

Introduction to BOMA Measurements

Presented by the AIA Interior Architecture Knowledge Community

Good design
makes a difference™



THE AMERICAN
INSTITUTE
OF ARCHITECTS

Future, Free AIA Webinars

June 28

Human Resources: Creating the right workforce for your future
AIA Practice Management Knowledge Community

July 13

Practical BIM
AIA Technology in Architectural Practice Knowledge Community

Register at No Cost

<http://network.aia.org/events/webinars>

Good design
makes a difference™



**THE AMERICAN
INSTITUTE
OF ARCHITECTS**

Copyright Materials

This presentation is protected by US and International Copyright laws. Reproduction, distribution, display and use of the presentation without written permission of the speaker is prohibited.

©2012 The American Institute of Architects



Compliance Statement

“AIA Knowledge” is a Registered Provider with The American Institute of Architects Continuing Education System (AIA/CES). Credit(s) earned on completion of this program will be reported to AIA/CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This program is registered with AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.



AIA/CES Reporting Details

All attendees will be eligible to receive:

1.5 CEHs (AIA continuing education) or

1.5 CEHs Experience Hour of IDP supplementary education credit.

All attendees at your site will submit for credit by completing the webinar survey/report form.

The URL to the survey/form will be listed at the end of the presentation.

Certificates of Completion can be download at the end of the survey.

Continuing education questions can be directed to

knowledgecommunities@aia.org.



Course Description

The rules established by the Building Owners and Managers Association (BOMA) are the recognized national industry standard for measurement of space. Gain insight into these important professional tools and understand how to measure a building using BOMA methodology.

Andrew Patapoff and Erik Hodgetts of IA Interior Architects will give a clear description of how to apply the most common BOMA standards for commercial space and answer your questions related to the ways in which areas are quantified for planning, design and real estate use.



Learning Objectives

1. Be familiar with the terms and methods for calculating the areas of tenant spaces in commercial office buildings as established by the nationally-recognized Building Owners and Managers Association (BOMA).
2. Understand how to use BOMA's Method A and Method B to measure a building's area, and the pros and cons of each.
3. Apply BOMA methods to generate Rentable Square Footage for a building and its occupied areas for each method.
4. Mathematically derive the Loss Factors and Add-on Rates needed in order to convert between these space measurement standards.





Andrew Patapoff, AIA
Senior Associate
IA Interior Architects



Erik Hodgetts, AIA, LEED AP
Director of Legal Services
IA Interior Architects

Submit a question to the moderator via the Chat box. They will be answered as time allows.

Mary Burke, AIA
Moderator



Introduction to BOMA Measurements



June 26, 2012

PRESENTED BY:



Andrew Patapoff, AIA
Senior Associate
IA Interior Architects



Erik Hodgetts, AIA, LEED AP
Director of Legal Services
IA Interior Architects

OUTLINE

- Introduction
- Overview of BOMA Standards
- BOMA Terminology
- Measurement via Method A (Legacy Method)
- Measurement via Method B (Single Load Factor Method)
- Conclusions
- Questions and Answers

