

National Workplace Engagement Report June - September 2016



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EXECUTIVE SUMMARY

*OMB Management Procedures No 2015-01, March 25, 2015, referencing Memorandum M-12-12 Section 3: Reduce the Footprint

PROJECT OBJECTIVE

The Department of Energy (DOE) engaged the U.S. General Services Administration (GSA) and its contractor, AECOM, to assess current office space standards and to develop a recommendation for long-term improvements to the DOE's real property portfolio. The primary goal was to assist the Agency's efforts to comply with OMB's *Reduce the Footprint* initiative by identifying opportunities to reduce real property consumption and operating costs, while also aligning individual agency space standards. These two aspects result in overall spatial, functional, and operational efficiency. By developing a space standard for the DOE, calculating and reporting usable square footage (USF) into the Facility Information Management System (FIMS) database would become consistent across the Agency.

The research included visits to four DOE National Laboratory sites, two in New Mexico and two in the state of Washington, to evaluate current workplace standards and conditions. The diversity of space standards across DOE sites is found to be compounded by the range of missions within a single site. The research included a thorough assessment of the DOE's method for building classification, space measurement, current planning standards, and the process by which space is reported for individual DOE sites. The evaluation informed the development of a new set of office standards, including a recommended target of 180 USF per person and assignment of individual administrative (as opposed to specialized laboratory and other technical) work spaces based primarily on function, but also factoring in position, and/or seniority. The result is a framework for DOE to streamline its approach to real property and to space assignment across all future renovations and acquisition projects.

In addition to the four laboratory site visits, GSA's Senior Architect for the Total Workplace Program, made an additional visit to the DOE's Headquarters building in Washington DC. The results of that visit are integrated into the findings and recommendations of this report.



FINDINGS & RECOMMENDATIONS EXECUTIVE SUMMARY

Four key areas were observed to create the greatest opportunity for spatial efficiency.

FINDING_1

INCONSISTENT UTILIZATION RATE

Reporting accurate utilization rates is presently a challenge due to combining the Agency's unique missions and facility requirements, such as lab space, with its administrative space.

RECOMMENDATION

REFINE USF DEFINITION

Refine the usable square footage (USF) definition to exclude agency mission specific areas such as shared spaced (e.g. auditorium, exhibit space, and computer server rooms) and specialized technical areas (e.g. laboratories, secured compartmentalized information facilities, control and operations rooms).



FINDING_2

ANTIQUATED SPACE STANDARDS

There is an opportunity to enhance utilization to comply with the "Reduce the Footprint" Initiative.

RECOMMENDATION

STREAMLINED OFFICE SPACE STANDARDS

Implement new office space standards with a target of 180 USF per person. This is a target and can vary based on building configuration and employee population. This is a dramatic reduction in office space and will be achievable only with acoustic comfort considerations. See *Sound Matters* publication for implementation strategies. In addition to this target, a portion of standardized space types will be based primarily on function, as well as position and seniority to establish consistent space assignments.



FINDINGS & RECOMMENDATIONS EXECUTIVE SUMMARY

FINDING_3

MISALIGNED METHODOLOGY

The predominate use of a building is currently designated by identifying the function with the largest USF. For example, specialized buildings are designated as office, if the office space takes up the largest USF compared to other functions. This methodology consistently mis-characterizes many of the Department's technical and operational facilities. Labs typically require two to three times more USF than offices, so the utilization rate, as reported to OMB, is greatly skewed as a result. FIMS data indicated that this methodology affects approximately 160 facilities.

RECOMMENDATION

RE-EVALUATE METHODOLOGY

Current rules for determining predominate use can, in some instances, cause misalignment between a buildings' primary operational mission(s) and its predominant use classification. Recommend collaborative investigation of options to align GSA reporting criteria with the primary operational function of the affected DOE buildings.



FINDING_4

UNDER-REPORTED OCCUPANCY

Population of non-Federal personnel is highly variable and significantly under-reported. Transient populations, such as visiting scientists and summer interns, make predicting and reporting utilization nearly impossible.

RECOMMENDATION

MODIFY OCCUPANCY REPORTING

Modifying occupancy reporting based on quantity of seat and not actual employees present would result in a significant reduction in sq ft per person as the occupancy is much higher in actuality than is currently identified.



PROJECT BACKGROUND

DOE REAL PROPERTY BACKGROUND

DOE manages the Government's fifth-largest inventory of real property with an annual operating cost of \$2.08 billion. The Department maintains an inventory of approximately 21,000 real property assets, including 10,000 buildings, 2,000 trailers, and 9,000 other structures and facilities covering an estimated 132 million square feet (SF) on 2.8 million acres of land. The replacement plant value of these assets (not including land value) is approximately \$135 billion.

