	1,707,118	1,681,054	1,077,687	1,172,423	706,024	1,331,277

Construction Funding (\$) per FY by Project Category and Complexity Level

Total NRM/CSI \$ (Repair of Existing Infrastructure/High Priority Clinical Projects)

	All Facilities	1a	1b	1c	2	3
Average	8,065,943	13,027,436	8,824,252	11,200,731	7,601,789	6,326,035
Maximum	36,519,959	37,190,656	20,223,236	27,592,915	23,106,163	18,149,318

Minor Construction \$ (Less than \$10,000,000 Per Project)

	All Facilities	1a	1b	1c	2	3
Average	2,920,895	4,514,027	5,126,288	3,851,936	2,404,684	1,452,809
Maximum	26,457,222	27,276,446	27,441,362	17,557,172	10,161,718	9,613,114

Major Construction \$ (Greater than \$10,000,000 Per Project)

	All Facilities	1a	1b	1c	2	3
Average	3,703,130	8,544,568	1,642,419	406,883	133,666	159,871
Maximum	172,080,946	266,462,592	25,141,545	4,775,896	3,630,724	4,449,374

CAPRES – Facility Condition Assessment

Total FCA Cost to Correct – D and F Scores Only *

(mechanical, electrical, water, transport, plumbing, sanitary, and steam)

	All Facilities	1a	1b	1c	2	3
Average	\$64,663,042	\$93,554,567	\$52,024,141	\$46,640,745	\$33,387,717	\$33,654,075
Median	\$46,441,981	\$80,680,925	\$41,684,043	\$37,787,810	\$24,669,877	\$31,472,148

* (Grades are A, B, C, D and F with A being the best score)

Total Owned Acreage by Complexity

Total Owned Acreage by Complexity					
Complexity	1a	1b	1c	2	3
Average	129.2	92.3	105.3	117.8	118.1
Median	100	34.5	91	58.5	120
Minimum	4	12	12	14	14
Maximum	468	462	334	476	322

Questions



Federal Regulations, Executive Orders, and VA Regulations

- Energy and Water Management Program: Energy Policy Act of 2005 (EPAAct 2005); the Energy Independence and Security Act of 2007 (EISA); Presidential Memorandum of December 5, 2013, Federal Leadership on Energy Management, VA Directive 0055; Executive Order 13834 “Efficient Federal Operation signed May 17, 2018
- Fleet Management: Various Federal Regulations, and EO’s as referenced in VA Directive 0637 and VA Handbook 0637
- Cultural Resource Management Program: Various Federal Regulations and EO’s as referenced in VA Directive 7545 and VA Handbook 7545
- Physical Security: Executive Order 12656; Public Law 107-188; 38 USC Sec. 901
- Contracting: FAR and VAAR , Kingdomware
- Mission Act

Energy and Water Management Program

Facility Energy and Water Management Plans

- Each VA facility shall develop and implement an annual energy management plan
- Defines how the facility will achieve energy and water goals through capital investments, alternatively financed projects, energy audits, demand-side management programs, preventive maintenance, building operations, retrocommissioning and recommissioning projects, and other approaches.
- Annual plans must be submitted through the Strategic Capital Investment Planning (SCIP) process

Energy and Water Management Program

Facility Energy and Water Audits

- A comprehensive EISA Section 432 energy and water audit shall be completed at each VA-owned facility at least once every four years.
- Section 432 facility audits shall identify operating improvements, evaluate potential Energy Conservation Measures (ECMs), and identify the potential for generation of on-site energy via combined heat and power and renewable energy systems.
- Retrocommissioning shall be conducted in conjunction with the audit. Auditors shall identify and assess deficiencies found through recommissioning or retrocommissioning processes in accordance with EISA Section 432.
- Completed audit reports shall be submitted via the Veterans Healthcare Administration (VHA) Energy Engineers Sharepoint site
- Results entered into the DOE CTS in accordance with OAEM guidance.

Energy and Water Management Program

Data, Reporting, and Tracking

- Monthly energy and water consumption data following utility bill verification and certification for payment shall be reported in the VHA Support Service Center (VSSC) data base.
- Energy, water, and sewer cost data shall be reported in VA's Financial Management System (FMS).
- Energy audit and energy and water conservation measure (ECM) data for each facility shall be entered in the U.S. Department of Energy (DOE) EISA Section 432 Compliance Tracking System (CTS).
- Facility information shall be entered and validated quarterly in the Energy Star® Portfolio Manager® benchmarking system.

Energy and Water Management Program

Staffing, per VA Directive 0055

- Each Veterans Integrated Service Network (VISN) must assign a full-time Energy Manager to provide technical support and perform audits for all VHA facilities within their geographic area.
- Ensuring each VHA facility is covered by a full-time Facility Energy Manager. A manager may cover more than one facility. Facility Energy Managers' assignments shall not be made as a collateral duty, nor shall Facility Energy Managers be assigned collateral duties.
- Assigning a Facility Sustainability Officer (FSO) at each VHA facility to serve as the coordinating point for energy, environment, transportation, sustainable buildings, and related programs. The duties of the FSO shall be reportable directly to the facility director.

Fleet Management Program

- Scope includes all VA-owned, commercially leased, or General Services Administration (GSA) leased vehicles licensed for on-road use. It does not apply to small motorized equipment not intended for on-road use.
- Over the past several years, the VA vehicle fleet has grown along with the increase in workload, primarily due to the emphasis on patient outreach and home services programs.
- In FY 2011, VA motor vehicle operators drove approximately 184,000,000 miles using over 16,400 vehicles.
- Fleet Managers ensure that VHA implements agency-wide fleet acquisition guidelines, utilization criteria, improves fuel economy performance, reduces GHG emissions, and produces timely and accurate data that is readily available for reporting.

Fleet Management Program

Fleet Manager Primary Duties

- Fleet managers ensure data entered in VA fleet databases is timely and accurate
- Use VA's Vehicle Acquisition Methodology tool to select and justify all vehicle acquisitions, whether vehicles are purchased or leased
- Manage vehicle pool, vehicle assignments, and utilization
- Fleet Managers verify operators credentials and provide operator safety training
- Fleet Manager coordinate vehicle inspections, maintenance (scheduled and unscheduled)
- Manage the Fleet Cards
- Manage and license donated vehicles (i.e., DAV Vans)

Fleet Management Program

Fleet Manager Reporting Requirements

When	Report/Training
20 th of Every Month	Odometer readings and fuel purchases entered/verified in vehicle inventory system
January 31st	Vehicle utilization reports to VA Fleet Manager
June	EPAct 2005 Section 701 Waiver Requests entered in FAST
June	Section 246 Federal Fueling Centers Report (Renewable Fuel Pumps) to DOE
August	OMB A-11 Report entered in FAST
September	Online training for FAST Administrators; fleet managers train others
October	Annual vehicle utilization reports to VA Fleet Manager
October/November	FAST data call entry window
November	Annual OSHA Safety and Health Report to Safety Office; copy to VA Fleet Manager

Cultural Resource Management Program

VA Directive and Handbook 7545

- Provides for compliance with historic preservation, and cultural resource management legal requirements in the conduct of VA projects and programs
- VA is responsible for complying with Federal cultural resource legal requirements. VA must ensure that its employees are equipped through training, and guidance.
- Medical center directors are responsible for ensuring that facility personnel such as architects, engineers, maintenance personnel, and groundskeepers, are aware of cultural resource legal requirements and are prepared to implement them.
- Directors of large facilities, facilities with older buildings or structures, and facilities with known or suspected historical or cultural associations are well advised to appoint a staff cultural resource manager and ensure that he or she obtains appropriate training in CRMO.
- Appropriate resources should be made available to ensure that the manager is able to function in this capacity.

