VHA Facility Benchmarking Study

Methodology and Findings

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The National Academies of SCIENCES ENGINEERING MEDICINE

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Agenda

- Introduction
- Research Objective
- Data Collection & Analysis
- Discussion

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- Group of researchers and educators
- Integrated with all parties (owners & vendors)
- Developed tools & hands-on support:
  - Organizational Transformation
  - Procurement & Sourcing
  - Risk-based Partnering & Contracting
  - Project & Risk Management
  - Performance Measurements
- Become a Client (or Vendor) of Choice

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Arizona State University

THE UNIVERSITY OF KANSAS

UNC CHARLOTTE

The UNIVERSITY of OKLAHOMA

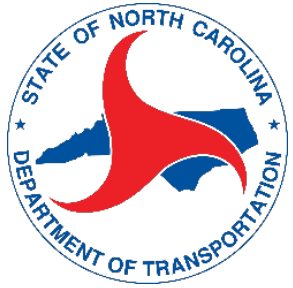
WASHINGTON STATE UNIVERSITY

WESTERN ILLINOIS UNIVERSITY

BRIGHAM YOUNG UNIVERSITY

TEXAS A&M UNIVERSITY

Current & Recent Partners



20+ Years | 150+ Organizations

3,000+ Projects | $15+ Billion Procured

Information Technology

Networking
Data centers
Hardware
COTS software
ERP systems
Help desk services
eProcurement

Facility Management

maintenance
landscaping
security service
building systems
industrial moving
waste management
energy management
custodial
conveyance
pest control

Health Insurance/ Medical Services

Manufacturing

Business / Municipal / University Services

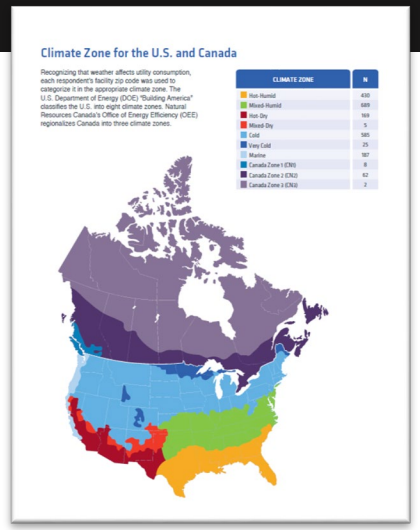
dining
multi-media rights
fitness equipment
online education
document management
property management
audiovisual
communications systems
emergency response systems
laundry
retirement fund
material recycling
bookstores
furniture

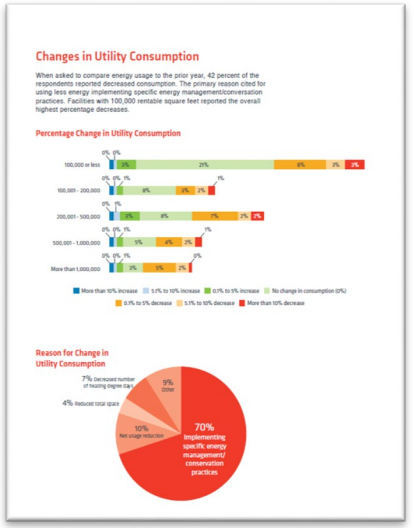
Construction / Design / Engineering

Infrastructure
Municipal
Laboratory
Education
Hospital
Financial
Specialty
Renovation
Repair
Maintenance
Roofing
Demolition
Development
Supply chain
DBB
CMAR
DB
IDIQ
JOC
Low Bid
IPD

Major FM & Staffing Studies

- O&M Benchmarking (Global)
  - O&M Qualitative Analysis of Facility Practices
- Healthcare FM Benchmarking
- Global FM Benchmarking Information System
- FM Salary, Compensation, and Talent Management
- Return on Investment for Training (Credentials)
- Synthesis of FM Industry Best Practices
- US Roofing Industry & Workforce Demographics
- Workforce & Succession Planning in Construction





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Key Lessons Learned for Benchmarking

- **Data collection vs Benchmarking**
  - **Raw numbers are not sufficient, information has context**
- **Very few track their data, help will be needed to organize and collect quality inputs**
- **Multi-tiered data collection for validity and scale**
  - **General, simple, fast**
  - **Detailed, nuanced, supported**
  - **Hands-on and individual**
  - **Use the right research tools for the job**
- **Consider the Benchmarking End User – How easy can you make it to use by your typical Facility Manager?**

Other Professional Experience

- Vendor management
  - Statement of Work (SOW) development
  - Qualified vendors list
  - Performance metrics
- Procurement
  - RFP management
  - Proposal evaluation
  - Interviews
- Contract negotiation

Summary

Summary of Findings and Observations

1. **VHA is likely significantly understaffed**
   - Available benchmarks show that VHA is right at, or slightly above, the benchmarks
   - **HOWEVER**, these medical facilities rely much more on 3rd-party service providers than the VHA [this masks the true staffing levels]