DOE's real property portfolio comprises diverse facilities, including unique fission reactors, accelerators and high-performance lasers. The vast majority of the Department's portfolio is owned by DOE. Real property owned or leased by GSA represents roughly 5% of DOE's portfolio. The remainder of the portfolio is made up of leases directly held by DOE or contractor leases specifically approved and paid for by DOE to support and achieve one or more of DOE's missions.

Source: Office of Asset Management MA-50, Department of Energy

SELECTED SITES

Graph based on data from DOE Facility Information Management System (FIMS) as of March 2016.

- Pacific Northwest National Lab
- Office of River Protection
- Sandia National Laboratory*
- Los Alamos
 National Laboratory
- Los Alamos Site Office
- All other DOE Sites





OBSERVED DEPARTMENT OF ENERGY NATIONAL LABORATORY SITES

TOTAL DEPARTMENT OF ENERGY NATIONAL LABORATORY SITES

2.8 ACRES OF LAND





Timeline + Process

PROJECT PROCESS & TIMELINE



Selected Sites PROJECT BACKGROUND

4 DOE PRE-SELECTED SITES 29 BUILDING TOURS

HANFORD, WA	RICHLAND, WA	LOS ALAMOS, NM	ALBUQUERQUE, NM
OFFICE OF RIVER PROTECTION, ENVIRONMENTAL MANAGEMENT (ORP)	PACIFIC NORTHWEST NATIONAL LABORATORY (PNNL)	PACIFIC NORTHWEST NATIONAL LOS ALAMOS NATIONAL LABORATORY SA LABORATORY (PNNL) (SALAMOS NATIONAL LABORATORY	
Founded in 1989, covering 586 square miles, the Hanford Site is one of the largest nuclear cleanup efforts in the world, managing the legacy of five decades of nuclear weapons production. Approximately 11,000 employees are involved in the ORP objective to reduce the risk the site poses to the health and safety of workers, the public, and the environment. The ORP is responsible for the testing, containing, cleaning, and rehabilitation of the Hanford Site. Although the majority of physical cleanup sites utilize mobile trailer structures, this study focused on the ORP administrative office buildings.	haded in 1989, covering 586 square s, the Hanford Site is one of the est nuclear cleanup efforts in the d, managing the legacy of five ades of nuclear weapons production. roximately 11,000 employees are fundamentally autonomous and collaborate across departments. There is a need for greater flexibility of individual space because of internal mobility orkers, the public, and the environment. ORP is responsible for the testing, raining, cleaning, and rehabilitation of Hanford Site. Although the majority hysical cleanup sites utilize mobile er structures, this study focused on ORP administrative office buildings.		SNL is a National Nuclear Security Administration (NNSA) laboratory with expertise in a range of research including nuclear technology, mathematics, alternative energy, and cognitive science. Offices and laboratories make up the site's majority of building types. The average age of buildings at Sandia is 38 years. The combination of the age of the facilities, type of construction and specialized missions the buildings house would make them challenging, but worthy candidates for future transformation to a more efficient office space utilization.
5 BUILDINGS OBSERVED - 655C - 2704 HV (200 East Area)	7 BUILDINGS OBSERVED - 331 LS - ISB1 - LSB (3350)	9 BUILDINGS OBSERVED - 1410 NSSA Site Office - 0261 - 1698 Materials Science Lab - 0767 - 0006 Record Accelerator - 0199	8 BUILDINGS OBSERVED - 0802 - AML - 6585 - CINT (0518) - 858 EL - Clone (0821)
- 2440 Stevens - 2751 E (200 East Area) - 3860	- EMSL - CSF / BSF - PSF - ETB	- 0038 Record Administration - 0022 - 0031 NBA Tech Support	- 905 - IPOC





SITE ASSESSMENT

The following section assess the findings from on-site tours and user group engagements. The focus of this report is spatial efficiency. However, additional enhancements to facilities are possible by implementing some industry best practices. This section is included to identify opportunities for enhancements.

SELECTION OF SITES

The buildings in the DOE portfolio are as diverse as its mission. The selected sites represent only a small portion of the portfolio, but contain a representative sample of the DOE's building types.

Each site consisted of owned assets, leased spaces, aging infrastructure, and new buildings. The types of facilities ranged from general office buildings to highly specialized, mission specific spaces.

EXPERT WALK-THROUGH

Facility tours were guided by site representatives and observations made during the walk-throughs were arranged into the following categories: ambient qualities, individual spaces, shared spaces, and planning. Site images were taken to supplement notated observations.

USER GROUP ENGAGEMENTS

By consulting users of the facilities, insight into the effectiveness of individual and shared spaces was gained.

Engagements Included:

Focus Groups

Visioning Sessions

Individual Interviews

Participants Included:

- Senior Leadership
- Management
- Department Representatives
- User Groups



Pacific Northwest National Laboratory + Office of River Protection

EXPERT WALK-THROUGH

Of the total buildings toured in Richland and Hanford, three were selected to capture the overall condition of office and administrative type spaces, as a focus of this study.

