U.S. DEPARTMENT OF STATE
BUREAU OF OVERSEAS BUILDINGS OPERATIONS

Overseas Buildings Operations

Asset Leadership Network

November 10, 2021

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OBO – Global Footprint

OBO

The Bureau of Overseas Buildings Operations directs the worldwide overseas building program and leads global asset management for the U.S. Department of State and the U.S. Government serving under Chief of Mission Authority around the world.

As one of the world's largest, most experienced real estate developers, we build and operate American embassies and consulates as well as housing and support facilities worldwide.

Our facilities are spaces for diplomacy, building relationships in support of common group community engagement.

OBO develops state-of-the-art facilities—that are secure, resilient, technologically innovative, and sustainable—produced by the best in American design, architecture, construction, and management.

OBO Mission, Vision, & Goals

Modernizing, Innovating, & Impacting the U.S. Global Diplomatic Portfolio

MISSION

To provide safe, secure, resilient, and functional facilities that represent the U.S. Government to the host nation and support the Department's achievement of U.S. foreign policy objectives abroad.

VISION

These facilities represent American values and the best in American architecture, design, engineering, technology, sustainability, art, culture, and construction execution.

GOALS

SECURITY
Enhance the security, safety, and functionality of facilities and residences for overseas personnel.

RESILIENCE
Provide industry-leading resilient facilities that represent the nation and support personnel in achieving U.S. foreign policy objectives

STEWARDSHIP
Promote continuous improvement facilitated by a culture of optimizing people, processes, and supporting technology.

FY Budgets

- **FY21 Budget** $3.4B total budget
- **FY22 Budget** $3.9B total budget

U.S. Consulate General Milan, Italy
SHoP Architects

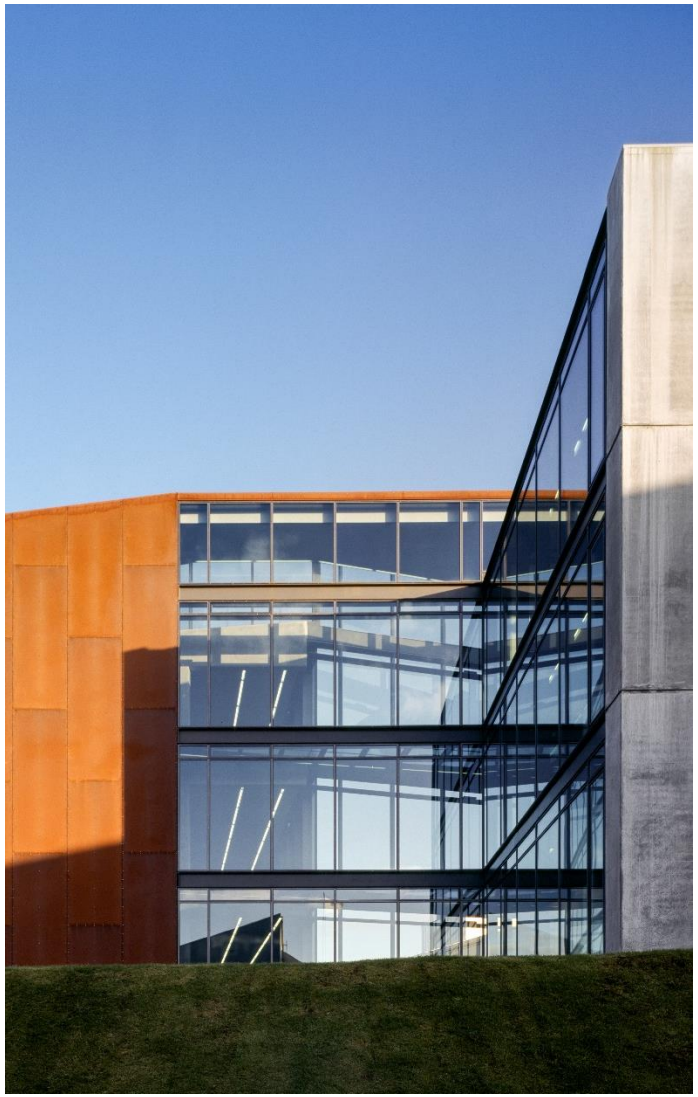
OBO ACTIVE INVESTMENT

- NEC, NCC, NOX, & NOB
- LFO, MAJOR REHAB, & RENOVATIONS
- CSU & FE/BR
- MSGR
- OTHER

OVERSEAS REGIONAL SUPPORT CENTERS (ORSC)

- Ft. Lauderdale, Florida
- Cape Town, South Africa
- Abidjan, Ivory Coast
- Frankfurt, Germany
- Guam, Micronesia

Program



Capital Security Construction
- 55+ Active Projects
- $18B Workload

Major Renovation
- 40+ Active Projects
- $850M Workload

Compound Security Upgrade
- 25+ Active Major Projects
- $370M Workload

Minor Construction & Improvements
- 250+ Active Projects
- $350M Workload

Real Property Leasing
- 16,080+ Leases
- $70B Replacement Value

GIS Housing Network (HNet) Dashboard

Mission

- The Department needs an authoritative one-stop shop for property-related information and transparency related to OBO managed, owned, or leased assets. This serves as a program foundation for visualizing RPA data and enhanced location information via a geographic information system (GIS) platform for headquarters and overseas posts.

Vision

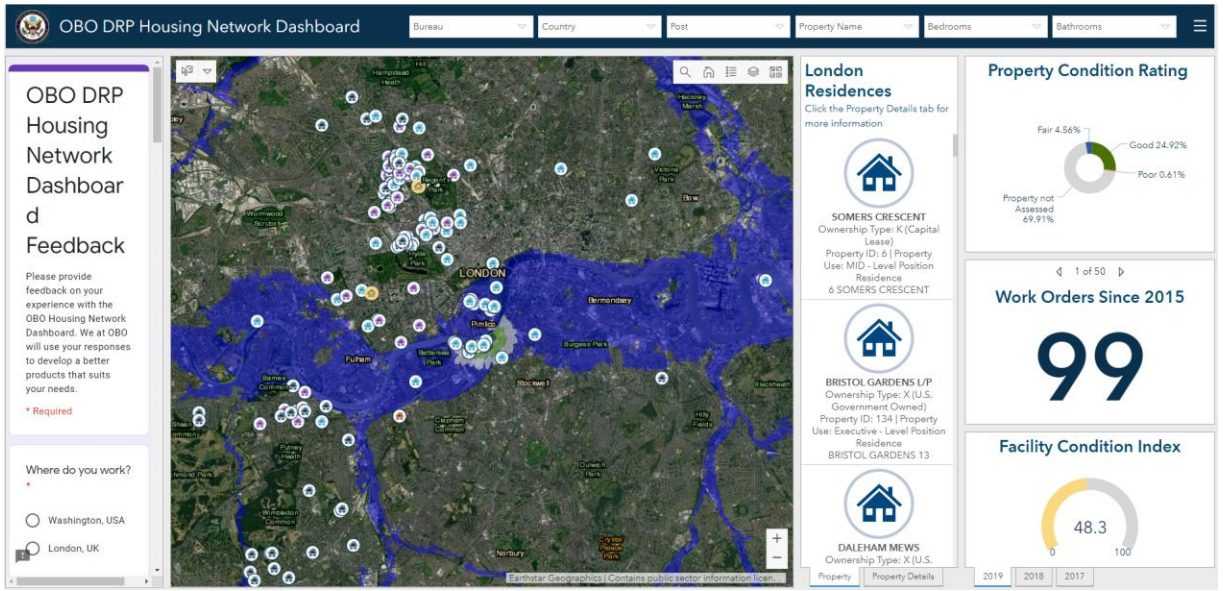
- Create a "Zillow-like" interface for residential properties supporting Chief of Mission personnel, such as work order data, property location, lease and housing attribute data, safety information, security data, and existing GIS data from RPA, GMMS, and other sources.

End User: Headquarters View

Post: London

Key Features & Display:

- Map Centric View
- Filtering Capability
- Property List & Details Pane
- Dynamic Extent
- Widgets
    - Layer List/Legend
    - Basemaps
    - Search by Address
    - Draw Boundary
- Custom Symbology & OBO Branding



U.S. DEPARTMENT OF STATE
BUREAU OF OVERSEAS BUILDINGS OPERATIONS

Diplomatic Residential Program: Quality of Life Survey

Conducted 2 Surveys: 2020 & 2021

Quality of Life (QOL) Su

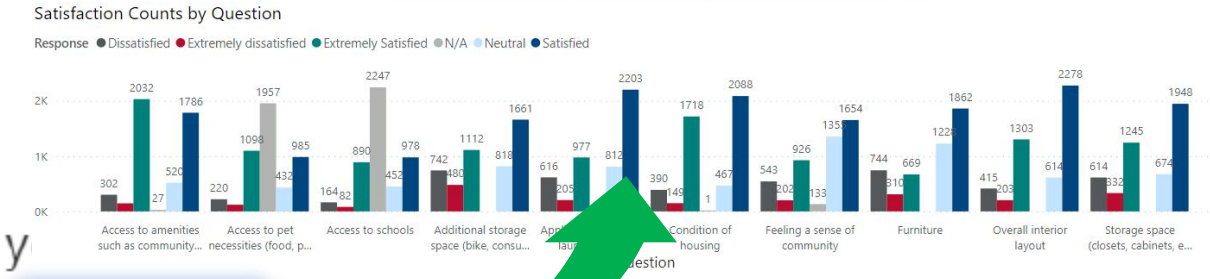
Greetings from OBO! We are very interested to hear h fe and what we as a bureau can do to make improvements. This survey see / consulate housing and those who support, manage, or operate the diplomati nutes. Your candid evaluation of these services is valuable an ease reach out to DRI-QOL-Survey@state.gov.