2. **Staff training is critical. Staffing deficiencies can be significantly minimized by effective training and the resultant efficiency**

3. **Even if the findings show that VHA needs more staff, a sufficient workforce does not currently exist**

1. VHA Staffing vs. Benchmarks

- **VHA tends to have much higher level of specialization**

Portion of O&M staff classified as "Generalists"

22%	61%
VHA	IFMA *(i.e., private)*

- **Private medical facilities use service providers extensively (which masks the true count of FTEs)**

2. Importance of Staff Training

- **70%** of organizations rate facility employees that have received formal training as having significantly higher performance
  - A trained facilities employee results in a **significant increase (40%+)** in perceived employee performance

- For every **$2,000** that a company spends on an employee to get trained/certified, they experience a **12% increase** in employee performance on average
  - The average cost of 1% enhancement in employee performance is $164

The Unmet Need

- **94%** of organizations agree that more FM training is needed

- **30%** of organizations have any form of internal FM training

3. Workforce Availability

- Talent identification, development, and advancement
- Onboarding is a crucial task
- EXAMPLE: private entity in major metropolitan areas
  - 10+ year problem

Applicable Current Effort

- Large Hospital Network (6 states)
  - Similar challenges to VHA – understaffed and undertrained facilities group
  - Despite hiring workforce staffing and development specialists, vendors, etc. but have been unable to meet staffing needs and skillset deficiencies
- Reached out to Simplar – we performed a study of training options by location (professional/trade, community college, etc.)
  - Business analysis of cost per trained employee vs internally developing a training program – found internal is much more cost effective (3x to 5x cheaper)
- Currently Simplar is creating a training program for facility professionals specific to the hospital network and their internal trades (English/Spanish)

Research Scope of Work

- Organize and compare facilities staffing benchmarks and "rule of thumb" information developed and gathered during the
  - NASEM consensus report *Facilities Staffing Requirements for VHA—Resource Planning and Methodology for the Future*
  - And other publicly available healthcare facilities staffing benchmarks
- Findings can be used as a point of reference for facilities staffing model implementation

Data Collection

Review NASEM/VHA Presentations and Transcripts

- First Committee Meeting, September 26–27, 2018
- Second Committee Meeting, December 13–14, 2018
- Type B Workshop: Resourcing, Workforce Modeling, and Staffing, January 29–30, 2019
- Small Workshop 1: Operations and Maintenance of the Physical Plant and Equipment, February 5–6, 2019
- Small Workshop 2: Capital Asset Inventory Database Management, Strategic Capital, February 19–20, 2019
- Small Workshop 3: Engineering Administration, March 5–6, 2019
- Third Committee Meeting, March 12–13, 2019
- Small Workshop 4: Performance Management and Finance, May 8–9, 2019

❖VHA *CAPRES all facilities report* (2019) [Data file]

Identify Other Publically Available Sources

- Academic/Trade Journals
- Professional and Private Organizations

Review Other Healthcare Facilities Staffing Benchmarks

- IFMA/ASHE (2010, 2013)
  - Facility expenses (utilities, maintenance)
  - Facility age, size, and acres managed
  - Facility staff levels and job-type mix (trade and management)
- IBM ActionOI (2019)
  - Facility staff levels
- Call et al. (2018)
  - Facility size
  - Facility staff levels and job mix (entry-level management)
- WA State Hospital Reports (2018)
  - Facility expenses
  - Facility staff levels

Data Analysis

Committee Selected Infrastructure Factors

- Department size by space use
- Facility condition index
- Average facility age
- Managed acres
- Planned construction
- Unique requirements
  - presence of water purification and water treatment plant, fire station, noncontiguous campus, etc.

VHA Infrastructure Factor Averages

- Medical center size = 1,206,858 GSF
- Managed acres = 112
- Planned construction = $13.46M
- Facility age: “54% of VHA owned SF is over 50 years old”

VHA FM Functions and Work Units (EA & CP)

- Engineering Administration
  - Office of the chief energy engineers
- Capital Projects
  - Project administration
  - Capital planning
  - Interior design

VHA FM Functions and Work Units (O&M)

- Operations & Maintenance
  - Maintenance and repair
  - Plant Operations
  - Biomedical
  - Grounds
  - Transportation
  - Housekeeping
  - Laundry
  - Safety/industrial hygiene/environmental mgt./energy mgt.
  - Fire Protection
  - Police

Staff Level Benchmark: WA State DOH

Source	Engineering staff (FTE/GSF per 100K)	Factors	Factor avg.
Washington State Department of Health 2018	6.7	Facility size (GSF)	366,000
		Planned construction ($)	9,215,794
VA 2019	7.3	Facility size (GSF)	1,206,858
		Facility age (years)	50
		Managed acres	112
		Planned construction ($)	13,460,715

Complexity	# of medical centers	Avg. FTE/100K GSF
1a	36	7.1
1b	22	6.6
1c	28	7.5
2	20	8.2
3	28	7.7

Includes Engineering administration, capital projects, operations and maintenance (maintenance and repair; plant operations; biomedical; grounds; and safety, industrial hygiene, environmental mgt., and emergency mgt.)