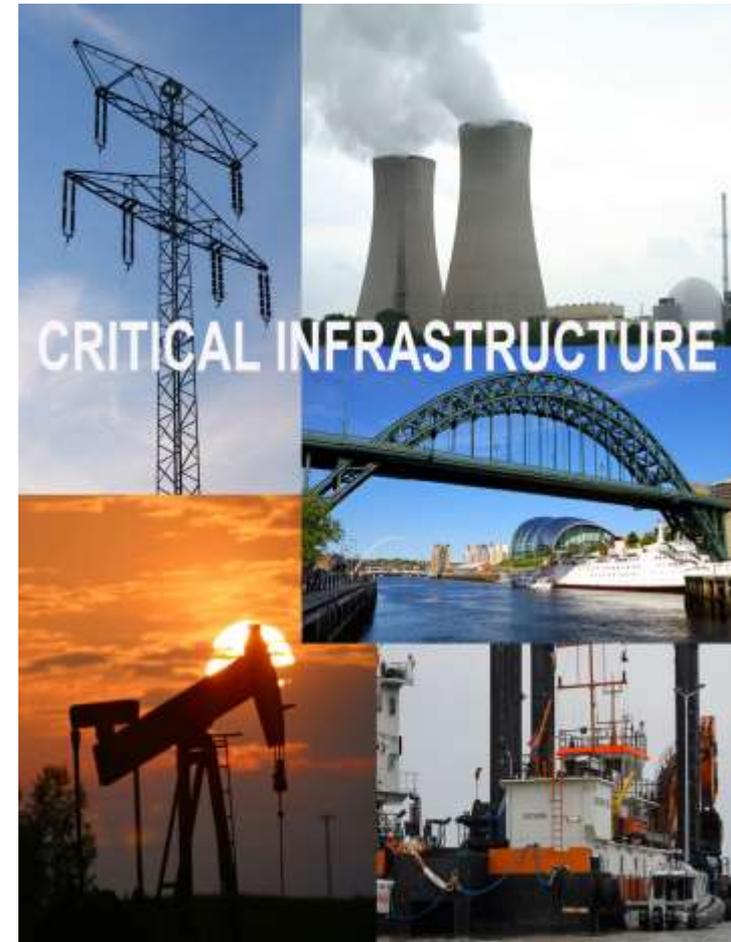
Cultural Resource Management Program

National Historic Preservation Act (NHPA) has several sections directly relevant to VA:

- Section 106 requires that Federal agencies “take into account” the effects of their proposed actions on any “district, site, building, structure, or object” that is included in or eligible for the National Register of Historic Places.
- Section 110 requires a Federal agency to identify historic places under its control or jurisdiction, manage such places in responsible ways, try to use such places to fulfill agency needs, and consult with interested parties about how to maintain such places. VA manages a number of National Historic Landmarks.
- Section 111 requires agencies to seek alternative adaptive uses for historic places they control but do not need for agency purposes, such as old buildings on a VA facility that are no longer needed for VA purposes.

Physical Security and Resilience Legal Mandates

- **Executive Order 12656**—Mandates that Federal Departments and Agencies:
 - Be prepared to respond adequate to all national security emergencies
 - Assess vulnerabilities and develop strategies, plans, and programs to provide for the security to avoid or minimize disruptions of essential services during any national security emergency
- **Public Law 107-188**—The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 requires actions to enhance the readiness of Department of Veterans Affairs medical centers
- **38 USC Sec. 901**—Gives the authority to prescribe regulations to provide for the maintenance of law and order and the protection of persons and property on VA property



Contracting Officer Representatives (COR)

CORs are required for the following contracts:

- All contracts for healthcare services;
- All contracts for transportation for beneficiaries;
- All construction contracts;
- Architect-Engineer (A-E) contracts valued at \$30,000 or more. The CO may request assignment of a COR for A-E contracts below \$30,000;
- All Leases (to include land use planning and cadastral surveys.);
- Hazardous materials contracts exceeding \$25,000;
- Time and Materials or Labor Hours contracts;
- Advisory and Assistance services (see Common A&A services with examples);
- All Consignment Agreements (see
- Consignment Agreement SOP); and
- CORs are highly recommended for services contracts that exceed the Simplified Acquisition Threshold (SAT) due to CPARS reporting requirement and other administrative duties typically completed by a COR.

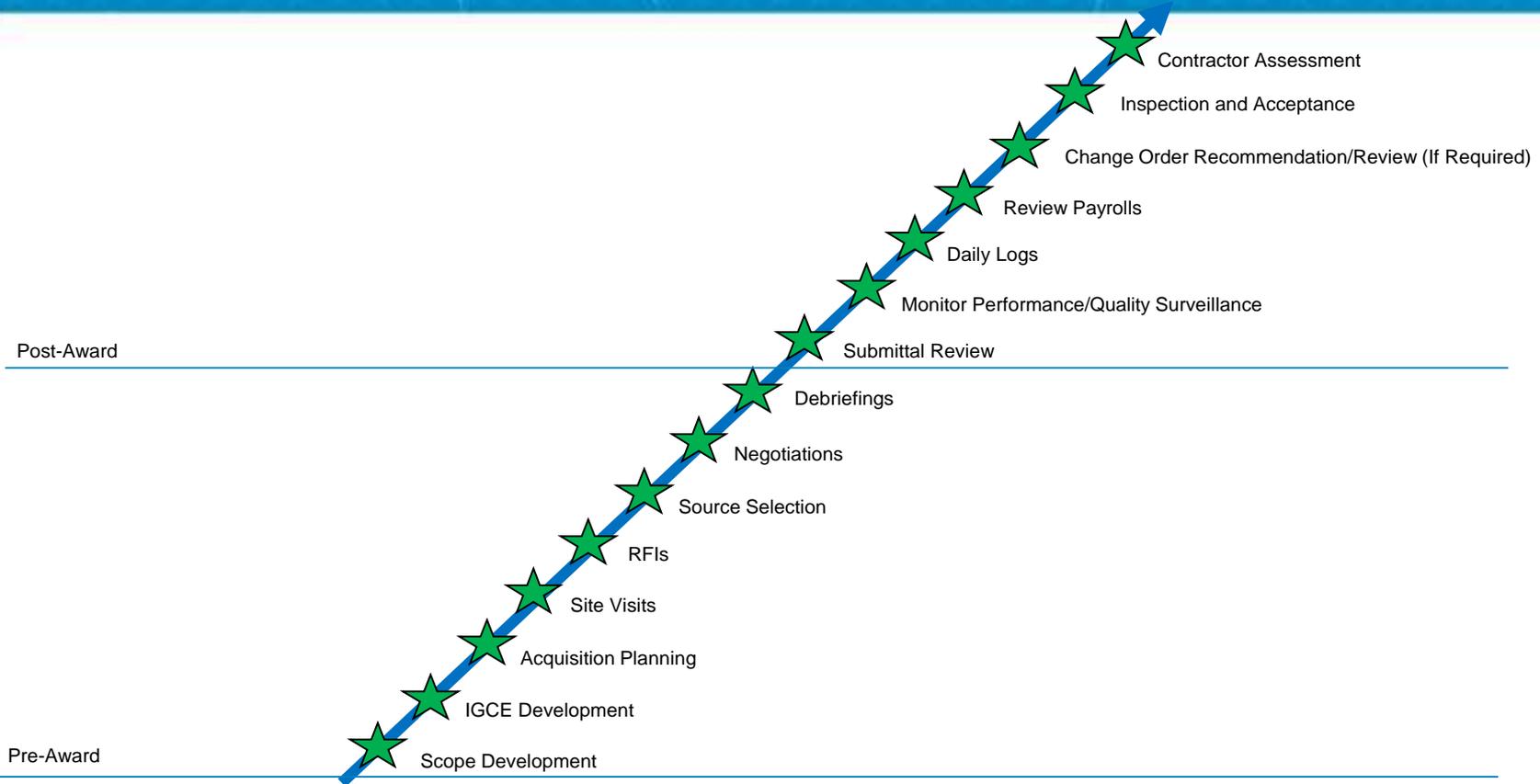
COR Levels for Contracts

Suggested Contract Dollar Value	Level I Certification Up to \$7M	Level II Certification >\$7M to \$20M	Level III Certification >\$20M
Contract Type/Complexity	Low risk contract awards – such as firm-fixed price or supply contracts	Moderate to complex contracts	Complex or major capital investment contracts
Experience Requirements	No experience required	1 year of experience required	2 years of experience required
Training Requirements	8 Hours	40 Hours	60 Hours

COR Training Requirements

- VA CORs are required to comply with the training requirements outlined in OFPP's "Revisions to FAC-COR" memorandum dated September 6, 2011 as required by VA Departmental Acquisition Career Manager (ACM) in Revision to FAC Policies VAIQ7706257 memorandum dated June 08, 2016.
- CORs must fulfill the training requirement for initial certification by completing the FAC-COR certification courses listed on VHA COR Training
- Supplemental Training (VHA Procurement Process)
- Assessing Official Representative (AOR). Level 2 and Level 3 CORs are required to complete Contractor Performance Assessment Reporting System (CPARS). Level 1 CORs are required to complete if serving as AOR

Typical Procurement Glide Path Requiring COR Support



Typical Delegated COR Duties (Pre-Award)

- | | |
|--|---|
| <ul style="list-style-type: none">• Scope Development<ul style="list-style-type: none">▪ Design Bid Build (AE Service)▪ Design Build (In House)• Costs<ul style="list-style-type: none">▪ IGCE▪ LCCA▪ Design To• Acquisition Planning (Assists in Determining)<ul style="list-style-type: none">▪ Delivery and Performance Requirements▪ Risk (Technical, Cost, Schedule)▪ Market Research▪ Source Selection Procedures/Evaluation Criteria▪ GFE/GFP Requirements▪ Environmental and Energy Conservation Objectives▪ Security Considerations• RFIs/Site Visits<ul style="list-style-type: none">▪ Facilitate Site Walk▪ Coordinate Responses To RFIs▪ Scope Adjustments (If Required)▪ Supplemental Information | <ul style="list-style-type: none">• Source Selection<ul style="list-style-type: none">▪ Source Selection Board Chair▪ Voting Members▪ Source Selection Board Report• Negotiations (Assists In Establishing)<ul style="list-style-type: none">▪ Negotiation Objectives▪ Discussion Points• Debriefings<ul style="list-style-type: none">▪ Debriefing Report▪ Attends Debriefings |
|--|---|