Section 1

1.Please select your post.
Select your answer

2.Please select your agency.
Select your answer

3.Please select which of the follow g applies to y
- [ ] U.S. Direct Hire Employee
- [ ] Eligible Family Member (EFM) / Member of Househo
- [ ] Locally Employed (LE) Staff
- [ ]



02

Federal Real Property Maintenance and Repair Best Practices

Serving the U.S. Diplomatic Community

290 Locations

$71B Portfolio Value

25,465+ Domestic & Overseas Assets

9,386 Government Owned Assets | 16,080 Leased Assets

970+ Office Buildings

16,575+ Residences

50+ Active Capital Security Construction Projects

$18B Workload

40+ Active Major Renovations

$850M Workload

50+ Compound Security Upgrade Projects

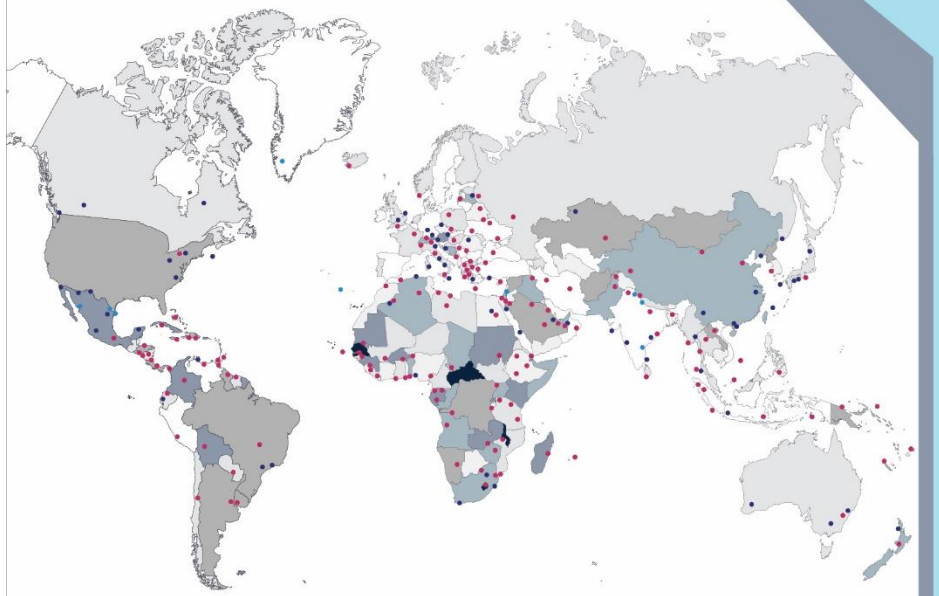
$365M Workload

50+ LEED Certifications

12,500 Art Partners

35+ Culturally Significant Properties on Register

18,300 Cultural Objects



U.S. DEPARTMENT OF STATE
BUREAU OF OVERSEAS BUILDINGS OPERATIONS

AREAS OF FOCUS

EMBASSY AFTER NEXT
BUILDING PROGRAM
Security, Resilience, & Stewardship

FACILITY MAINTENANCE & UPKEEP
ASSET VALUE PRESERVATION
Improve functionality and value of overseas assets

DIPLOMATIC RESIDENTIAL PROGRAM
HOUSING INVESTMENT
Improve diplomatic housing & quality of life

DATA MANAGEMENT & ANALYTICS
DATA-DRIVEN DECISION-MAKING
Improve data quality, availability, and usability

TALENT MANAGEMENT
RECRUIT AND RETAIN
Diversify & professionally develop our workforce

GAO Leading Practices | Followed by OBO

The recently released Governmental Accountability Office (GAO) report, 21-497, on Overseas Real Property identified 9 "leading practices" for managing Deferred Maintenance and Repair (DM&R), and aid OBO managing and reducing its current $3B in DM&R. Five of those nine leading practices was identified as currently being followed by OBO.

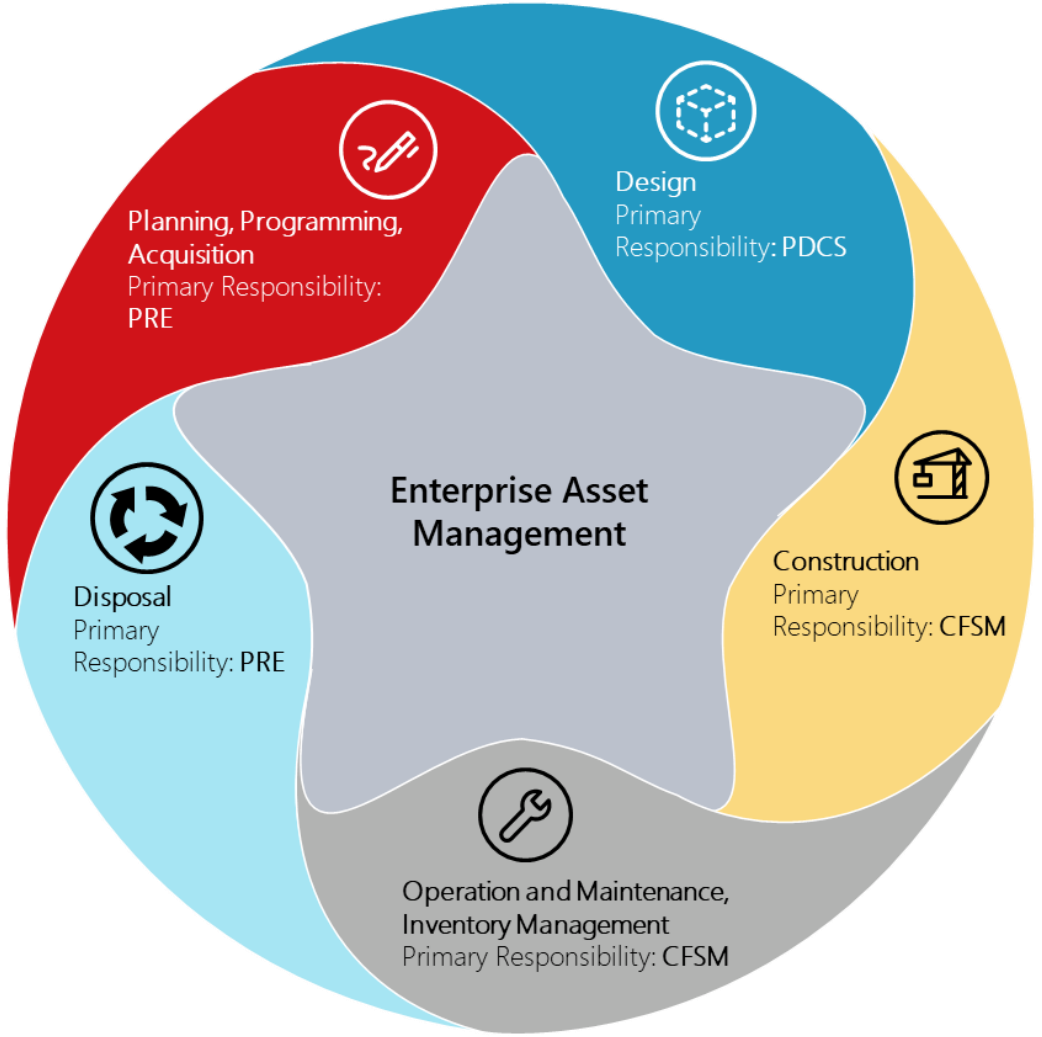
LEADING PRACTICE	EXTENT TO WHICH STATE FOLLOWED THE LEADING PRACTICE PER GAO REPORT
1. Establish clear M&R investment objectives, set priorities among outcomes	State has ***followed*** this leading practice by *establishing* ***maintenance and repair objectives and setting priorities for achieving outcomes***. Specifically, OBO has a goal to *"provide industry-leading, resilient facilities* that represent the nation and *support Department personnel in achieving U.S. foreign policy objectives.*
2. Establish performance goals, baselines, and measures	State has ***followed*** this leading practice by *establishing goals, baselines, and indicators* that measure the ***effectiveness of its facility management performance***.
3. Identify primary methods to deliver M&R activities	State has ***followed*** this leading practice and used ***four primary methods to deliver maintenance and repair activities:*** *locally-employed direct hire maintenance personnel; post-managed preventative maintenance service contracts; regional or headquarters-deployed maintenance contracts; full-service maintenance and operations contractors that operate on-site full time.*
4. Align real property portfolios with mission needs, dispose of unneeded assets	State has ***followed*** this leading practice by *establishing processes to* ***align State's overseas real property portfolio with mission needs and dispose of unneeded assets***.
5. Identify risk proposed by lack of timely investment	State has ***followed*** this leading practice by ***identifying the types of risks*** *posed by a lack of timely investment for building systems and components.*

Link to Report: GAO Report 21-497

GAO Leading Practices | Need for an Enterprise Approach

Each of the 9 Leading Practices Identified by GAO can be aligned with the different stages of OBO's current Asset Lifecycle indicating the need for an enterprise-wide approach to begin following each of the leading practices.