Shared spaces were planned successfully in centralized locations within floorplates, and were noticeably utilized by building occupants. While daylight and exterior windows were abundant, high workstation panels often blocked the ability for light to reach past two workstation bays deep.

building	PNNL LSB 3350	^{PNNL} BLDG ISB1	orp HOV 2704
daylight			
artificial light			
transparency	y 🔴		\bigcirc
office			
workstation	0		
conference			\bigcirc
multi-use		L/O	\bigcirc
flexibility			
utilization			
	CATEGORY (COLOR)	ASSES	SMENT (FILL)
leaend	ambient qualities	Suco	cessful
1090110	individual spaces	moderate	
	shared spaces	Onee	ds improvement
	planning	∟⁄o limit	ed observation

ENGAGEMENT FEEDBACK

The quotes below were captured from our engagements with management, leadership, and facility management representatives.



AECOM

CATEGORY (COLOR)	ASSESSMENT (FILL)
ambient qualities	successful
individual spaces	moderate
shared spaces	O needs improvement
planning	L/O limited observation



 $\bigcirc \bigcirc$

LSB (3350) \bigcirc Workplace

HOV (2704)

Circulation

While workstations are placed along the window line, high panels keep daylight from reaching secondary circulation and other work spaces. Lowering panel heights, or adding transparent panels will help to bring the light further into the general workplace.



LSB (3350) Storage

spatial inefficiencies. the facilities and site staff are doing their best to work within the existing condition but this results in cluttered and inefficient use of space.

room seemed to be used frequently. light.



Bldg ISB1 Break Room



Bldg ISB1 Shared Office

Placement of the panels creates Planning improvements to the The furniture configuration of this layout of this space, such as trash office directly faces a window, and recepticles and counter equipment may cause eye strain from three light space would provide additional sources: daylight, the computer room for employee seating. This monitor light, and overhead artificial



Secondary circulation is lined by high workstation panels, which make identifying department or locating colleagues within the space challenging. Visual blocking could hinder collaboration between internal groups and adiacent departments.



HOV (2704) Private Office

Offices along occupied, or closed door when the personal dynamic as shown here. office door is closed.



Shared Office





HOV (2704) Break Room

Break areas can be reconfigured to use space more efficiently, by increasing seats and tables for groups and individuals, counter space, and work islands, in lieu of internal circulation as shown here.



Los Alamos National Laboratory SITE ASSESSMENT

EXPERT WALK-THROUGH

Of the total buildings toured in Los Alamos, two were selected to capture the overall condition of office and administrative type spaces, as a focus of this study. This site did not include employee or management engagements.

The major themese observed in the walk-throughs include, workstation and office dense floorplans, high workstation panels, and inefficient placement of lateral file cabinets placed within usable workstation areas. These themes created a siloed environment in the majority of the toured office spaces.

building	OTOWI 0291	BLDG 0031
daylight	0	
artificial light	\bigcirc	
transparency	у О	
office		
workstation	0	
conference		
multi-use	0	L/O
flexibility	\bigcirc	
utilization		
	CATEGORY (COLOR)	ASSESSMENT (FILL)
leaend	ambient qualities	successful
	individual spaces	moderate
	shared spaces	 needs improvement
	planning	L/O limited observation



doors retrofitted to workstations, which may speak to the need for security or privacy. Department specific requirements should be considered during the design phase, to assure proper building code implementation.

Workplace

Bldg 0031

Shared Office



Otowi (0261) Workplace

Many workstations had full sized The full glass front of this office provides transparency and acoustic privacy, however may not consider visual privacy for confidential or security-sensitive work.



Some offices had an abundance of Excessive overhead light and low equipment.



Bldg 0031 Shared Office

computer equipment installed on or ceilings caused the occupants in near office desks. This may indicate this shared office to screen part of a need for a computer lab or spaces the lighting. Lighting in this office is designed for department specific not adequate to occupants of the space.



CATEGORY (COLOR)	ASSESSMENT (FILL)
ambient qualities	successful
individual spaces	moderate
shared spaces	O needs improvement
planning	L/O limited observation





Otowi (0261) Workstations

adding transparent panels will help more flexible furniture solutions so recommended additional storage to bring the light further into the that multi-purpose rooms can be re- solutions. general workplace.



Otowi (0261) Multi-purpose

configured to suit a variety of needs.



Bldg 0031 Private Office

A common observation included an Tables and chairs that cannot Offices require ample storage for Ad-hoc space and furniture being abundance of artificial light and lack be stacked or moved easily in filing and organization as shown in configured by staff indicates a of daylight due to high workstation multipurpose rooms may hinder this example. Excessive amounts need to for additional meeting and panels. Lowering panel heights, or flexibility in use of space. Implement of papers observed in offices; collaboration spaces.