Typical Delegated COR Duties (Post-Award)

- Review and approve/reject submissions (design drawings, submittals, shop drawings, project schedule, schedule of values, invoices for payment, etc.)
- Monitor Contractor's performance.
- Furnish technical advice relative to Contracting Officer approval of subcontracts, overtime, travel to general purpose meetings, etc.
- Advise the Contracting Officer of changes in technical performance which may affect financial status, personnel or labor difficulties, over-extension of facilities, etc.
- Maintain a daily inspection report, during construction, to document your surveillance of the Contractor's performance, and direct appropriate action to be taken to effect correction.
- Review weekly-certified payrolls submitted by the prime and subcontractors.
- Conducting investigations to ensure the contractor is complying with the Wage Rate Requirements (Construction) (formerly Davis Bacon Act), Service Contract Labor Standards (formerly Services Contract Act of 1965), veteran owned business policies and other applicable labor statutes.
- Recommend in writing to the Contracting Officer any changes desired in the contract, with justification and Independent Government Cost Estimate (IGCE) for the proposed change.
- Evaluate proposals for and participate in negotiation of changes, modifications and claims at the request of the Contracting Officer.
- Assess Contractor's performance.

Kingdomware Decision

- Veterans Benefits, Health Care, and Information Technology Act 2006
 - mandatory set-aside where competition to be restricted to VOSB
 - “Rule of Two”; “fair and reasonable” cost/best value
 - VA established “Goals”
 - VA promulgates Regulations- excludes Federal Supply Schedule task/delivery orders
- Kingdomware Technologies Incorporated
 - Filed protest on VA award for Emergency Notification Service to FSS contractor
- *Kingdomware Techs., Inc. vs. United States, No. 14-916*
 - June 2016 “mutually binding obligations” is a “contract”
- Implications:
 - “100%”
 - Limited contractor pool; assumption- “qualified” unless proven otherwise
 - Engineering: Time, Costs, Engagement

VHA Human Resources Program

Speaker Introduction

Matthew Carpenter

- Director, VHACO Servicing HR Office (VSHO)
- Human Resources Operations Office (HROO)
- Workforce Management & Consulting Office (10A2A)
- Veterans Health Administration
- US Department of Veterans Affairs



Human Resources

Engineering Challenges

Engineering Overview – General Schedule

- General Schedule Positions
 - General Engineers (GS-801)
 - Safety Engineer (GS-803)
 - Architect (GS-808)
 - Civil Engineer (GS-810)
 - Environmental Engineer (GS-819)
 - Mechanical Engineer (GS-830)
 - Electrical Engineer (GS-850)
 - Biomedical Engineer (GS-858)
 - Industrial Engineer (GS-896)
 - Interior Design (GS-1008)

General Schedule Recruitment

- Recruitment Process
 - Follow Areas of Consideration in VA Policy/Bargaining Unit Agreements
 - Local Facility Employees
 - VA Candidates
 - Status Candidates
 - US Citizens
 - Qualification Requirements
 - Basic Education Requirement
 - Specialized Experience

General Schedule Recruitment Challenges

- Limited Internal Candidates
 - Local and VA candidates already serve in those positions.
 - Recruiting from another facility, weakens the VA overall.
- Status Candidates
 - Candidates from other federal Agencies are hard to find.
- US Citizens
 - Salaries are not comparable to private sector.
 - Limited pay flexibilities.
 - Veterans restrictions can make recruitment difficult.

General Schedule Recruitment/Retention

- Recruitment Incentives
 - Relocation
 - Limited package and doesn't address the salary deficiency.
 - Typically used for current Federal Employees.
 - Recruitment
 - Lump sum – helps to get an employee in the door, but that's it.
 - Above Minimum Entrance (AMER) – can help with the salary, but is limited by scale.
- Retention Incentives
 - Limited to 25% of overall salary (15% is typically max).
 - Difficult approval process.
 - Funds typically diverted to clinical occupations.

Engineering Overview – Wage Grade

- Wage Grade Positions
 - Electrician (WG-2805)
 - Laborer (WG-3502)
 - Mason (WG-3603)
 - Painter (WG-4102)
 - Pipefitter (WG-4204)
 - Plumber (WG-4206)
 - Carpenter (WG-4607)
 - Utility System Repairer/Operator (WG-4742)
 - AC Equipment Mechanic (WG-5306)
 - Heating and Boiler Plan Equipment Mechanic (WG-5309)

Wage Grade Recruitment

- Recruitment Process
 - Follow Areas of Consideration in VA Policy/BU Agreements
 - Local Facility Employees
 - VA Candidates
 - Status Candidates
 - US Citizens
 - Qualification Requirements – Job Elements
 - Standards are Out of Date
 - Limited HR experience in application
 - Requires significant SME involvement

Wage Grade Recruitment Challenges

- Limited Internal Candidates
 - Local and VA candidates already serve in those positions.
 - Recruiting from another facility, weakens the VA overall.
 - Apprentices Programs
- Status Candidates
 - Candidates from other federal Agencies are hard to find.
- US Citizens
 - Visibility of announcements.
 - Veterans restrictions can make recruitment difficult.
 - Limited applicant pools – interesting in the trades.

Wage Grade Recruitment/Retention

- Recruitment Incentives
 - Relocation
 - Limited package and doesn't address the salary deficiency.
 - Typically used for current Federal Employees.
 - Recruitment
 - Lump sum – helps to get an employee in the door, but that's it.
 - Above Minimum Entrance (AMER) – can help with the salary, but is limited by scale.
- Retention Incentives
 - Limited to 25% of overall salary (15% is typically max).
 - Difficult approval process.
 - Funds typically diverted to clinical occupations.

Wage Grade Recruitment/Retention (cont.)

- Special Pay Tables
 - Locally developed pay tables to ensure salaries are in line with local market conditions.
 - Must be reviewed annually.
 - Approved by OPM.
 - Can be used for all occupations.
- Work Stability – lack of marketing
 - Federal work offers stability many private sector companies don't provide.
 - Pay and benefits.



Human Resource Questions?

VHA Human Resources Operational Considerations

Recruitment and Retention

- Local Recruitment Approval Process
- Announcing and Advertising Positions
- Screening and Referral
- Interviews and Selections
- Turnover Rate and Speed of Hire are variables in staffing levels
- Contributes to overtime costs
- Data on turnover included in workforce succession plan

VHA Human Resources Program Operational Considerations

Performance Management

- Formal documented process
- Communicate plan and Standards
- Ongoing Assessment
- Mid-term Review
- Improvement plans when warranted
- Annual Rating of Record
- Recognition Awards

Competency Assessments

- Initial and Ongoing
- Formal Documented process

VHA Human Resources Program Operational Considerations

Disciplinary and Adverse Actions

- Prescriptive regulated process
- Progressive in nature
- Right of Representation
- Subject to appeals
- Very time consuming process for management

Employee Rights

- EEO
- Whistleblower
- Union Master Agreements



TECHNICAL CAREER FIELD (TCF) TRAINING PROGRAM

For Engineering And Boiler Plant Operators

TECHNICAL CAREER FIELD (TCF) Training Program

- ❖ The Technical Career Field (TCF) Training Program for Engineering is comprised of:
 - General Engineer GS -801 (Emphasis on becoming a Chief Engineer)
 - Boiler Plant Operator, WG – 5402 and Utility Systems Repair/Operator, WG – 4742
- ❖ Each program has:
 - Individualized Personal Development (IDP) Plan
 - predetermined mandatory training events
 - Training funds are provided

TECHNICAL CAREER FIELD (TCF) Training Program – General Engineer

General Engineer, GS-801:

- VA hires recent college graduates with a variety of engineering degrees.
- Engineers with bachelor degrees typically enter the program as a GS-7, and those with master's degrees enter the program as a GS-9.
- After two years most engineers leave the program at the GS-11 level.
- The TCF Program is designed for VA facilities management Interns to participate in a personalized learning plan tailored to each trainee's specific career goals (e.g., specializing in a specific engineering discipline among facilities management staff).

TECHNICAL CAREER FIELD (TCF) Training Program – General Engineer

- After two years in the TCF Program engineers move into permanent positions as either GS-9 or GS-11
- These individuals will typically advance within their occupation specific focus area e.g., from Intern to Staff, to Assistant Chief, and then to Chief Engineer.
- These high performing VA facilities management staff, are informally mentored, coached, and developed into an Assistant Chief Healthcare Engineer, and potentially a Chief Healthcare Engineer.
- According to the participants, those that aspire to become a Chief Engineer can do so, once they become a GS-12 and demonstrate proficiency in Chief Healthcare Engineer competencies.