GAO Leading Practice	EAM Life-cycle Alignment
1. Establish clear M&R investment objectives, set priorities among outcomes	
2. Establish performance goals, baselines, and measures	
3. Identify primary methods to deliver M&R activities	
4. Align real property portfolios with mission needs, dispose of unneeded assets	
5. Identify risks posed by lack of timely investment	
6. Identify types of facilities that are mission-critical to target investments	
7. Conduct condition assessments as basis for establishing funding requirements to reduce/eliminate DM	
8. Structure budgets to identify funding allotted for M&R and address any DM backlog	
9. Employ models for predicting outcome of investments, analyzing tradeoffs, and optimizing	



Enterprise Asset Management and GAO Leading Practices

The 9 GAO leading practices, and the OBO asset management lifecycle phases also align to the International Organization for Standardization (ISO) 55000, Asset Management System. As shown below, there is direct alignment to approximately 75 percent of the functional components of ISO 55000

9 Leading Practices

Extent to Which State Followed Leading Practices for Managing Deferred Maintenance and Repair

1. Prioritization
Establish clear M&R investment objectives, set priorities among outcomes.

2. Set Objectives
Establish Performance goals, baselines, and measures.

6. Key Facilities
Identify types of facilities that are mission-critical to target investments.

9. Predictive Modeling
Establish Performance goals, baselines, and measures.

7. Efficiency
Conduct condition assessment as basis for establishing funding requirements to reduce/eliminate DM.

5. Detect Risks
Identify risks posed by lack of timely investments.

3. M&R Activities
Identify primary methods of delivery M&R activities.

8. DM Backlog
Structure budgets to identify funding allotted for M&R and address any DM backlog.

4. Consolidate & Dispose
Align real property portfolios with mission needs, dispose of unneeded assets.

OBO Asset Lifecycle Phases

- Strategic Planning
- Design and Project Development
- Execution and Construction
- Operations and Maintenance
- Disposal
- Entire Lifecycle

Enterprise Asset Management

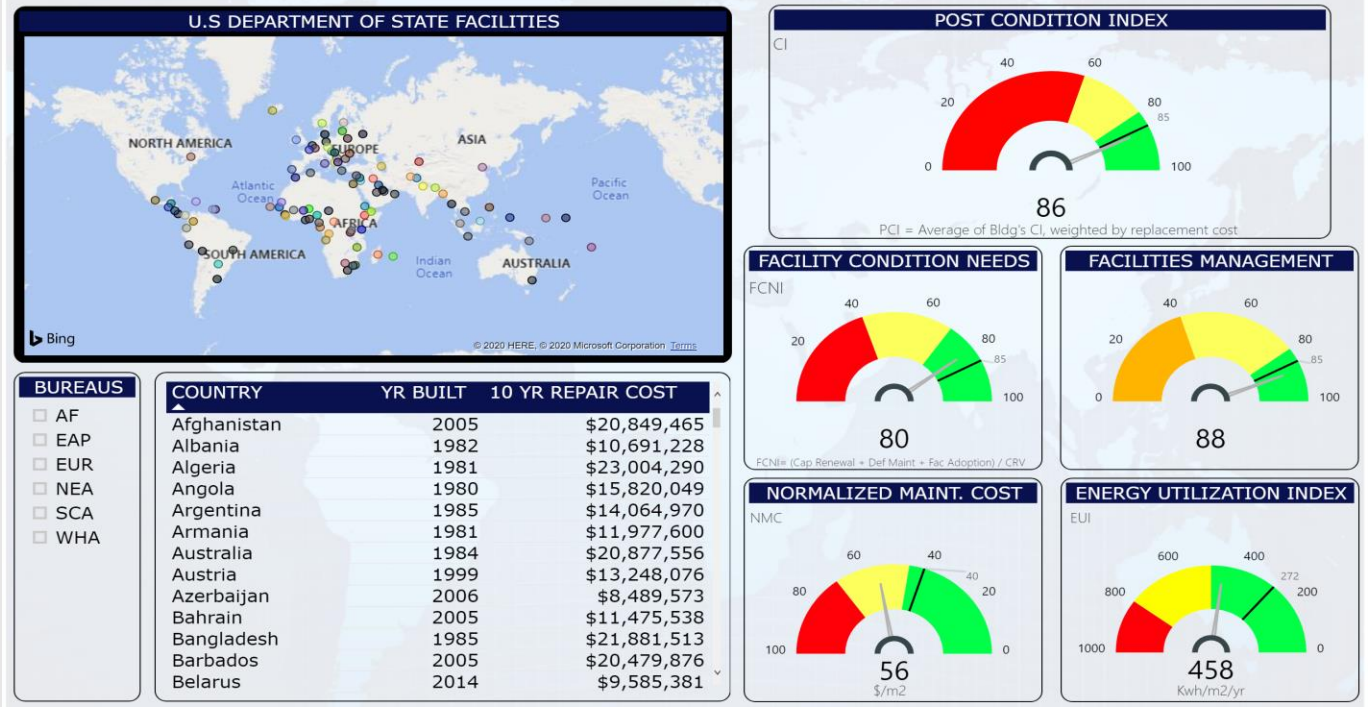
03	DEMAND ANALYSIS
04	STRATEGIC PLANNING
05	ASSET MANAGEMENT PLANNING
06	CAPITAL INVESTMENT DECISION-MAKING
09	RESOURCE STRATEGY
11	TECHNICAL STANDARDS & LEGISLATION
30	COMPETENCE MANAGEMENT
31	RISK ASSESSMENT & MANAGEMENT
36	ASSET MANAGEMENT SYSTEMS MONITORING
37	MANAGEMENT REVIEW, AUDIT & ASSURANCE
12	ASSET CREATION & ACQUISITION
07	OPERATION & MAINTENANCE (D-M)
08	LIFECYCLE VALUE REALIZATION
13	SYSTEMS ENGINEERING
14	CONFIGURATION MANAGEMENT
16	RELIABILITY ENGINEERING
33	SUSTAINABLE DEVELOPMENT
10	SHUTDOWNS & OUTAGE STRATEGY
26	PROCUREMENT & SUPPLY CHAIN MANAGEMENT
15	MAINTENANCE DELIVERY
17	ASSET OPERATIONS
19	SHUTDOWN & OUTAGE MANAGEMENT
20	FAULT & INCIDENT RESPONSE
32	CONTINGENCY PLANNING & RESILIENCE ANALYSIS
35	ASSET PERFORMANCE & HEALTH MONITORING
38	ASSET COSTING & VALUATION
21	ASSET DECOMMISSIONING & DISPOSAL
01	ASSET MANAGEMENT POLICY
02	ASSET MANAGEMENT STRATEGY & OBJECTIVES
18	RESOURCE MANAGEMENT
22	ASSET INFORMATION STRATEGY
23	ASSET INFORMATION STANDARDS
24	ASSET INFORMATION SYSTEMS
25	DATA & INFORMATION MANAGEMENT
27	ASSET MANAGEMENT LEADERSHIP
28	ORGANIZATIONAL STRUCTURE
29	ORGANIZATIONAL CULTURE
34	MANAGEMENT OF CHANGE
39	STAKEHOLDER ENGAGEMENT