Otowi (0261) Workplace





Storage placed along atrium glazing Since workstation panels are so block full potential of daylighting high, daylight is not able to penetrate along circulation paths.



Otowi (0261) Workplace

to its capacity thought-out the open workplace. Instead, an abundance of overhead artificial light takes its place.





Otowi (0261) Workplace

High storage files and components (above eye level) hide employee workstations, and block overhead light from within the workstation area. Lowering the height and distributing the placement may create better visual transparency.



Workstation panels are high that

Otowi (0261) Workplace

wayfinding signs hung from the ceiling grid have low visibility. More efficiently designed wayfinding can be integrated.



Sandia National Laboratory SITE ASSESSMENT

EXPERT WALK-THROUGH

Overall, the layout of workstations and offices at SNL are efficient and well planned. Recommended areas of improvement for future planning include, more efficient primary and secondary circulation, utilization of a consistent workstation size, and standard storage components within offices. In addition, increase the quantity of flexible shared spaces, such as, pantries, conference rooms, and multi-use spaces.

ENGAGEMENT FEEDBACK

The quotes below were captured from our engagements with management, leadership, and facility management representatives.



AECOM

building

daylight

office

artificial light

transparency

workstation

conference

multi-use

flexibility

utilization

legend

CATEGORY (COLOR)	ASSESSMENT (FILL)
ambient qualities	successful
individual spaces	moderate
shared spaces	O needs improvement
planning	L/O limited observation







A lack of way finding created a This room was half configured Workstations along circulation with tunnel effect in primary circulation. as a lecture area on the left, and higher panels that include transpar-Designing for way finding by use of a breakroom area on the right. ency can both maintain acoustic signage, color indicators, or relief This method to subdivide a multi- privacy while allowing for visual conwithin the corridor may help with purpose room with movable nection with colleagues and allow orientation for building occupants partitions created an efficient use for daylight to enter the workstation. walking from one area of the building of space, as the occupants needed. to another area.



CINT (0518) Multi-use



CINT (0518)

CINT (0518) Circulation

Skylights or overhead windows may be viable alternatives for interior circulation areas where windows are not an option.



Workstation





Collaboration areas, whether enclosed or within the workstation area, benefit from daylight views.

Clone (0821)

Office



Clone (0821) Circulation

fective use of space.





spaces span the entire length of the space within the office suite corridor. Shared spaces should be appeared to be accessible and centrally located to make more ef- highly utilized by the department. This shows an efficient use of space by using circulation as a part of the meeting space.



Bldg 6585 Multi-use

This seminar room had movable partitions (shown open), furniture components, to allow for flexibility of use. In addition, overhead light levels can be adjusted based on the needs of the room's use.





SPACE CALCULATION METHODOLOGY

an analysis of existing processes + spatial terminology

OVERVIEW

This section will outline existing methods used to report USF across DOE sites. The objectives are to develop a single methodology to calculate USF, classify excluded mission specific and specialty space, produce a revised set of office space standard, and recommend an efficient USF per person, in an effort to maximize efficiency, utilization, and consistency for all future renovations and acquisition projects.

The analysis included a comparison of existing individual and shared space planning modules of observed sites against the GSA and DOE (Headquarters, Forrestal) standards. From the analysis, a new office space standard was developed.

To test the recommended office space standards, a floor of the Administration Building, "The Otawi", at Los Alamos was redesigned and resulted in over a 18% reduction of usable square footage (see pg. 28).

TERMINOLOGY + METHODOLOGY

This section will outline the following:

- Building area
- Circulation area (primary and secondary)
- Typical office space types
- Specialty space types (labs and secure spaces)



Area Measurement Terminology SPACE CALCULATION METHODOLOGY



FRPC & FIMS DEFINITION OF AREA

Net Area (Net Square Feet - NSF)

The sum of all program space, including interior walls. Excludes unassigned spaces such as building service, circulation, mechanical, and structural areas.

CONSIDERATIONS

Circulation

In multi-tenant or department buildings, only secondary circulation should be included; primary circulation is NOT part of the NSF calculation.

Usable Area (Usable Square Feet - USF) *

Internal area that excludes common areas such as bathrooms, stairways, elevator shafts, corridors, lobbies, equipment (that supports the building) rooms, janitor rooms, pipe and vent shafts, exterior walls, and telephone closets.

Specialty Space

For DOE space classified as *special space* is not included in the building's overall USF.

GSA Owned and GSA Leased Building

The Usable Area is the Assigned Usable square feet shown in the occupancy agreement



Rentable Area (Rentable Square Feet - RSF) *

The area, measured to the inside finished surface of the permanent outer building walls, excluding any major vertical penetrations of the floor. Areas of columns and building projections are included in rentable area. Excluded are exterior walls, major vertical penetrations, and interior parking spaces.