TECHNICAL CAREER FIELD (TCF) – Boiler Plant Operator Apprentice Program

Boiler Plant Operators/Utility Systems:

- VA hires candidates with a high school diploma and they meet some basic requirements in mechanical aptitude or have had technical training through military, trade schools, etc.
- Boiler apprentices normally enter the program at the WG-5 level.
- Apprentice's leave the program after 2 years at the WG – 9 level.

TECHNICAL CAREER FIELD (TCF)

Number of Training Positions Available		
Year	Engineers	Boiler Plant Operators
2018	18	10
2017	18	10
2016	12	5
2015	13	3

This program only fills a small number of VHA vacancies each year, so many engineers and Boiler Operators are hired outside of this program.

General Engineering - Turn-Over Rates

	2014	2015	2016	2017	2018*
VA Total Loss Rate	8.57%	13.70%	13.35%	12.68%	10.56%
VA Quit Rate	5.62%	7.56%	9.35%	7.16%	6.85%
Retire Rate	2.67%	5.29%	3.43%	4.55%	2.66%
Termination Rate	0.29%	0.76%	0.19%	0.87%	0.76%
Termination Numerator	3	8	2	9	8
VA Quit Numerator	59	80	98	74	72
Retire Numerator	28	56	36	47	28
VA Total Loss Numerator	90	145	140	131	111
Onboard Employee Avg	1,049	1,058	1,048	1,033	1,051

* Partial Year

Utility System Repair-Operating WG 4742 Series – Turn Over Rate

	2014	2015	2016	2017	2018*
VA Total Loss Rate	8.36%	13.21%	10.55%	8.27%	10.71%
VA Quit Rate	0.81%	3.58%	2.16%	2.00%	4.23%
Retire Rate	6.47%	9.08%	6.76%	4.51%	4.98%
Termination Rate	1.08%	0.28%	1.62%	1.00%	0.75%
Termination Numerator	4	1	6	4	3
VA Quit Numerator	3	13	8	8	17
Retire Numerator	24	33	25	18	20
VA Total Loss Numerator	31	48	39	33	43
Onboard Employee Avg	370.8	363.3	369.7	399.3	401.6

*Partial Year

Boiler Plant Operator WG-5402 Series – Turn Over Rate

	2014	2015	2016	2017	2018*
VA Total Loss Rate	11.00%	9.13%	6.72%	7.95%	7.54%
VA Quit Rate	2.06%	1.87%	2.64%	2.65%	1.41%
Retire Rate	8.02%	6.79%	2.88%	3.85%	4.24%
Termination Rate	0.46%	0.47%	1.20%	1.45%	1.41%
Termination Numerator	2	2	5	6	6
VA Quit Numerator	9	8	11	11	6
Retire Numerator	35	29	12	16	18
VA Total Loss Numerator	48	39	28	33	32
Onboard Employee Avg	436.3	427	416.4	415.1	424.4

*Partial Year

TECHNICAL CAREER FIELD (TCF)



VHA Policies and Standards, Above and Beyond

- Boiler Plant Operations VHA Directive 1810 dated February 6, 2017
- Legionella VHA Directive 1061 dated August 13, 2014
- SPS VHA Directive 1116(2) dated March 23, 2016
- Safety and Health During Construction VHA Directive 7715 dated April 6, 2017
- Electrical Power Distribution Systems, VHA Directive 1028, dated July 24, 2014
- Physical Security Design Manuals, dated January 2015
- Women's Health Program, VHA Directive 1330.01(1), Health Care Services for Women Veterans, dated February 15, 2017

Internal Audits, Site Visits, and Surveys

Mandatory Training

VHA Policies and Standards, Above and Beyond Boiler Plant Operations VHA Directive 1810

Department of Veterans Affairs
Veterans Health Administration
Washington, DC 20420

VHA DIRECTIVE 1810
Transmittal Sheet
February 6, 2017

BOILER AND BOILER PLANT OPERATIONS

- 1. REASON FOR ISSUE:** This Veterans Health Administration (VHA) directive establishes the policy on the safe operation of boilers and boiler plants.
- 2. SUMMARY OF MAJOR CHANGES:** This updated directive adds responsibilities for the VHA Office of Capital Asset Management, Engineering and Support Director.
- 3. RELATED ISSUES:** VHA Directive 1028, VHA Directive 7701, VHA Handbook 7701.01.
- 4. RESPONSIBLE OFFICE:** The Director, Office of Capital Asset Management, Engineering and Support (10NA5), is responsible for the contents of this directive. Questions may be addressed to 202-632-8571.
- 5. RESCISSIONS:** VHA Directive 2008-062, dated October 15, 2008, and VHA Directive 2010-031, dated June 22, 2010, are rescinded.
- 6. RECERTIFICATION:** This VHA directive is scheduled for recertification on or before the last working day of February 2022. The VHA directive will continue to serve as national VHA policy until it is recertified or rescinded.

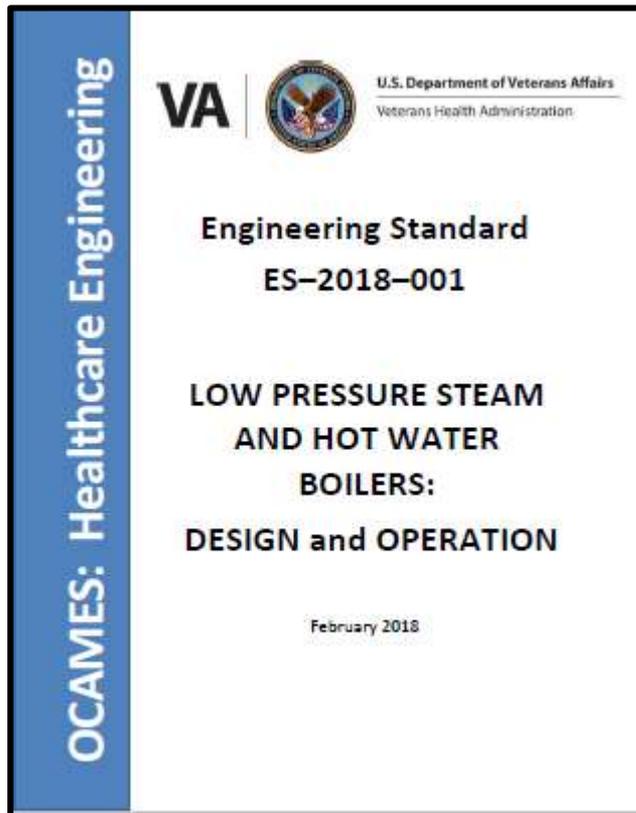
David J. Shulkin, M.D.
Under Secretary for Health

DISTRIBUTION: Emailed to the VHA Publications Distribution List on February 13, 2017.

VHA Policies and Standards, Above and Beyond Boiler Plant Operations VHA Directive 1810

- Steam, space heating and cooling, hot water (for sanitation, food production and preparation, infection control), heat for process equipment, and a healthful environment for the delivery of healthcare
- Requires the presence of a qualified operator in the boiler plant 24 hours a day, 7 days a week, and all other locations outside the boiler plant having decentralized boilers (operating at high pressure >15psig)
- Supervision by a foreman or leader qualified in boiler plant operations
- Availability of equipment specific operational and maintenance procedures
- Inspection and testing must be conducted and documented as defined in the VHA Boiler Plant Safety Device Testing Manual
- The VA medical facility shall utilize a qualified third-party review to perform the required annual testing at least once annually
- Compliance assessed and reported quarterly

VHA Policies and Standards, Above and Beyond Boiler Plant Operations VHA Directive 1810



- Low Pressure Boilers also require continuous monitoring
- Low Pressure Boilers require an operator on premises available to respond to alarms or trouble conditions
- Rounds must be every four hours by qualified operator
- If operator is not present at equipment, remote monitoring required at 24X7 staffed location
- Inspection and testing similar to High Pressure Boilers

VHA Policies and Standards, Above and Beyond Legionella VHA Directive 1061

Department of Veterans Affairs
Veterans Health Administration
Washington, DC 20420

VHA Directive 1061
Transmittal Sheet
August 13, 2014

PREVENTION OF HEALTHCARE-ASSOCIATED *LEGIONELLA* DISEASE AND SCALD INJURY FROM POTABLE WATER DISTRIBUTION SYSTEMS

- 1. REASON FOR ISSUE:** This Veterans Health Administration (VHA) Directive addresses the prevention of healthcare-associated *Legionella* Disease and Scald Injury from Potable Water Distribution Systems in VHA buildings.
- 2. SUMMARY OF CONTENTS:** This Directive establishes policy for the prevention and control of healthcare-associated *Legionella* disease in VHA-owned buildings in which patients, residents, or visitors stay overnight.
- 3. RELATED ISSUES:** None.
- 4. RESPONSIBLE OFFICE:** The Deputy Under Secretary for Health for Operations and Management (10N) is responsible for the contents of this Directive. Questions related to the engineering aspects of this Directive are to be directed to the Office of Capital Asset Management, Engineering, and Support (10NA5) at 202-632-7900. Questions related to clinical aspects and validation processes in this Directive are to be directed to the National Infectious Diseases Service (10P4E) in the Office of Patient Care Services (10P4) at 513-246-0270.
- 5. RESCISSIONS:** VHA Directive 2008-010, dated February 11, 2008, VHA Directive 2009-009, dated February 25, 2009, and Information Letter 10-2013-006, dated May 3, 2013 are rescinded.
- 6. RECERTIFICATION:** This VHA Directive is scheduled for recertification on or before the last working day of August 2019.