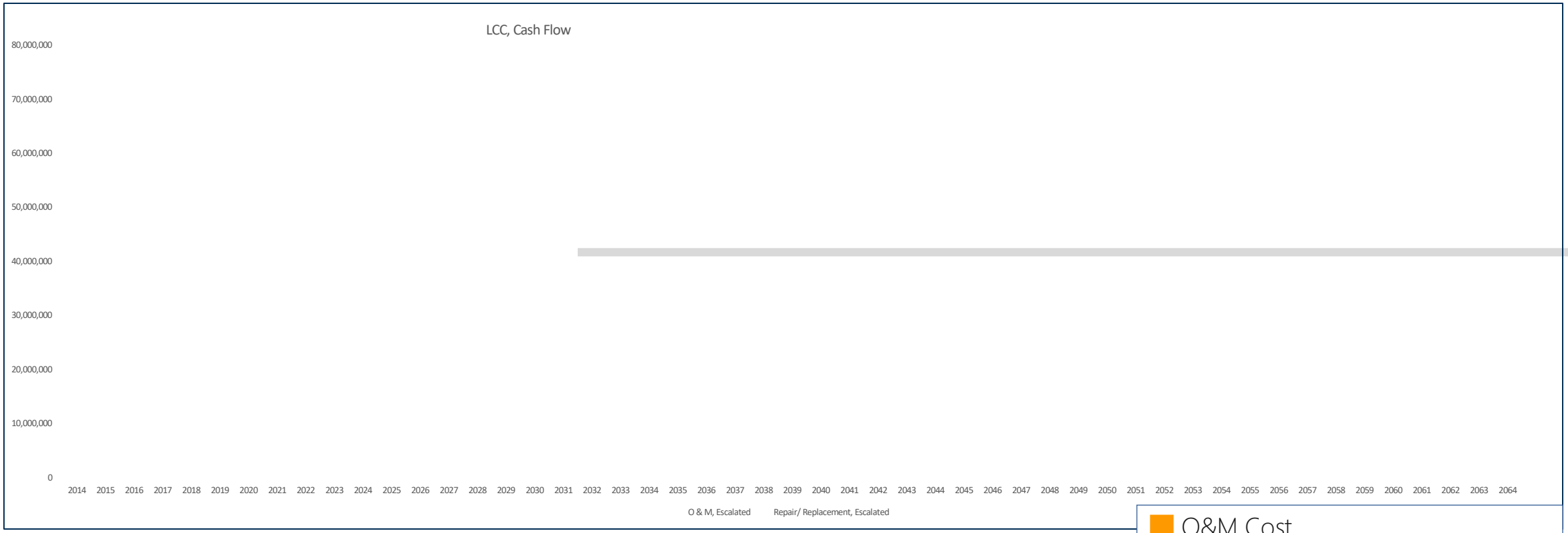
Facility Performance Evaluations

- FPE developed in response to OMB to improve the consistency and quality of Federal Property; and GAO report 17-296 – Dec 2019 accepted.
- Quantitative and qualitative metrics have been identified to standardize Key Performance Indicators (KPI) and baseline strategies for the operations, maintenance, and repairs of new and legacy facilities.
- Sustainment Management System/BUILDER – ITESC Nov 2020 approved.

Key Performance Indicators – Dashboard

1. Building Condition Index
2. Facility Conditions Needs Index (FCNI)
3. Facility Management Profile
4. Normalized Maintenance Cost (NMC)
5. Energy Use Intensity (EUI)



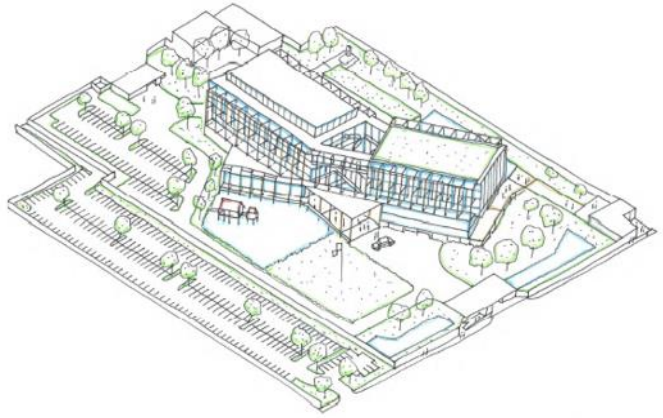


Sample TCFO Baseline

- Example of Information generated – O&M + Repair / Replacement by year.
- Benefits – Sharing of TCFO Information across OBO Directorates

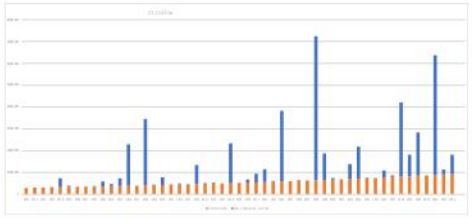
LCAM / FPE – TCFO Concept Development

Bangkok NOX – Three Schemes



Bent Bar

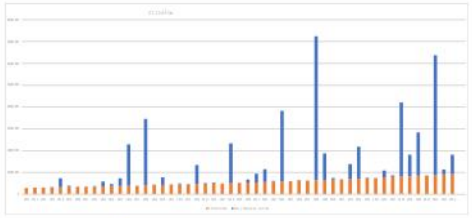
TCFO =



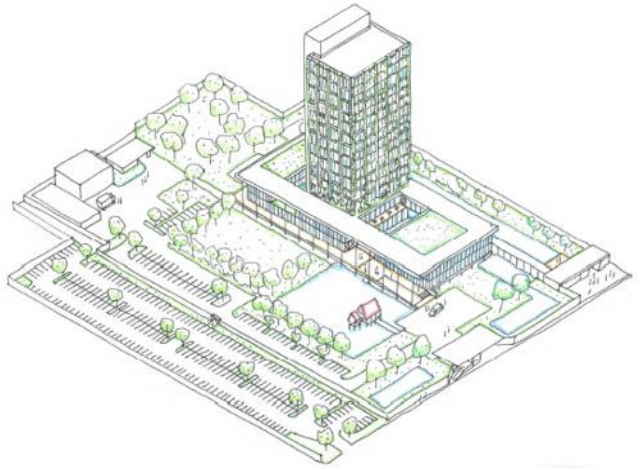
Utility Cost = $

Village

TCFO =

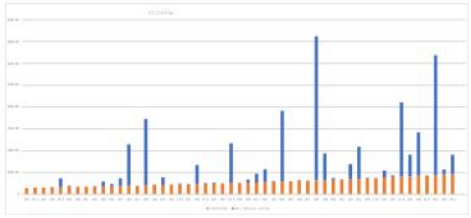


Utility Cost = $



Tower

TCFO =



Utility Cost = $

TCFO Concept

03

Facilities Staffing and Service

Facility Management Staffing

OVERSEAS REGIONAL SUPPORT CENTERS (ORSC)

- Ft. Lauderdale, Florida
- Cape Town, South Africa
- Abidjan, Ivory Coast
- Frankfurt, Germany
- Guam, Micronesia

Local Resources

LFMs: **12**
Active EPAPs: **25**
On-Boarding LFMs & EPAPs: **3**

USDH Staffing

Authorized USDH Positions: **237**
Float: **25**
FMs in FM Positions: **201**
FMs Working Out of Cone: **18***
*Details on USDH Staffing page

TDY Program

Deployed TDY FMs: **20**
Onboarding/Dormant/Assigned FMs: **14**
TDY FMs covering Posts without FM Positions: **5**

USDH Recruitment

Viable Candidates on Register: **1**
Total in Clearances: **34**
New intake class: **September 13, 5 New Hires**

Vacant Positions

Total Vacancies: **36**
- On-hold: **8**
- Without USDH FMs: **28**

Vacancies without coverage: **16**
Total Posts without FM Positions: **97**

04

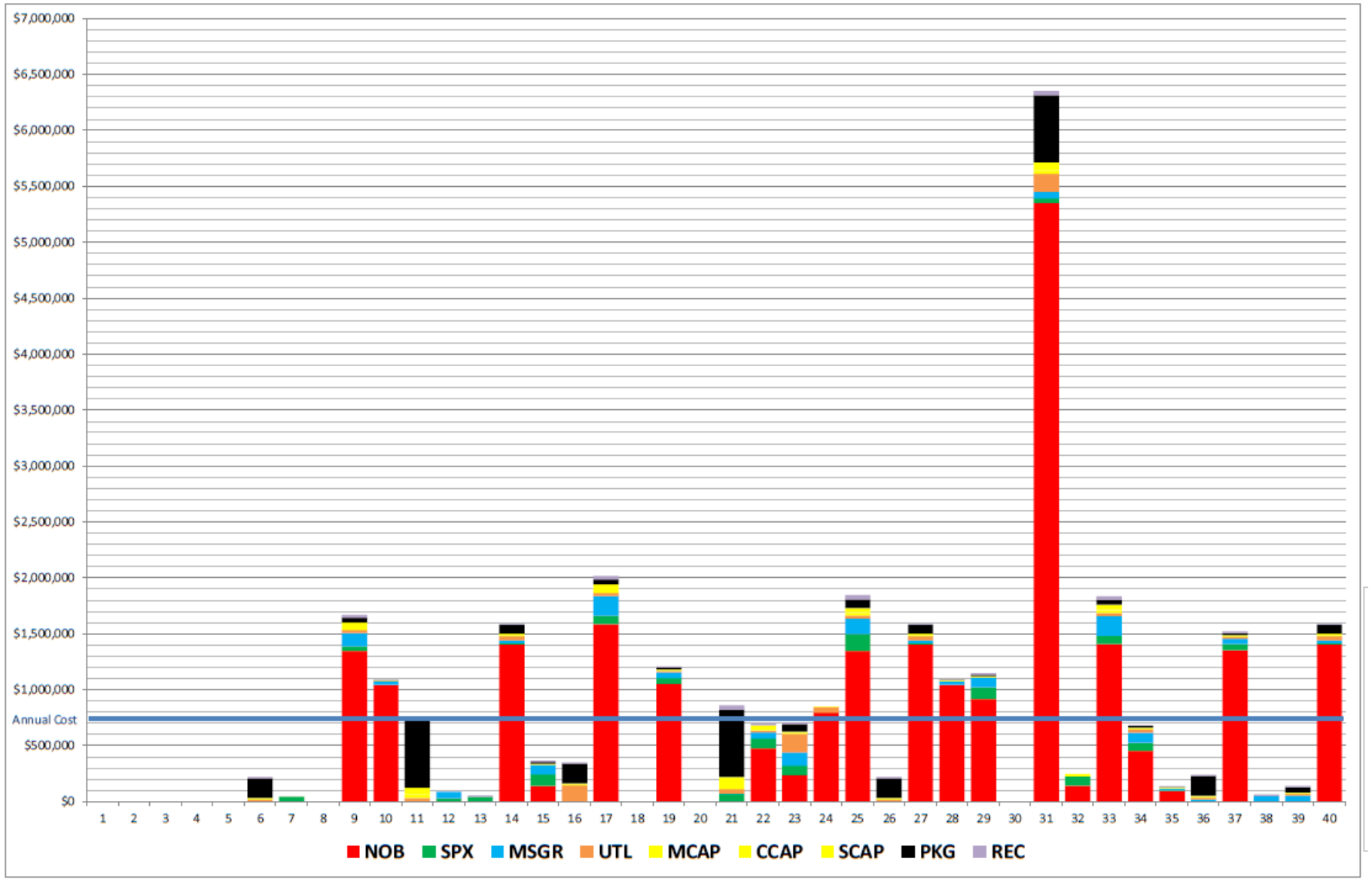
Case Study: U.S. Embassy Maputo, Mozambique