Staff Level Benchmark: IFMA & Call et al.

Source	Engineering staff (FTE/GSF per 100K)	Factors	Factor avg.
IFMA International Facility Management 2013	4.1	Facility size (GSF)	565,801
		Usage (GSF)	23,773
		Operating suites	379,105
		Parking structures	25
		Facility age (years)	21
		Managed acres	
Call et al. (2018)	4.1	Facility size (GSF)	1,657,000
VA 2019	4.6	Facility size (GSF)	1,206,858
		Facility age (years)	50
		Managed acres	112
		Planned construction ($)	13,460,715

Complexity	# of medical centers	Avg. FTE/100K GSF
1a	36	4.5
1b	22	4.3
1c	28	4.5
2	20	5.1
3	28	4.8

Includes Engineering administration and operations and maintenance (maintenance and repair; plant operations)

Note. Includes operations and maintenance (maintenance and repair; plant operations units).

Benchmark: IBM and IFMA

Source	Engineering staff (FTE/GSF per 100K)	Factors	Factor avg.
IBM 2020	2.0	—	—
IFMA International Facility Management 2013	3.3	Facility size (GSF) Usage (GSF) Operating suites Parking structures Facility age (years) Managed acres	565,801 23,773 379,105 25 21
VA 2019	3.7	Facility size (GSF) Facility age (years) Managed acres Planned construction ($)	1,206,858 50 112 13,460,715

Complexity	# of medical centers	Avg. FTE/100K GSF
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Includes operations and maintenance (maintenance and repair; plant operations units).

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Job Type Benchmark

IFMA (2013)		VHA (2018)	
Job type	Facilities engineering staffing (FTE per 100,000 GSF)	Job type	Facilities engineering staffing (FTE per 100,000 GSF)
Operations and maintenance		Operations and maintenance	
Electrician	0.3	Electrical shop	0.5
Plumber	0.1	Plumbing shop	0.4
Controls and low voltage	0.1	—	—
HVAC and plant operator	0.3	HVAC shop	0.5
Stationary engineer	0.3	Boiler plant Chiller plant Central control	0.4 0.1 0.2
Carpenter	0.1	Carpentry shop	0.7
Locksmith	0.03	—	—
Painter	0.1	—	—
Generalist	2.0	Other	0.8
Subtotal	3.3	Subtotal	3.7
Generalist (% of plant O&M Staff)	**61%**	**Generalist (% of plant O&M Staff)**	**22%**

VHA Job Type Breakout by Complexity

Job type	Average FTE per 100,000 GSF by Complexity				
	1a	1b	1c	2	3
Maintenance & Repair					
Electric shop	0.6	0.6	0.6	0.5	0.5
HVAC shop	0.5	0.6	0.5	0.6	0.5
Carpentry shop	0.7	0.7	0.8	0.4	0.5
Plumbing shop	0.5	0.5	0.5	0.4	0.4
Other	0.7	0.4	0.7	1.2	1.1
Plant operations					
Boiler plant	0.2	0.2	0.4	0.6	0.8
Chiller plant	0.1	0.2	0.1	0.1	0.01
Central control	0.3	0.4	0.2	0.4	0.04
Administration	0.9	0.8	0.8	1.0	1.0

Other “Benchmarks”

Source	Facilities engineering staffing (FTE/GSF per 100K)	Facilities engineering staffing (FTE/200-beds)
University of Maryland Medical Center *(Stever, 2019)*	**1.9**	—
Mayo Clinic Rochester *(Larson, 2019)*	**2.4**	—
CBRE Healthcare *(Poulos, 2019)*	**2.5**	—
University of Maryland Downtown *(Stever, 2019)*	**3.1**	—
Jones Land LaSalle Healthcare *(Mills, 2018)*	—	**12**

Staff Level Benchmark Summary

Data Source	Benchmark	VHA
Washington State DOH	**6.7**	**7.3**
IFMA (2013) / Call et al. (2018)	**4.1**	**4.6**
IFMA (2013) / IBM (2020)	**3.3 / 2.0**	**3.7**

Discussion

Key Findings

- VHA's facility staffing levels are slightly higher than private medical centers
  - Lower complexity facilities appear to have higher staff levels
- VHA's O&M department structure is more "trade-based" compared to "generalist" structure of private medical centers
- VHA's medical center facilities are older and larger

Actions

- Identify facility staff training needs to support a sustainable and competent workforce
- Evaluate facility cost benchmarks to better understand/justify staffing level comparisons between private medical centers
- Continuous benchmarking

Questions / Comments?

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