Leased Building

If the building is not owned by the DOE, the RSF is determined and agreed upon by the tenant and the leasing agent on the lease contract. This calculation is not included within this report.



Gross Area (Gross Square Feet - GSF) *

Preferred Method: The area of all floor areas on all levels of a building or trailer in square feet as determined by using an industry standard methodology such as ANSI/BOMA**. **Secondary Method:** The total floor area of a building or trailer in square feet measured be-tween exterior finished surfaces and multiplied by the number of floors.

For the purpose of the Site Studies section, the building core is identified and removed from the GSF total.

*ANSI/BOMA Z65.1-2010, Office Buildings: Standard Methods of Measurement. Adopted from FIMSWeb User's Guide - 10/02/2014.

**ANSI/BOMA Z65.3-2009, Gross Area of a Building: Standard Methods of Measurement.

Additional information about circulation can be found in GSA's publication called "Circulation : Defining and Planning" dated January 21, 2014

Area Measurement Terminology SPACE CALCULATION METHODOLOGY





Defining Specialty Space SPACE CALCULATION METHODOLOGY

LABORATORY CLASSIFICATIONS



High Bay

Laboratory, manufacturing, assembly/disassembly, production, pilot testing, R&D, space with at least 12-foot ceilings and one or more of the following typical attributes: large doors, cranes, and high-floor loading. Could include hot cells, pilot plants, large-scale process operations/processing (including waste management), specialty shops, service facilities, and vehicle maintenance bays. Differentiable from storage by its height and research, development, or production attributes. (*Image: SNL Z Machine, Hermes III, by Randy Montoya*)



Ventilation Intensive

Facility space with substantive hood use or ventilation-intensive environmental controls, typically with at least six air change per hour and averaging at least approximately one hood per 150SF at the room level. Includes spaces requiring negative pressure such as hot cells, high performance chemistry or biology, vivarium, medical research, specialized manufacturing/ shops, and high performance cleanrooms, Nanoparticle labs, BSL, web labs or research space with high-air change coupled with once-through air requirements also align to this space type.



Power Intensive

Includes high-power computational/data center, accelerator labs, physics labs, and high-power laser labs, voltages above 480V, are typical. May include raised flooring and environmental controls. Differentiable from multipurpose control rooms/visualization and other spaces without the special floors and/or environmental requirements, and other power intensive capabilities.

(Image: Physics lab at cancer research center)



General (Wet)

Wet laboratory, chemistry, biology, light process, waste management, or multipurpose space, and may have fume hood space. Examples include greenhouses, gas-processes, and occupational medical. (*Image: Berkeley Lab for the joint Center for Energy Storage Research with DOE*)



General (Dry)

Dry space without hoods or a minimal amount compared to room size. Differentiable as dry lab or similar space not meeting the Power Intensive standard. This includes dry laboratories, laboratory or production support spaces, instrument laboratories, assembly, electronic shops, manufacturing, visualization suites, etc. (*Image: PNNL Demonstration Center Laboratory*)

*Department of Energy, National Nuclear Security Administration, Washington DC, Memorandum - 03/12/2014.

Distinguishing Between Office & Specialty Space SPACE CALCULATION METHODOLOGY

OFFICE CLASSIFICATION SPECIALTY CLASSIFICATION individual: shared: shared: laboratory: auditorium general exhibit space wet & dry SPACES INCLUDED SPACES EXCLUDED computer room high bay WITHIN USF **FROM USF** storage ventilation intensive CALCUATION **CALCUATION** power intensive < 500 SF warehouse building common mission specific SCIF* cafeteria collaboration space community conference rooms and services

SPECIALTY SPACE: MISSION SPECIFIC

all labs, secured spaces and storage, control rooms, training rooms, etc.









SPECIALTY SPACE: SCIF



*Secure Compartmentalized Information Facility, for additional information reference, Facilities Standards for the Public Buildings Service, GSA P-100 Version 1.0, March 2014.

*Excluded specialty spaces include rooms not formally identified as SCIFs such as Vault Type Rooms and 'Limited Areas' that have similar security characteristics.



Recommended Standards for Individual Space Space CALCULATION METHODOLOGY

PROPOSED PLANNING MODULE



'RIGHT-SIZING' A MODULE

In many ways, the current space efficiency is exemplary. Presently most scientists performing extremely sensitive and concentrative work are housed in offices not excessively sized. For instance, at Los Alamos and Sandia, private offices range from 140 to 300 square feet and can house two or more people.

For new facilities and future renovations, GSA recommends that enclosed offices are 120 usable square feet (USF) and incorporate interior glazing to maximize access to natural and artificial light from adjacent spaces*. As shown in the illustration on the left, the 120 USF office module will comfortably accommodate heads down work as well as meetings of two to three people.