Pilot Program – Maputo New Embassy Campus

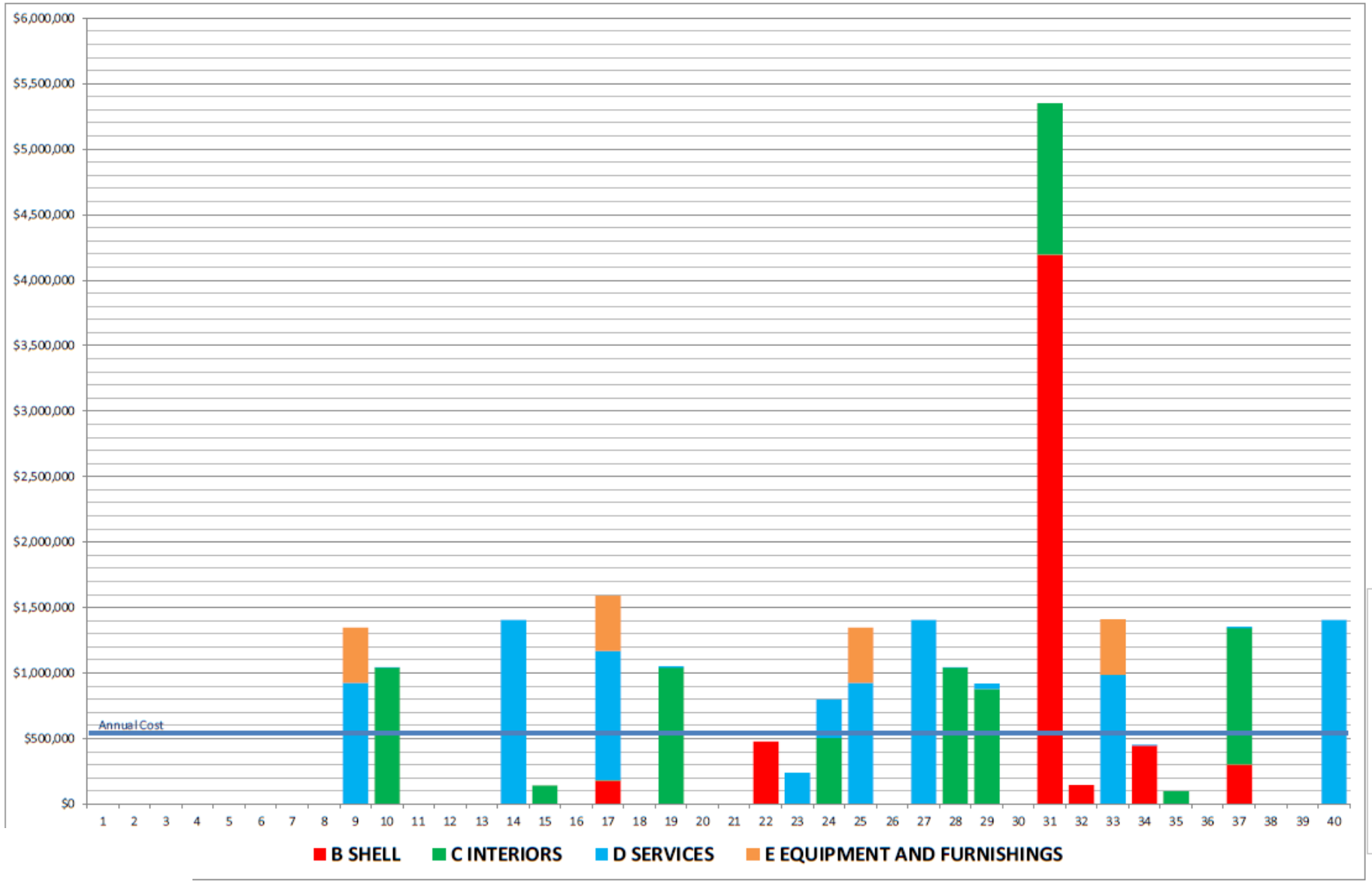
Pilot – U.S. Embassy Maputo, Mozambique

Dedicated on September 30, 2021
Design Architect: Allied Works Architecture
Architect of Record: YGH Architecture
Contractor: Pernix Group Inc.

40-Year Lifecycle Analysis: Maputo (Buildings)

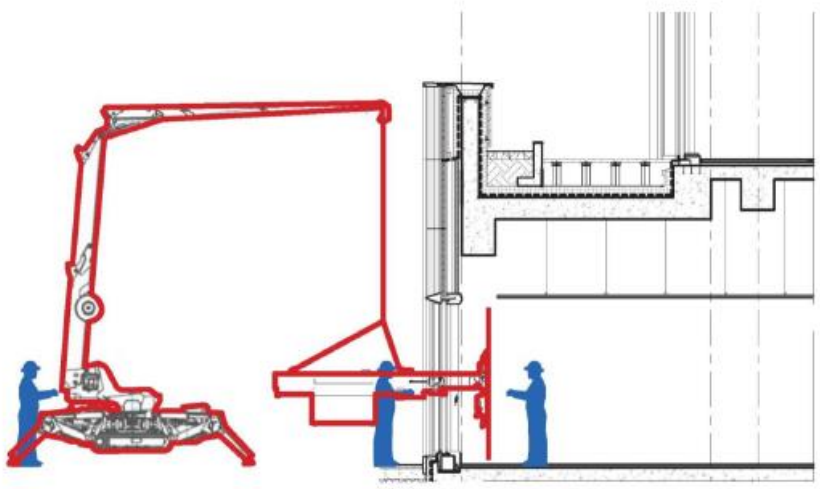


40-Year Lifecycle Analysis: Maputo (NOB)