Carolyn M. Clancy, MD
Interim Under Secretary for Health

DISTRIBUTION: E-mailed to the VHA Publications Distribution List on 08/15/2014.

VHA Policies and Standards, Above and Beyond *Legionella* VHA Directive 1061

- Establishes policy for the prevention and control of healthcare-associated *Legionella* disease in VHA-owned buildings in which patients, residents, or visitors stay overnight. These types of buildings include, but are not limited to, acute care facilities, Community Living Centers (CLCs), domiciliaries, and Fisher Houses and other temporary lodging facilities (e.g. “hoptels”). **AUTHORITY:** 38 U.S.C. 7301(b)
- *Legionella* growth in building potable water distribution systems is primarily suppressed by the implementation of engineering controls such as maintenance of appropriate water temperatures or biocide (e.g. residual oxidant) levels
- Medical facility Director must certify that each building subject to this Directive has a written HCA LD prevention plan, approve the initial plan(s), and recertify annually thereafter
- Each building subject to this Directive conducts at least quarterly environmental water testing for *Legionella*, submits the results to the VISN Director, and enters results into national Water Safety Tool

VHA Policies and Standards, Above and Beyond Legionella VHA Directive 1061

- The Chief Engineer has a significant role in the water safety program.
- Ensures that the maintenance of appropriate water temperatures in the hot and cold potable water distribution system(s)
- Documenting the implementation and monitoring of temperature limits in the hot and cold potable water distribution systems (e.g., hot water tanks, if used, circulating water in the distribution systems, and at the outlets),
- Continuous monitoring of incoming water quality entering building(s) (from municipal or central plant sources)
- Ensuring unused water branch lines and dead-legs are removed and capped at the main supply/recirculation supply lines to limit stagnation

VHA Policies and Standards, Above and Beyond *Legionella* VHA Directive 1061

- Documentation of the facility's policy for biocide concentration levels in the hot and cold potable water distribution systems. This includes documentation of minimum and maximum biocide levels, allowable disinfection byproduct levels, biocide monitoring method and frequency, and any other requirements
- Conducting Infection Control Risk Assessments in cooperation with other facility stakeholders to address the potential impact of construction and maintenance of water systems
- Providing the Facility Water Safety Committee, Safety Committee, and Infection Control Committee with an annual report of the water system maintenance and monitoring and any *Legionella* mitigation actions taken

VHA Policies and Standards, Above and Beyond, SPS VHA Directive 1116

Department of Veterans Affairs
Veterans Health Administration
Washington, DC 20420

VHA DIRECTIVE 1116(2)
Transmittal Sheet
March 23, 2016

STERILE PROCESSING SERVICES (SPS)

1. REASON FOR ISSUE: This Veterans Health Administration (VHA) Directive provides procedures for the decontamination, high-level disinfection (HLD), and/or sterilization of critical and semi-critical reusable medical instruments and equipment and storage of items reprocessed in the Department of Veterans Affairs (VA) medical facilities.

2. SUMMARY OF CONTENT: This is a new VHA Directive that combines the policy and responsibilities of the SPS program previously contained in multiple VHA Directives. Specifically this VHA Directive:

a. Provides specific requirements for the organizational structure charged with oversight responsibilities for reprocessing specified reusable medical equipment (RME) at the Veterans Integrated Service Network (VISN) and medical facility levels.

b. Includes specific guidance for the standardization of equipment types and for ensuring that reprocessing requirements are met.

c. Defines standards that are to be applied anywhere sterile processing or HLD occurs in VA facilities.

d. Provides specific requirements for environmental controls for Sterile Processing Services.

3. RELATED ISSUES: None.

4. RESPONSIBLE OFFICE: The National Program Office for Sterile Processing (10NC6) is responsible for the content of this Directive. Questions may be addressed to VHASPSHSS@VA.GOV.

VHA Policies and Standards, Above and Beyond, SPS VHA Directive 1116

- Sterile Processing Services
- HVAC System design per VHA HVAC Design Manual
- Inspect and maintain HVAC per established standards
- Continuous temperature and humidity monitoring and control
- Documented air flow testing, minimum annual.
- Results reported to SPS

VHA Policies and Standards, Above and Beyond, VHA Directive 7715, Safety and Health During Construction

Department of Veterans Affairs
Veterans Health Administration
Washington, DC 20420

VHA DIRECTIVE 7715
Transmittal Sheet
April 6, 2017

SAFETY AND HEALTH DURING CONSTRUCTION

- 1. REASON FOR ISSUE:** This Veterans Health Administration (VHA) directive establishes policy for maintaining a safe and healthy worksite for staff, patients, volunteers, visitors, contractors, and the general public during construction and renovation-related activities.
- 2. SUMMARY OF MAJOR CHANGES:** Major changes are as follows:
 - a. Removes responsibilities previously assigned to the Director, Office of Construction and Facilities Management.
 - b. Revises responsibilities for:
 - (1) Office of Capital Asset Management, Engineering and Support (10NA5).
 - (2) Office of Occupational Safety, Health and Green Environmental Management System (GEMS) Programs (10NA8).
 - (3) Occupational Health, Office of Patient Care Services (10P4Z).
 - (4) Contracting Officer, Contracting Officer's Representative or Project Engineer.
- 3. RELATED ISSUES:** VHA Directive 7701, Occupational Safety and Health (OSH).
- 4. RESPONSIBLE OFFICE:** The Deputy Under Secretary for Health for Operations and Management (10N) is responsible for VHA programs related to this directive. The point of contact for technical and program issues related to this directive is the Director, Office of Occupational Safety, Health and GEMS Programs (10NA8) at 202-632-7889.

VHA Policies and Standards, Above and Beyond, VHA Directive 7715, Safety and Health During Construction

- Establishing and monitoring an effective facility construction safety program using a construction safety committee chaired by a member of management, or designee, composed of a Multi-disciplinary Team with representatives from the following program areas: Infection Prevention and Control, Patient Safety, Occupational Safety and Health, VA Police, Engineering (Facilities Management), Engineering (Project Management), GEMS, Local Union Representatives, CSO, and Contracting
- Developing and implementing a written policy addressing the responsibilities of the Multi-disciplinary Team and establishment of a Construction Safety Committee Protection of patients, visitors, and employees from injury and illness, as well as occupational and nosocomial infections related to construction activities
- Compliance with Federal and state EPA and OSHA regulations
- Compliance with FAR and VAAR in addressing a contractor's construction safety program.

VHA Policies and Standards

Safety and Health During Construction

- Ensuring that VHA Chief Engineers, Contracting Officer Representative's (COR's), Construction Safety Officer's (CSO's), Project Engineers, Project Lead Persons and Facility Safety Program Managers complete either the VHA or OSHA 30-hour Construction Safety training and, as a refresher, subsequently complete at least 10 hours of construction safety related training every 2 years
- Determining the scope and depth of safety, infection control, emergency management, and security responsibilities as appropriate for all construction work
- Familiarizing themselves with the contract requirements for project safety and confirming compliance with applicable regulations, standards, and policies during the construction phase of the work

VHA Policies and Standards

Safety and Health During Construction

- Conducting pre-construction risk assessments during the design or planning stage of the construction and/or renovation project and preparing written documentation of identified risks. Pre-construction risk assessments need to be conducted prior to bidding, award, and starting work
- Participating in all phases of construction work from planning through completion
- Ensuring the Construction Safety Program includes periodic construction site hazard surveillance activities with appropriate membership, scope, and frequency

VHA Policies and Standards, Above and Beyond, Electrical

- National Codes and Standards set higher requirements for electrical systems in healthcare facilities than general construction. Additional requirements can be found, for example, in NFPA 70, Art. 517; NFPA 99, Chapter 6, and NFPA 101 and NFPA 110/111.
- VA sets additional requirements in:
 - Design Guides and Manuals;
 - Specifications; and
 - VHA Directive 1028, *Electrical Power Distribution Systems*
- Moreover, VA enforces (more than most) requirements of recurring maintenance and testing of electrical equipment (e.g. per NFPA 70B, NFPA 99, NFPA 101, and NFPA 110) as well as requiring adherence to NFPA 70E. Personnel will require additional time in the performance of these tasks.