The basic 120 USF module also provides flexibility in space planning. When doubled, could be used to create meeting rooms for 6-10 people or can become a larger office. The module could be tripled for very top leadership offices both in the field and in Washington Headquarters, where a degree of ceremonial function, often with larger groups is de rigeur. Note, however, that these later two categories should be rarely applied, and applied solely based on function. If this last caveat is applied, the larger offices should have little effect on the overall space utilization of the facility.

Why do these findings put such emphasis on modularity? Modularity-especially when congruent with standard bay sizes- increases efficiency, and less "wastage" results. On the other hand, with the use of multiple, arbitrary sizes based on hierarchy or preference-as opposed to work need- a lot of "left over" space is inevitable.

AECOM





Test Fit Comparison of LANL OTOWI Building, Floor 2 SPACE CALCULATION METHODOLOGY

	QUANTITY		AREA SQUARE FEET (SF)			
spaces	existing	proposed	\triangle	existing	proposed	\triangle
workstation	148	198	50	29,969 SF	9,504 SF	(20,465 SF)
60 - 72 SF 90 SF >100 SF	~70 ~52 ~26	198 @ 48 SF - -		secondary circulation absorbed	9,504 SF - -	
office	61	64	3	8,630 SF	7,680 SF	(950 SF)
92-120 SF 130-192 SF 211-280 SF 360 SF	29 29 3 1	64 @120 SF - - -		3.145 SF 4,486 SF 995 SF 360 SF	7,680 SF - - -	
meeting	8	40	39	2,170 SF	5,575 SF	3,405 SF
focus 64 SF small 100 - 120 SF medium 130 - 240 SF large + 240 SF open varies	- 2 1 5 -	16 15 9 1 -		- 210 SF 175 SF 1,785 SF -	1,025 SF 1,950 SF 1,670 SF - 930 SF	
shared	16	5	(11)	3,680 SF	3,020 SF	(660 SF)
quiet zonevariesboard room460 SFteleconf. room300 SFsocial hub1,550 SFtraining room1,550 SFpantry/breakvariesfile / storagevaries	- - - 2 5 9	1 1 1 - 1 -		- - - 420 SF 1,710 SF	450 SF 460 SF 300 SF 1,550 SF - 260 SF	
Circulation (secondary)				secondary circulation absorbed in workstation SF	15,750 SF	15,750 SF
Seatcount (workstation + office)	209	262	50			
usable square feet				44,449 USF	41,529 USF	(2,920 USF)
circulation (primary)				4,600 SF	4,125 SF	(475 SF)

COMPARING EXISTING AND PROPOSED PLANS

To demonstrate the potential efficiencies of the recommended space standards, the 2nd floor of the Otowi was planned with the proposed modules. The building was selected as an accurate representation of a typical office building, and contained no specialty space. The following pages show the existing condition, the proposed testfit, and a space program comparison showcasing the possible the efficiencies that modular planning can provide.

USF / PERSON				
EXISTING 212	PROPOSED			
212 150				



spatial challenges

- Varying size of workstations and offices
- High partition heavy, creating inefficient circulation and blocking natural light
- Inconsistent shared spaces such as conference rooms



spatial solutions

- Concentrative' workstyle planning model
- Fewer partitions create better circulation and sightlines
- Access to daylighting and views with partitions below 54"
- Increase of varying sized shared spaces such as meeting rooms
- Centralized social hub, connecting colleagues and containing sound to



DOE Real Property Reporting SPACE CALCULATION METHODOLOGY

The following four pages support the recommendation to reevaluate DOEs space methodology.

FACILITY MANAGEMENT

site selected methodology

DOE Field Office and National Laboratory sites track and measure site property, buildings, and space types across their portfolio by utilizing various CAFM (Computer Aided Facility Management) software systems. This information ties space to specific departments, divisions, missions, and individual employees. By tracking this information, sites are able to gauge their utilization rate from a macro to micro level.

FORMATTED INVENTORY

property + usage + employees

In preparation for quarterly FIMS reporting, Field Office and National Laboratory sites align specific CAFM data fields to include but not limited to, Real Property Use (Land Predominant use, Building Predominant Use, Structure Predominant Use), area measurements (GSF, RSF, USF), personnel count (Federal and Contract), and utilization rate. The data is vetted through a FIMS Audit on average, once per year.

REAL PROPERTY PORTFOLIO INFORMATION

reported quarterly

Information entered into FIMS is used to determine annual property statistics, including fiscal and spatial efficiencies.

DO BUILDING PREDOMINANT USE CODES REPRESENT IT'S OCCUPANTS?

Predominant use codes, provided by the Federal Real Property Council's Guidance for Real Property Inventory Reporting, are used to define a buildings primary use, based on the size of a real property asset - determined on a site level, and reported in FIMS and considered as a building's predominate use.

This classification <u>does not</u> require quantifying and reporting ALL space types included within the building.