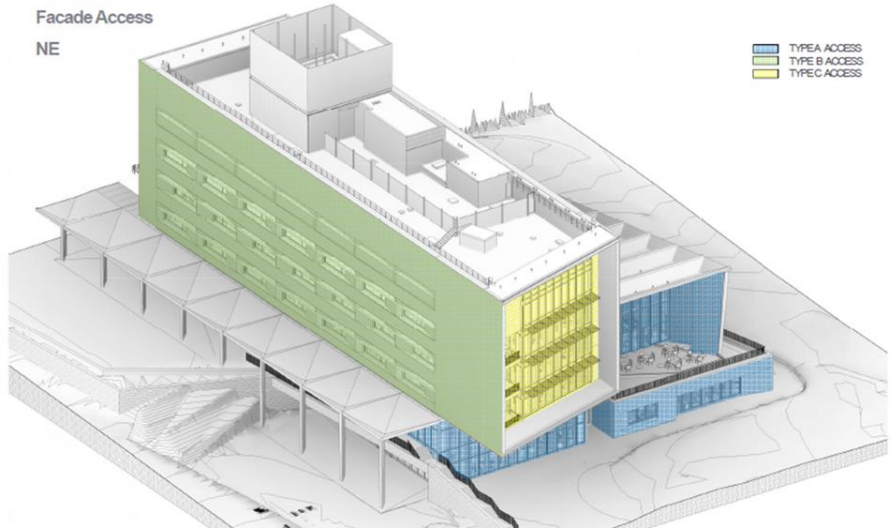


LCAM/FPE – Façade Maintenance Report

FE/BR Window Replacement



Façade Maintenance Plan



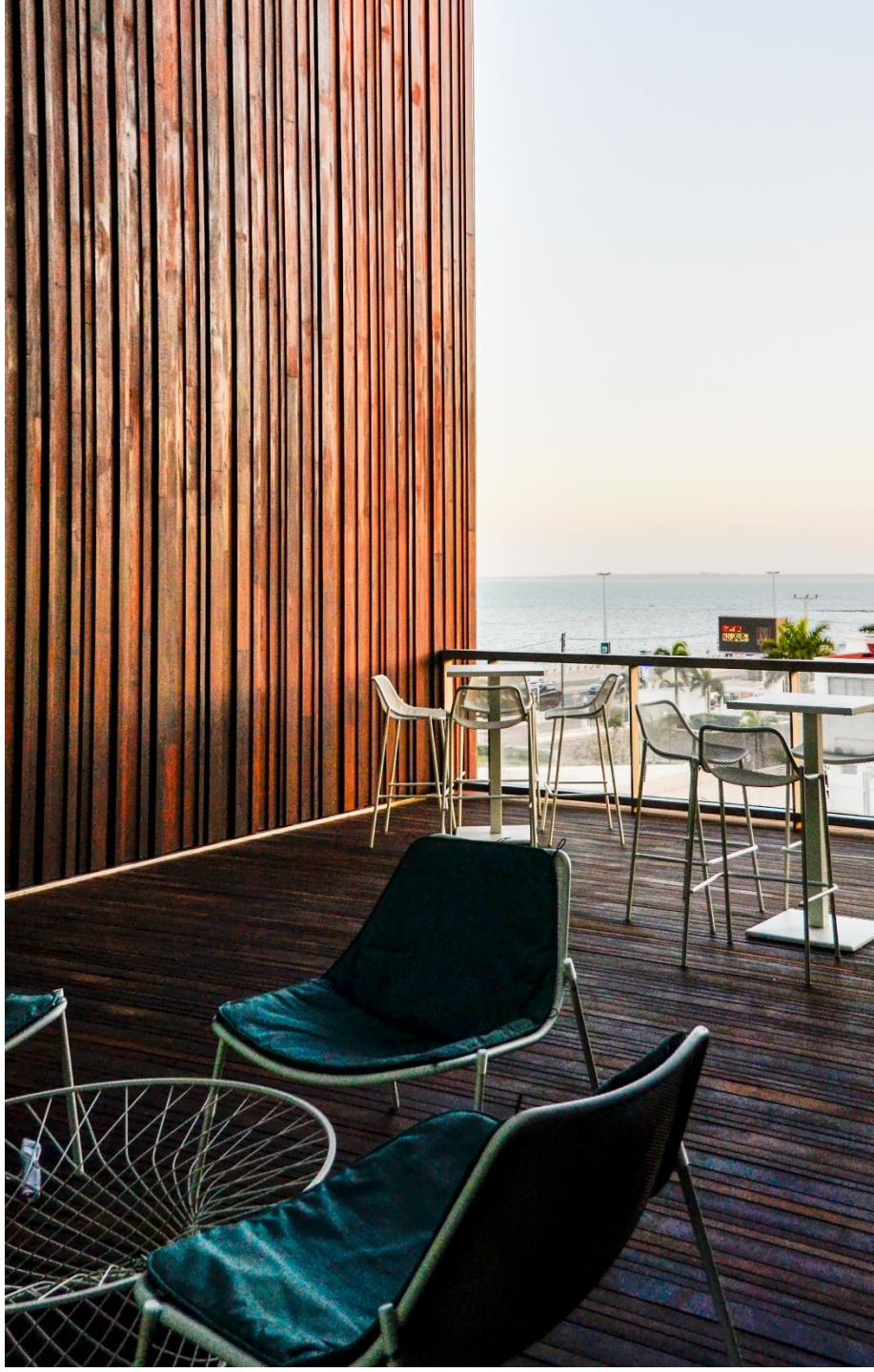
System Preferences - The following order of preference shall be considered in matching an access system (or systems) to the proposed building designs:

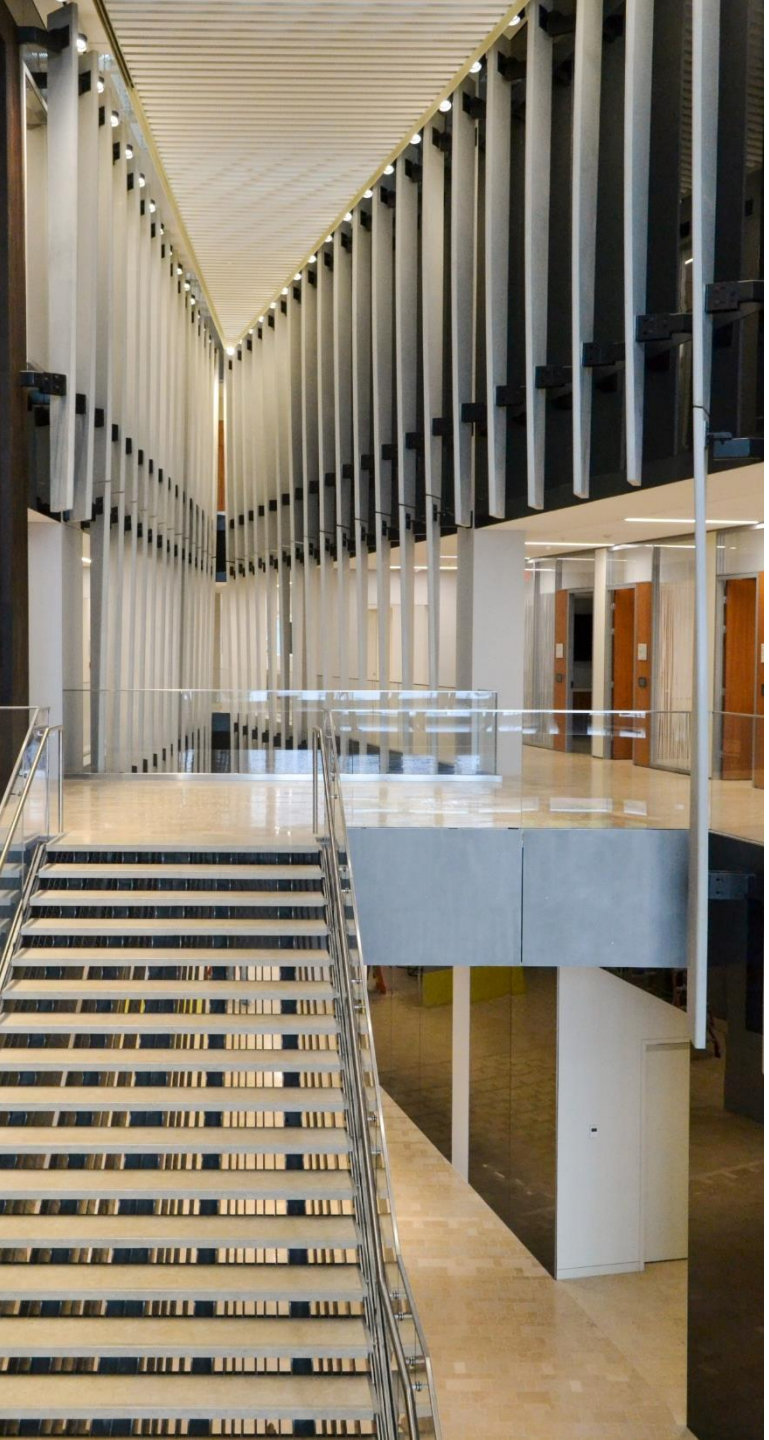
1. Grade Portable Equipment
   - Preferred solution, powered aerial work platforms.
   - Limited to working height of 20 meters (exterior) and 12.2 meters (interior).
2. Ground-Rigged Powered Platforms
   - Contractor-supplied, ground-rigged platforms and portable outriggers (generally counter-weighted or tie-down) are preferred.
   - The Designer shall consider the risk of damage to roofing during set-up and relocation caused by portable outriggers.
   - The use of portable outriggers is limited to heights less than 26 meters.
3. Direct Access
   - Permanent exterior catwalk system.
   - Elevated floor doorway access.
4. Roof-Rigged Powered Platforms
   - For elevations greater than 26 meters, roof-rigged powered platforms with swingable davits.
   - If contractor-supplied powered platforms are anticipated, the building design must provide adequate roof access (i.e., freight elevator) to transport the platform to the roof.
5. Permanently-Installed Powered Platform Systems
   - Permanently-installed systems are designed for dedicated building applications.
   - OBO may consider such systems when simpler systems are not feasible or when a Life Cycle Cost (LCC) or Total Cost of Facility Ownership (TCFO) analysis shows a permanent system to be the best option.