VHA Policies and Standards, Above and Beyond, Physical Security

- VA requirements exceed that generally used in conventional, private sector construction;
- Some leases are required to follow the Interagency Security Committee (ISC) Risk Management Process (RMP);
 - Time and effort is required to perform the analysis needed to perform the RMP;
 - Most effort would be required by Projects Section staff;
- The vast majority of construction follows the VA's Physical Security Design Manual (PSDM). These standards represent a significant increase over standard construction.
 - Time and effort is required to perform the analysis needed to perform the RMP;
 - Most effort would be required by Projects Section staff;
 - Some limited impact on Operations staff (e.g. locking of doors, gates, increased maintenance and testing, etc)

Healthcare Engineering Breadth and Scope

Administration	Correspondence	HAZMAT	National Committee Representation	Retro/Re-Commissioning
Air Quality Compliance	Dept. Staff Education and Training	Heritage Asset Management	National Disaster Medical System Support	Risk Management
As-Built Drawings Maintenance	Employee Mentoring	Historic Preservation	National Incident Management System Support	Service Administration
Bio-medical Equipment Testing	Energy Management	Housekeeping	National Service Contracts	Space Management
Budgeting- Departmental	Engineering Program Leadership	Human Resource Management	National VA Policy Management	Statutory Compliance
Building Alarm Systems	Enhanced Use Leasing	Industrial Hygiene	NBC Decontamination	Strategic Planning
Building Control Systems	Environment of Care (Rounds)	Infection Control	NEPA Assessments	TCF Education and Training
Building Repairs	Environmental Compliance	Information & Data Management	Network Committee Representation	Technical Consults
Building Systems Commissioning	Environmental Remediation	Information Security	Network Service Contracts	Technical Security Infrastructure
Building Systems Maintenance	Equipment Commissioning	Interior Design	Network VHA Policy Management	Technology Integration
Capital Planning	Equipment Logistics	Inventory-Supply Acquisitions	Occupational Safety	Tele-Communications Infrastructure
Code Compliance	Equipment Maintenance	Leadership	Operational Testing of Building Systems	TJC Accreditation
College of American Pathologists Accreditation	Equipment Repairs	Lease Management	Operational Testing of Equipment	UFAS Compliance
Commission on Accreditation of Rehabilitation Facilities Accreditation	Equipment Security	Life Safety	Patient Lift Systems	Utility Plant Operations/Mgmt.
Computer Aided Facility Management Systems (CAFM)	Executive Orders (E.O.) Compliance	Local Committee Representation	Performance Measures and Reporting	VA Fire Department
Computerized Maintenance Management Systems (CMMS)	Expert Testimony	Local Contract Management	Physical Security	VA Policy Compliance
Condition Assessments	Facility Database Management	Local Move Management	Post Occupancy Evaluation	Vertical Transportation
Construction Design Standards	Finance and Accounting	Local Policy Management	Preventive Maintenance	VHA Policy-Manuals Compliance
Construction Project Acquisition	Fire Alarm Systems	Local Service Contracts	Program Consults	Warehousing Operations
Construction Project Activation Process	Fire Suppression Systems	Local VA Policy Management	Program Liaison	Water Quality Compliance
Construction- Purchase & Hire (P&H)	Fleet Management	Mail Delivery	Project Cost Estimating	Way finding
Construction Safety	Functional Needs Assessments	Management and Conflict Resolution	Project Design Management	Work Order Planning
Construction Services Management	Furniture Management	Medical Equipment Maintenance	Project Management	Work Flow Assessments & Development
Construction- VA Staff	General Safety	Medical Equipment Repair	Records Management	
Contingency Space Management	Grounds Maintenance	Medical Mission Support	Recycling	
COOP Logistics & Support	Hazardous Waste	Medical Waste	Regulatory Compliance	



Chief Engineer Major Duties, Responsibilities, and Competency

VHA Healthcare Engineer Duties, Qualifications & Competencies

- Overview of VHA Healthcare Engineer Roles and Responsibilities
- American Hospital Association(AHA)/American Society of Healthcare Engineering (ASHE) – Primary Job Responsibilities for Healthcare Facility Managers
- VHA Healthcare Engineer Competencies and Activities

Veterans Health Administration— Chief Engineer

The VHA Healthcare Chief Engineer is an expert in at least one of the required engineering disciplines and competent in most of the others: civil, electrical, mechanical, biomedical, environmental, architectural, and safety engineering.

Typical VHA Healthcare Engineer Career Progression

➤ **Entry-Level**

- Technical Career Field (TCF) Intern

➤ **Staff Engineer**

- Project Engineer
- Maintenance and Operations
- Energy Engineer
- Biomedical Engineer
- Environmental Engineer (GEMS)
- Safety/Fire Protection Engineer

➤ **Engineering Section Supervisory**

- Projects
- Biomedical/Healthcare Technology Management (HTM)
- Maintenance and Operations

➤ **Assistant /Associate/Deputy Chief Engineer**

Typical VHA Healthcare Engineer Career Progression

- **Chief Engineer/Director Facilities Management**
- **VISN**
 - VISN Engineer
 - Capital Asset Manager (CAM)
- **VHACO Program Office**

AHA/ASHE - Healthcare Facility Manager Primary Job Responsibilities

- **5 Main Focus Areas:**
 - Maintenance and Operations
 - Code Compliance
 - Planning, Design, and Construction (PDC)
 - Finance Management
 - Administration

American Hospital Association—Definition of a Healthcare Facility Manager,
page 2:

<http://www.ashe.org/annual/app/chfm-handbook-170718.pdf>

Veterans Health Administration— Chief Engineer Competencies

- **VHA Competencies (8 Areas):**
 - Interdisciplinary Engineering Coordination and Integration (Systems Thinking)
 - Facility Maintenance and Operations Management
 - Construction Development, Management, and Oversight
 - Healthcare Facility Engineering Program Administration
 - Healthcare Regulatory, Safety, and Accreditation Compliance
 - Strategic Planning
 - Technical Personnel Supervision
 - VA Inter-Administration Stakeholder Collaboration

Chief Engineer Competencies

Interdisciplinary Engineering Coordination and Integration (Systems Thinking):

- Leadership of multiple engineering functions, systems, and technologies
- Oversee operational processes and practices supporting continued accreditation and VA standards
- Coordinate facility's infrastructure needs with all medical center services.

Chief Engineer Competencies

Facility Maintenance and Operations Management:

- Planning, coordination, and control of building systems and engineering program services
- Continuous improvement of facility infrastructure
- Advance planning and mitigation to minimize the possibility of an untoward, damage-inflicting event.
- Identifying risks associated with medical equipment, utility systems, and the general physical environment
- Creating or supporting programs to ensure the hospital manages and maintains fire safety equipment and fire safety building features

Chief Engineer Competencies

Construction Development, Management, and Oversight:

- Oversee the design, planning, and execution of all facility construction and equipment installation projects
- Coordination among designers, contractors, and stakeholders for project planning and management
- Responsible for ensuring projects are executed against the approved specifications and within accepted quality

Chief Engineer Competencies

Healthcare Facility Engineering Program Administration:

- Oversees integrated healthcare facility engineering program
- Responsibility for preventative and corrective maintenance programs
- Contributes to an exceptional Environment of Care
- Emergency Management Planning and Preparedness
- Mission Act Training Requirements

Chief Engineer Competencies

Strategic Planning:

- Support facility planning and implementation to achieve goals and objectives
- Represents the facility's budget, operations, and engineering systems and infrastructure resiliency to planning functions
- Establishing parameters in support of project scope development, ensuring alignment with master plan/Strategic Capital Investment Planning program (SCIP) and Departmental objectives, goals, policies, and standards
- Providing leadership with counsel and advice on all matters related to the facilities/healthcare engineering program and services

Chief Engineer Competencies

Healthcare Regulatory, Safety, and Accreditation Compliance:

- Establishes and maintains a safe, functional environment (VA/VHA, TJC, other requirements)
- Correct deficiencies or improve programmatic practices
- Enforcing standards and providing guidance on rules, regulations, and codes
- Supporting facilities in all aspects of regulatory, statutory, and safety compliance to maintain healthcare facilities accreditation

Chief Engineer Competencies

Healthcare Regulatory, Safety, and Accreditation Compliance (continued):

- Codes, Regulations, Accreditations, etc.
 - Legal (e.g. ADA, HIPPA)
 - Regulatory (e.g. OSHA, NFPA, Building Codes)
 - Accreditation Standards (e.g. TJC, CARF, CAP)
 - VHA Guidance and Policies
- Managing hazardous materials/waste and associated risk

Chief Engineer Competencies

Technical Personnel Supervision:

- Management and oversight of competent, engaged engineering and maintenance workforce
- Ensure that staff receive the necessary training, resources, and oversight
- Model accountability and professionalism through own actions and works to instill a sense of purpose and ownership for the work and the environment of care
- Managing human capital functions including hiring, firing, succession planning and employee development and performance assessments