For example, a building may be classified as 'office' because a majority of the space is used for office use. This may not consider that the office occupants may be placed within that building to support the non-predominant use. An example of this may be a building classified as office with a small lab component may require the office space to conduct lab related work at a workstation or in an office, outside of the physical lab.

Individual Site FIMs Reporting Process SPACE CALCULATION METHODOLOGY





Existing Predominant Use Classification SPACE CALCULATION METHODOLOGY



PREDOMINANT USE CLASSIFICATION

Determining predominant use classification for a site building requires scrutiny; a clear understanding of what the building is designed to accomplish, and what are the required tasks that must take place in order for them to be successfully accomplished.

For instance, when buildings and labs are collocated, *delineating between strictly lab and strictly office may not support the critical function.*

SITE COMPARISON BY BUILDING CLASSIFICATION

The graph above is a snapshot of current quantity by percentage of Office and Lab classified building across this site study, as reported in FIMS.



Building Classification Study SPACE CALCULATION METHODOLOGY

 legend

 office
 site buildings

 laboratory
 predominant use refinement zone

Classifications of space, as labs and offices, impact the inconsistency of reported USF.....



In addition to the laboratory space predominant in Research and Development (R&D) classified buildings, a *workplace or 'office' for scientists and researchers to document subsequent or ongoing findings is necessary to include when planning.* When a workplace 'office' is placed within a R&D building, it is included in the USF and utilization rate for the office space.

Lab spaces require 2-3x more usable square feet (USF) than typical office planning. When a building is classified as Office, and also houses lab space, the utilization rate will be lower and USF per person will be higher than a building truly dedicated to office planning. Non-Federal and contract employees (such as post-doctorates, visiting scientists, mission specific experts, contractors, private sector vendors) not designated as FTE are not factored as occupants within a building's utilization and USF per person rate. In order for a true representation of USF per person, *the quantity of seats, not employees, should be considered when calculating office spaces that also include lab space.*





SITE STUDIES

identifying existing opportunities relating to recommendations

STUDY PURPOSE

This section pulls a select sample of the total buildings toured during the Site Tour and Engagement phase of this study. The criteria for selecting the sample is primarily focused based on Predominant Use as Office (#10), and house a variety of workplace settings. In addition, we included sample buildings that reflect either consistent or unique planning models from each site. The objective is to highlight efficient and inefficient spatial elements for future design and planning considerations based on the findings from this sample. Icons used are in reference to the Executive Summary topics on page 4.

STUDY METHODOLOGY

Data collected from each site includes building floor plans, square foot area per space type, and occupancy total (if available). Calculations for NSF, USF, individual space, shared space, primary and secondary circulations were determined based on this data.

'ALL-IN' vs. PROPOSED

Comparison of current methodology for measuring space (All-In) and how efficiency rates shift drastically when office spaces that support lab are delineated.

STUDY	BUILDING	SITE
STUDY 1	0518 CINT	Sandia National Lab
STUDY 2	0821 Clone	Sandia National Lab
STUDY 3	Bldg 6585	Sandia National Lab
STUDY 4	Bldg 0031	Los Alamos National Lab
STUDY 5	ISB1	Pacific Northwest National Lab



Sandia National Laboratory | CINT 0518, 2nd Floor SITE STUDY 1

BUILDING PROFILE

NAME: CENTER FOR INTEGRATED NANOTECHNOLOGIES USAGE: 101 OFFICE ASSET: 501 PRODUCTION / MANUFACTURING FLOORS: 1

OVERVIEW

As one of five DOE Nanoscience Centers, CINT is characterized as a "highly collaborative facility" by CINT's User Program Manager, this facility combines disciplines of energy, bio/ medical and environmental science in a workplace and lab integrated location. The users of this building consist of University affiliates, industry professionals, other laboratory visitors and the international science community.

IDENTIFYING OPPORTUNITIES

A The USF reported by SNL includes the lab spaces, which greatly exceeds the amount of office space. By not including lab spaces, the USF per person would significantly decrease as shown in the proposed methodology.



SNL does not account for the lab occupants that use the workstations between the labs. SNL reported 80 occupants, 10 vacant offices, but there are 130 offices and workstations. The occupant total could be higher than 130 because during our observations at least 10 offices had more than one occupant.





* building core removed from GSF calculation





Sandia National Laboratory | Clone 0821, 2nd Floor

BUILDING PROFILE

NAME: NUCLEAR SAFEGUARD SEC LAB USAGE: 101 OFFICE ASSET: 501 PRODUCTION / MANUFACTURING FLOORS: 3 + BASEMENT

OVERVIEW

Building 0821 is one of nine prototypical combined laboratory and office buildings on Sandia's site, built between 1981-1995 and amounting to approximately ~1M square feet of building area. Since, the interior planning model within this building, specifically the office and workplace, has mostly remained intact. The intent to renovate this space is outlined within the FY2015-2019 SNL Five Year Facilities & Infrastructure Plan.