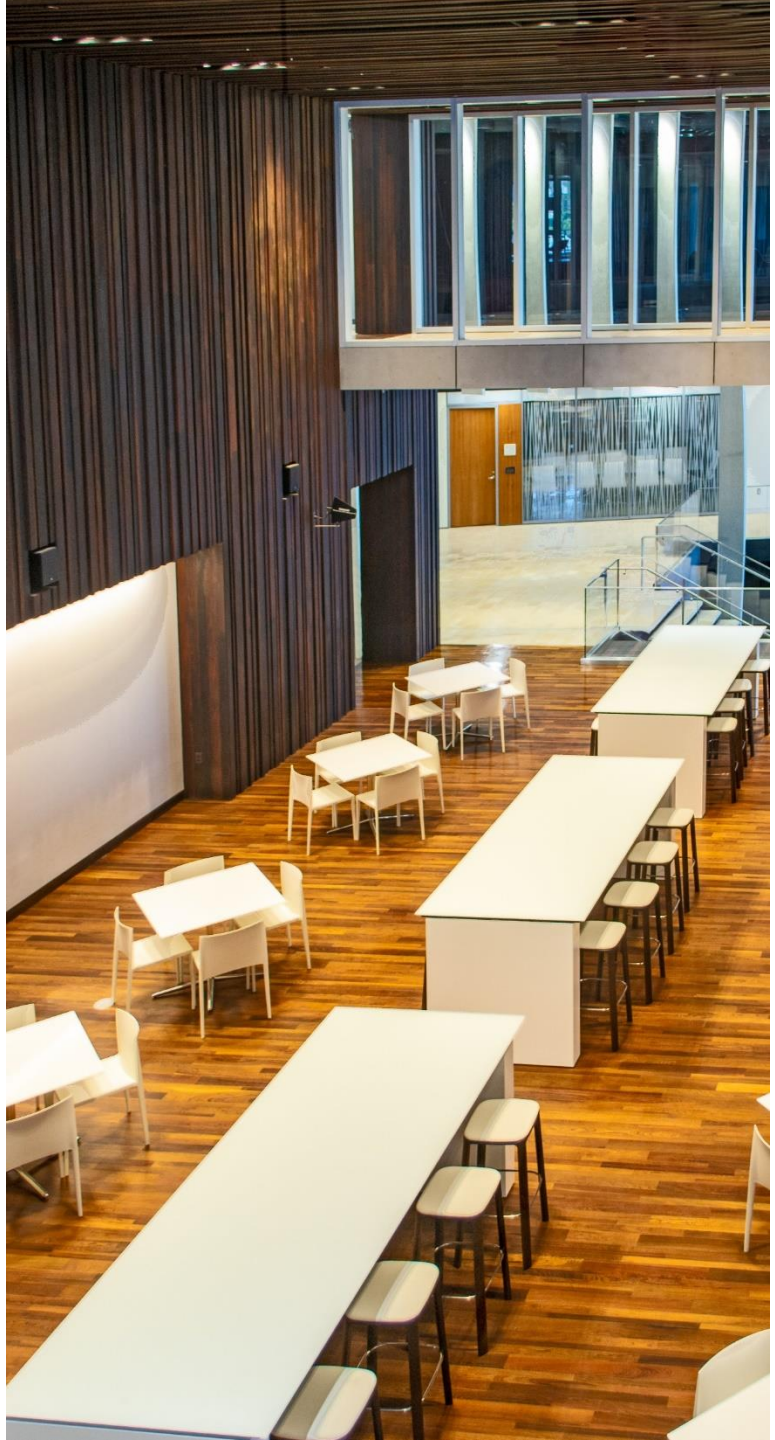
Dedication

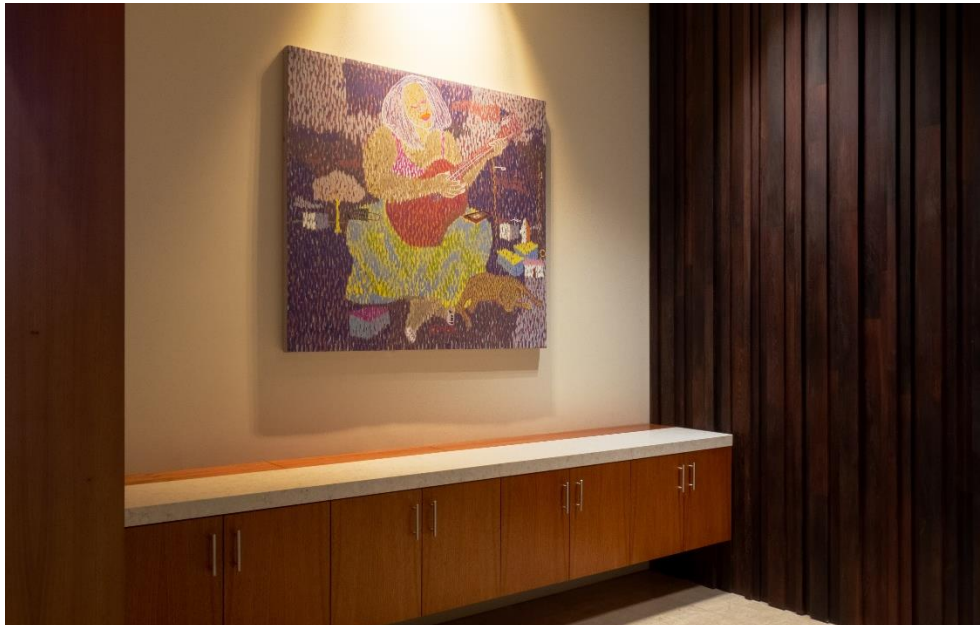
U.S. Embassy Maputo, Mozambique


UNITED STATES OF AMERICA









05

Technology in Practice and Development

OBO Smart Buildings Solution / HoloLens

HoloLens Technology

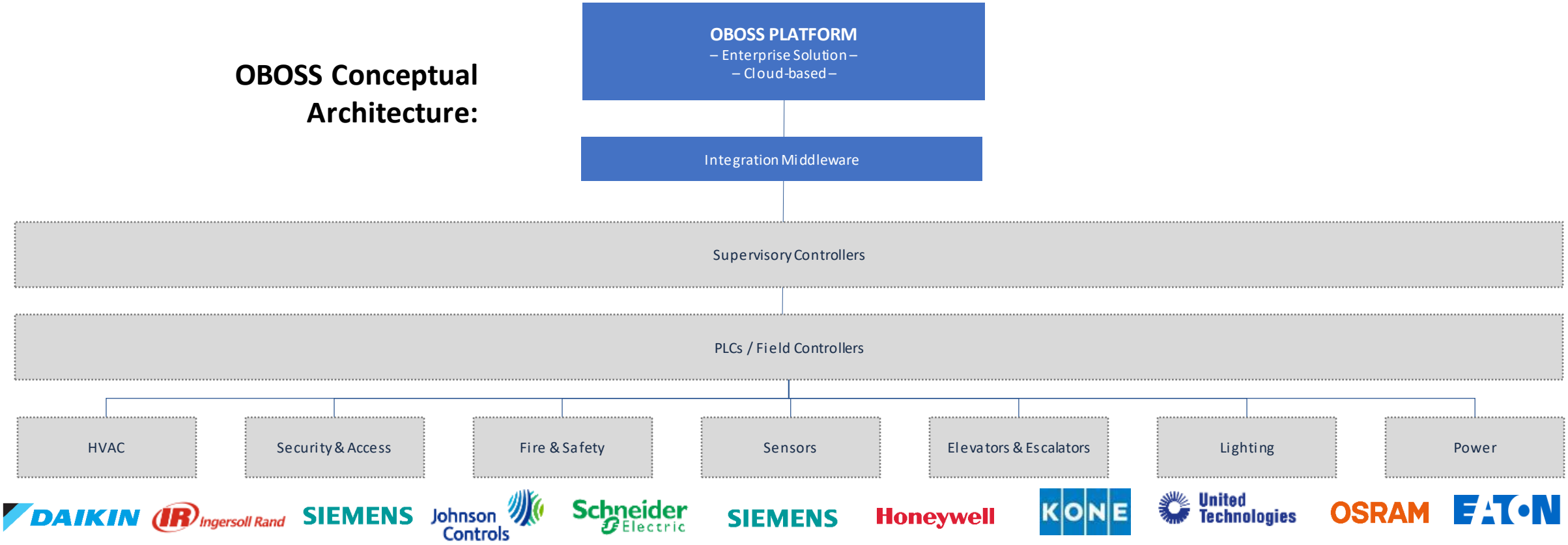
OBO Smart Buildings Solution (OBOSS)