Chief Engineer Competencies

VA Inter-Administration Stakeholder Collaboration:

- Manage multiple stakeholder groups in the coordination of facility initiatives, activities, and day-to-day operations
- Understand the functions, objectives, and processes of the medical center's clinical, research, and patient services
- Develop and champion creative solutions to improve patient care and the healthcare delivery environment
- Facilitating stakeholder understanding of clinical program desires and engineering, technical, facility, and infrastructure requirements and capabilities

Certifications – Available for Chief Engineers

Certified Healthcare Facility Management (CHFM):

- Certification Maintained by the American Hospital Association
- Relatively common certification among VA Chief Engineers
- Eligibility includes Educational requirements, as well as supervisory/administrative/management experience in a healthcare environment

Facility Program/Project (FAC – P/PM)

- Federal Acquisition Certification for Program and Project Management – This is for government employees
- Many Chief Engineer are certified in FAC – P/PM

Certifications – Available for Chief Engineers

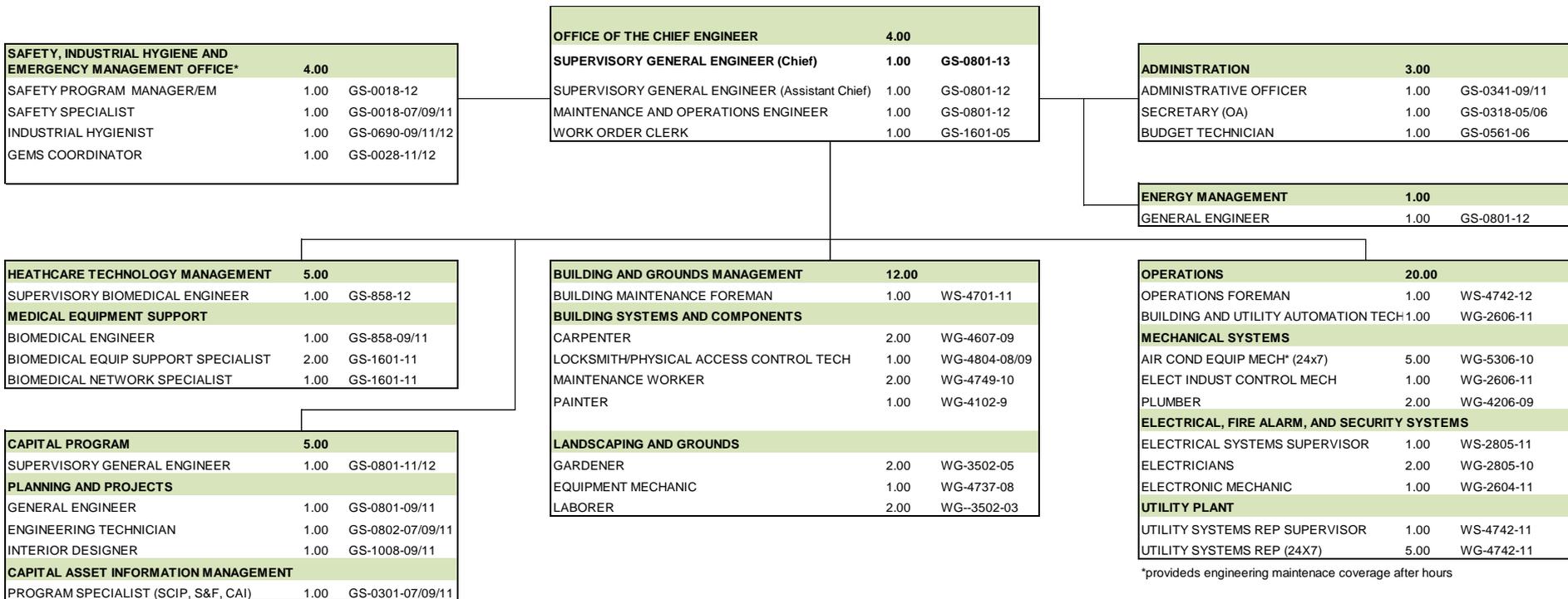
- Principles and Practice for Engineering (PE)
- Mission Act
- Certified Energy Manager (CEM)
- Green Building Engineer (GBE)
- Certified Lighting Efficiency Professional (CLEP)
- Certified Building Commissioning Professional (CBCP)
- Certified Power Quality Professional (CPQ)
- Facilities Management Certificate (FMC)
- Leadership in Energy and Environmental Design (LEED)
- Certified Healthcare Facility Management (CHFM)
- Certified Construction Specifier (CCS)
- Certified Plant Maintenance Manager (CPMM)
- Systems Maintenance Administrator(SMA)

Questions?



Model Organizational Chart

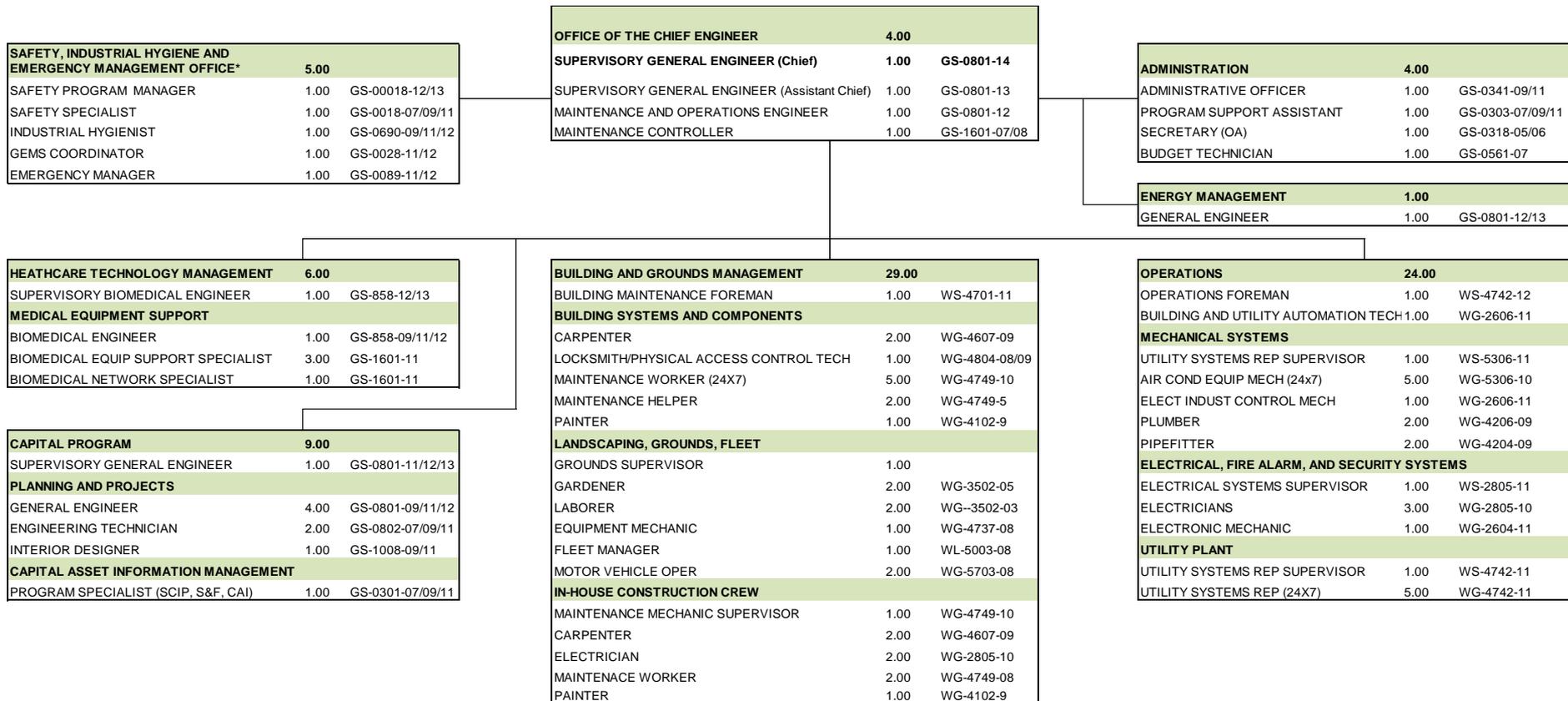
Small, Complexity Level 3 VA Medical Center