IDENTIFYING OPPORTUNITIES



The condensed office layout of this space only accounted for the occupants reported, although does not make clear whether the offices are being utilized in conjunction with lab space. Further, the planning relies heavily on office space, which shows an inconsistant standard of workstations.



Since this building is not subdivided into separate suites, any circulation space is considered primary use. This calculation included circulation also used for lab space.





* building core removed from GSF calculation





Sandia National Laboratory | Bldg 6585, 2nd Floor

	NG PROFILE	PROPOSED METHODOLOGY	EXISTING ('ALL - IN')		
USAGE: ASSET: 5	101 OFFICE 501 PRODUCTION / MANUFACTURING	44,041	not reported	GSF* gross square feet	
FLOORS	: 3	14,910	not reported	USF usable square feet	
PLAN A	SSESSMENT	12,591	not reported	NSF net square feet	
Α	As 'Specialty Space', computer labs are NOT	76	76	occupants (reported)	
	they are included in Sandia's calculation for Lab	n/a	n/a	seats/spaces (counted)	
	'Lab Total'.	196	196	USF / person (occupants)	
В	High primary circulation rates in a multi-tenant	1.42	n/a	circulation multiplier	
	building increased the amount of usable square feet	42%	n/a	circulation factor	
С	Auditorium that is on the East side, is NOT included				
		8,140	not reported	individual	
		4,451	not reported	shared	_
		6,204	not reported	lab	- A
		6,550	not reported	circulation (primary)	- B
		2,319	not reported	circulation (secondary)	
		n/a	not reported	building core*	
10W	office : 54% lab: 43%	n/a	not reported	specialty space (auditorium)	- C

^{*} building core removed from GSF calculation





Los Alamos National Laboratory | Bldg 0031, 2nd Floor SITE STUDY 4

BUILDING PROFILE	PROPOSED METHODOLOGY	EXISTING ('ALL - IN')	
JSAGE: 101 OFFICE	18,969	18,969	GSF* gross square feet
FLOORS: 1	7,706	not reported	USF usable square feet
PLAN ASSESSMENT	7,706	not reported	NSF net square feet
A LANL gave the occupancy and room type	n/a	not reported	occupants (reported)
separately, AND the workstations are not assigned numbers on either excel or plan. The occupants	45	n/a	spaces (counted)
reflect manually counting the approximate number of spaces on the plan.	171	n/a	USF / person (occupants)
B LANL designates dry lab as general lab space.	1.94	n/a	circulation multiplier
	51%	n/a	circulation factor
C Circulation Factor is high because of the			
configuration of the building.	5,642	not reported	individual
	2,064	not reported	shared
	819	not reported	lab
	3,967	not reported	circulation (primary)
	0	not reported	circulation (secondary)
	n/a	not reported	building core*
office : 87% lab: 13%			

* building core removed from GSF caculation





Pacific Northwest National Laboratory | Bldg ISB1

BUILDING PROFILE NAME: ISB1 USAGE: 101 OFFICE ASSET: 501 PRODUCTION / MANUFACTURING FLOORS: 1		PROPOSED METHODOLOGY	EXISTING ('ALL - IN')		
		~ 50,000	not reported	GSF* gross square feet	
		31,713	not reported	USF usable square feet	
PLAN ASSESSMENT		31,713	not reported	NSF net square feet	
A	Multi-tenant building that is not separated by pods, floors, or other enclosures, therefore no circulation is calculated into USF because none is assigned to a department.	230	230	occupants (reported)	
		n/a	n/a	spaces (counted)	
		138	n/a	USF / person (occupants)	
		2.82	n/a	circulation multiplier	
		35%	n/a	circulation factor	
		27,227	not reported	individual	
		4,486	not reported	shared	
		2,944	not reported	lab	
		11,255	not reported	circulation (primary)	- /
		0	not reported	circulation (secondary)	
		n/a	not reported	building core*	
	office : 90% lab: 10%			_	

workstation : 0%

* building core removed from GSF calculation



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CITATIONS

INFORMATION USED TO INFORM THIS DOCUMENT

US Department of Energy, Real Property Efficiency Plan, Implementation of OMB Memorandum M-12-12 Section 3: Reduce the Footprint FY 2016 - FY 2020 September 2015

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Sound Matters, http://www.gsa.gov/portal/mediald/172515/file-Name/GSA_Sound_Matters_(Dec_2011)_508 <http://www.gsa. gov/portal/mediald/172515/fileName/GSA_Sound_Matters_%-28Dec_2011%29_508>

Circulation : Defining and Planning, January 21, 2014

GSA External Fact Sheet

LOB Space Types Defined

All information obtained during the on-site engagement meetings, interviews, focus groups, visioning sessions, email correspondence, and phone discussions were used as resources to inform the content of this document.



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- DEPARTMENT OF ENERGY