	PILOT	LONG TERM VISION
Locations	3 Select Pilot Sites in Mission Germany (Berlin Clay-Allee, Berlin Embassy, and Frankfurt Consulate).	249 Posts Worldwide; incorporation of Smart Buildings framework into new construction projects
Monitoring	Monitoring of available data sets from open, IP networked controls across OT systems such as HVAC, Fire, Power Monitoring, etc., to drive smart building applications	End-to-end integrations enables proactive fault monitoring, trend analysis, performance measurements, and reduced energy use across the OBO portfolio
Analytics	Fault detection and diagnostics, asset, and portfolio level analytics to drive insight on performance at the building and OBO portfolio level	Dynamic reporting and analytics of building operational status informs repairs and replacements; critical issues initiate operations and engineering work orders
Security	Discovery and iteration allows for identification of insecure and unmanaged networks, systems, or devices to define best practices and standards for future implementations	Secure, resilient defense in depth network architecture protects Post data and systems against cyber security threats and enables enforcement of OBO IT Secure Architecture to Secure ICS
Management	Pilot installations provide insight into control and command opportunities and allow OBO to iterate to define a solution to scale	Informed rollout enables remote management, system integration, and mitigation of NSA/NIST report findings

OBOSS Problem Statement

OBOSS will serve as a "single pane of glass" smart building solution that enables remote facility monitoring, analytics, control, and management reporting across all OBO post locations. The solution will consist of hardware and software that integrates disparate building automation systems (BASs) and other operational technology (OT) systems and devices:

OBOSS Conceptual Architecture:



(Vendor names are illustrative)

BOSS Pilot Schematic

POST LOCAL NETWORK

REMOTE NETWORK

ZONE DESCRIPTIONS

LEVEL 0:
Flow and temperature sensors, final control elements / values

LEVEL 1:
Industrial input/output (I/O) modules; distributed electronic processors

LEVEL 2:
Supervisory computers: collate information from processor nodes; provide operator control screens; translate data into IT network protocols; cache data locally; encryption* services from ENM/ND available

LEVEL 3:
M/IRM Enterprise managed protection zone restricting systems and access in/out

LEVEL 4:
System services not on site: secure engineering, monitoring, analysis, querying and integration point of interfacing systems. User services.

Local Network Tenant Zone

LEVEL 0:
Field Network Devices
(Examples)

FIRE
- Fire / Smoke Detection
- Fire Alarm Panels

HVAC
- Sensors
- Switches
- Actuators
- Dampers
- Smart Variable Frequency Drives (VFDs)

UTILITIES
- *Electricity submeters*
- *Water meters*
- *Gas meters*

WATER
- Water Pressure
- Leak Detection
- Availability / Access

IoT SENSORS
Wired & Wireless Temperature, Humidity, CO2, Wet Differential Pressure, Current Sensors & Switches, Air Quality (indoor safety)

LEVEL 1:
Field Control Devices

PLCs

RTUs

LEVEL 2:
Processing Network (IT/OT)

MODBUS / BACNET CONVERTERS; REMOTE I/O

Local SCADA & HMI

HISTORIAN

ENCRYPTOR*

LEVEL 3:
Post Transport Zone

IRM Managed

NAC Enabled Equipment

Internet

ISP

LEVEL 4:
Cloud / Remote Services

Central Management Network

Security as a Service

Analytics as a Service

06

Conclusions

OBO Mission, Vision, & Goals

Modernizing, Innovating, & Impacting the U.S. Global Diplomatic Portfolio

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VISION

These facilities represent American values and the best in American architecture, design, engineering, technology, sustainability, art, culture, and construction execution.

GOALS

SECURITY

Enhance the security, safety, and **functionality of facilities and residences** for overseas personnel.

RESILIENCE

Provide **industry-leading resilient facilities** that represent the nation and support personnel in achieving U.S. foreign policy objectives

STEWARDSHIP

Promote continuous improvement facilitated by a culture of optimizing people, processes, and supporting technology.

FY22-26 Functional Bureau Strategic Framework

- **GOAL 1:** Enhance the security, safety, functionality, and resilience of facilities and residences for overseas personnel.

- **GOAL 2:** Improve the resilience and maximize the lifespan of our facilities through adaptive and sustainable asset management programs.

- **CROSS-CUTTING MANAGEMENT GOAL 3:** Strengthen and equip a diverse, inclusive, resilient, and dynamic workforce to meet 21st century physical infrastructure challenges.

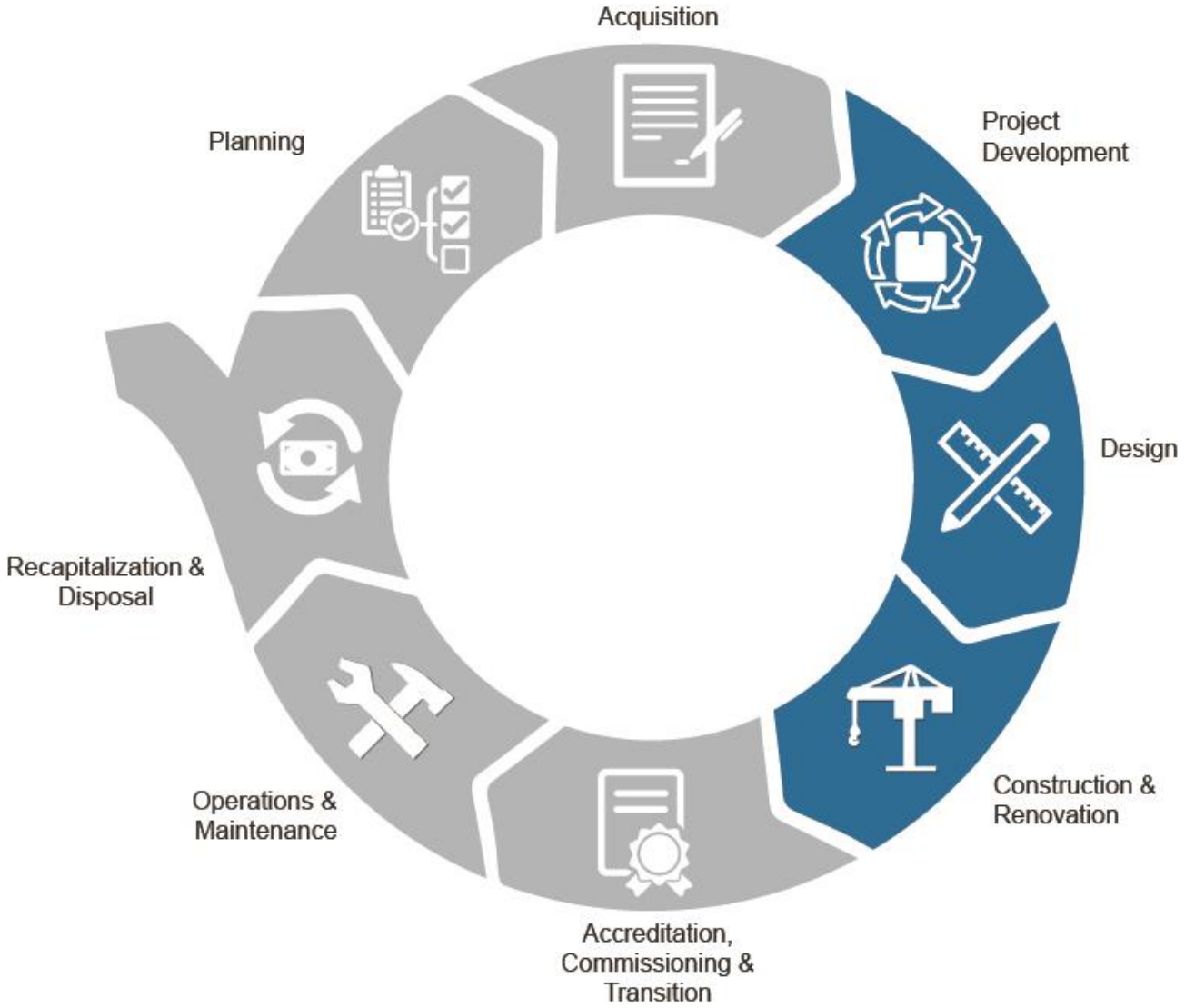
Positioning for Success

Enhancing the Investment

Partnering with Stakeholders

Implementing Industry Best Practices

Leveraging Technology



Connect With OBO

WORKING WITH US:

- Capabilities Conversation Information: www.state.gov/working-with-obo/
- Register a Company: https://www.surveymonkey.com/r/CDN7TR5

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Connect With OBO

Upcoming Events

- **Take 5 Friday's** - Join us every Friday at 4 PM ET for #StateOBO's next episode of Take Five Friday!
- OBO will host the **2021 OBO Industry Roadshow Wrap-up** – November 16
- **The Architectural League of New York** will host a conversation with OBO at Silman – November 16
- OBO representatives will speak with attendees at the **Pilot Department of State hosted STEM & Diversity Virtual Career Fair** – November 17
- **Modernizing the Federal Construction Life Cycle** – November 18
- OBO will participate in **Virginia Tech's Urban Design Program's Workshop: Designing for Accessibility** – November 18
- **SAME's Small Business Conference** – December 1-3
- OBO will be featured in **Monograph's Fireside Chat Series** – December 16

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Q&A

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