Working Draft Pre-Decisional Deliberative Document

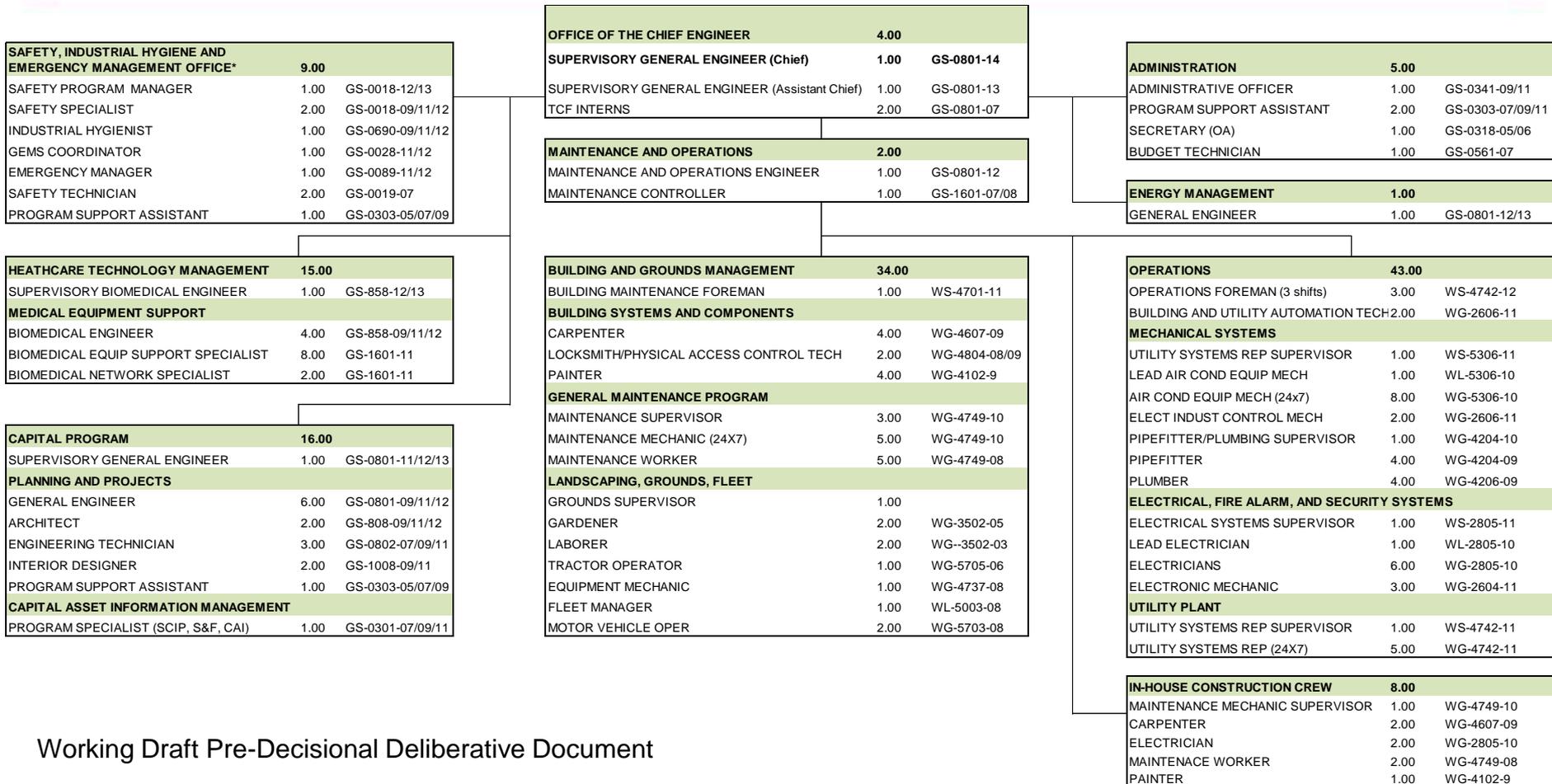
Model Organizational Chart

Medium, Complexity Level 2 VA Medical Center



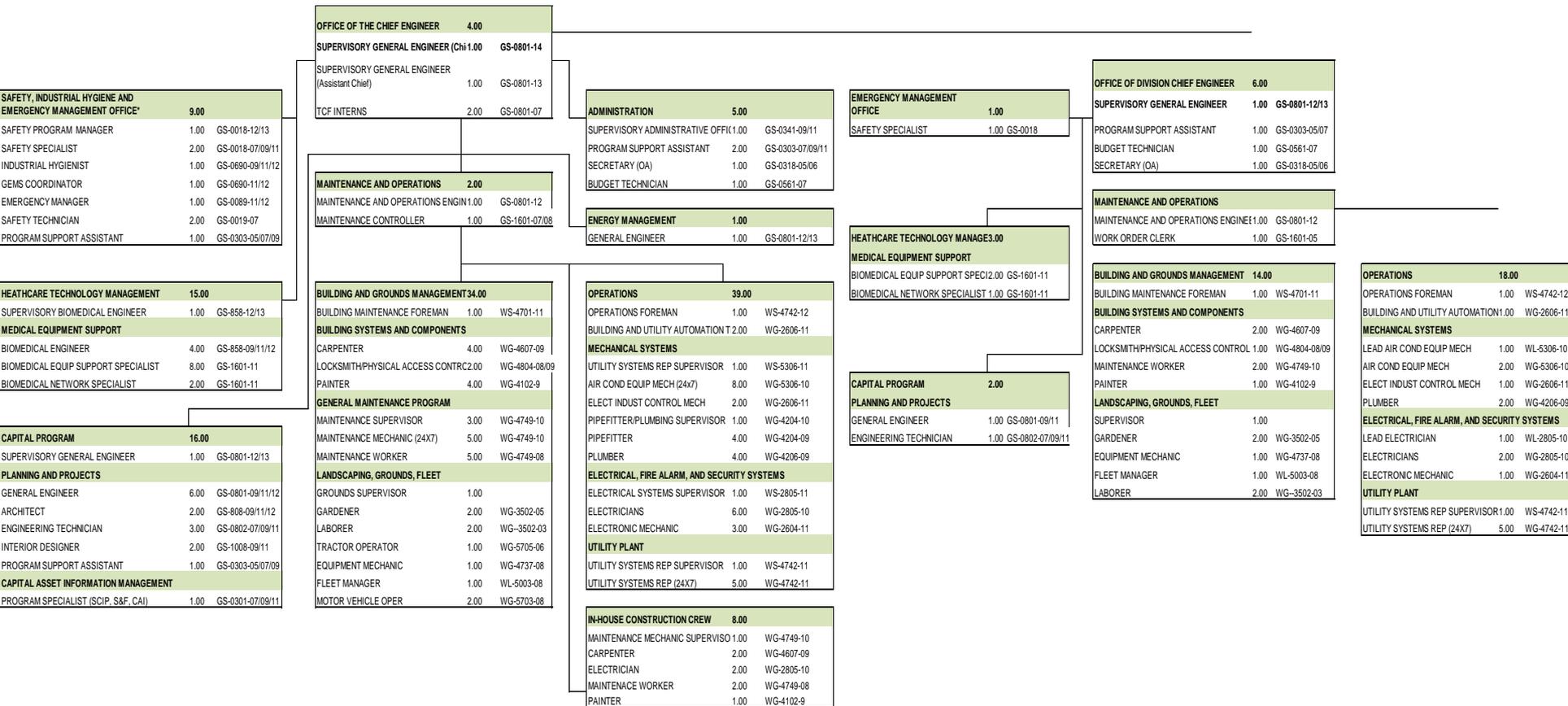
Model Organizational Chart

Large, Complexity Level 1 VA Medical Center



Working Draft Pre-Decisional Deliberative Document

Model Organizational Chart Multi-Division VA Health Care System



Working Draft Pre-Decisional Deliberative Document



Prior Staffing Study Overview

A Contrast In Objectives

Don L. Wainwright, 10NA5 Compliance Engineer

Prior Staffing Study Overview

- ❑ Initial study focused exclusively on an FTE/Square Footage staffing model based on assessment of previous private sector and DoD clients.
- ❑ The analysis was predicated on the concept that the lower the ratio, the more efficient the staffing model.
- ❑ Factors associated with size, complexity, workload, geographical context, and facility age were not considered.

DoD & Private Sector FTE/Square Foot Staffing Model Underlying Assumptions

- ❑ DoD and Private Medical Facilities utilize service contracts or purchase cards almost exclusively to accomplish work. In house FTE function for the most part as Work Order Clerks. Only basic tasks associated with unskilled labor are performed by in house staff.
- ❑ No predictive maintenance strategy. Usually a run-to-fail philosophy of “fix it when it breaks”.
- ❑ Very few if any maintenance policies or SOP’s. Work is limited to the Statement of Work in the contract or purchase order.

FTE/Square Footage Model and Incompatibility with Intermodality of VA Operations

A critical mission function of the VA is to provide backup healthcare operations to DoD in exigent circumstances. VA Staff are required to function in multiple (**intermodal**) roles.

- Varied roles in emergent situations/conditions.
- Fire Safety preparation and response.
- Continuous preparation and readiness for multiple accreditation entities such as OIG, TJC, OSHA, EPA, NRC, VACO and VISN.
- Capital support process and in house construction teams.
- Predictive maintenance planning to augment capital processes and extend useful life of building equipment and systems.
- Regional support roles for other VA facilities.