OVERVIEW OF BOMA STANDARDS

OVERVIEW OF BOMA STANDARDS

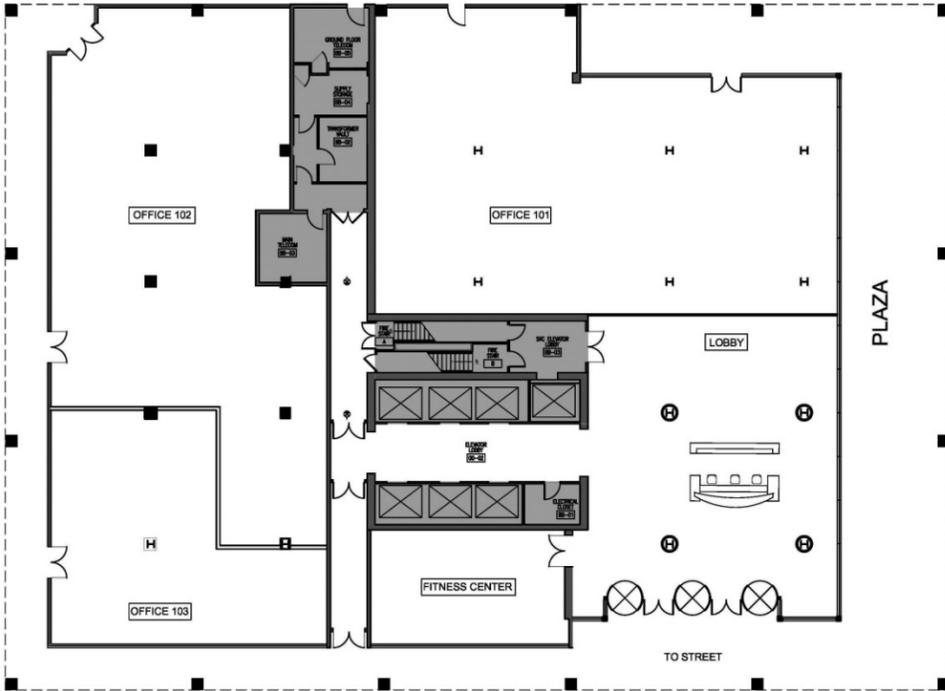
BUILDING OWNERS AND MANAGERS ASSOCIATION INTERNATIONAL (BOMA)

- Founded in 1907 to establish and lobby for industry best practices, education and common standards and guidelines.
- Members from every aspect of the real estate industry, including owners, developers, brokers, facility managers and service/product providers.
- Space measurement standards since 1915, updated about every 10 years.
- Voluntary standards for commercial office space and other building types.
- One common reference standard for landlords and tenants.
- Through the 1996 version of the BOMA standard, there was one method of measurement, but there are now two options to select from.
- Landlords and owners must select one method and use it to measure the entire building – you cannot mix and match.

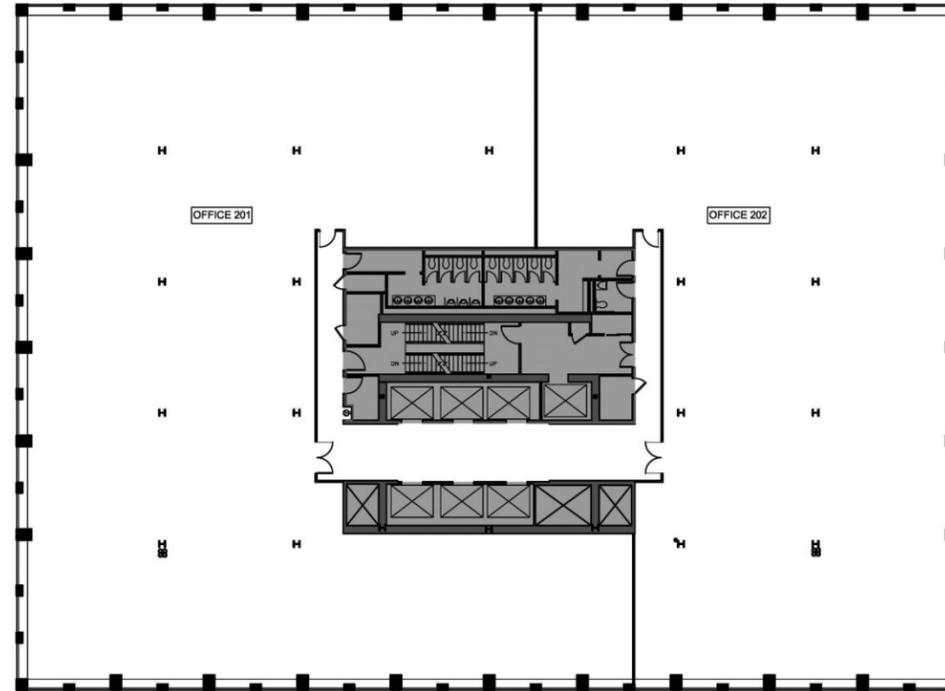


ANSI/BOMA
Z65.1-2010

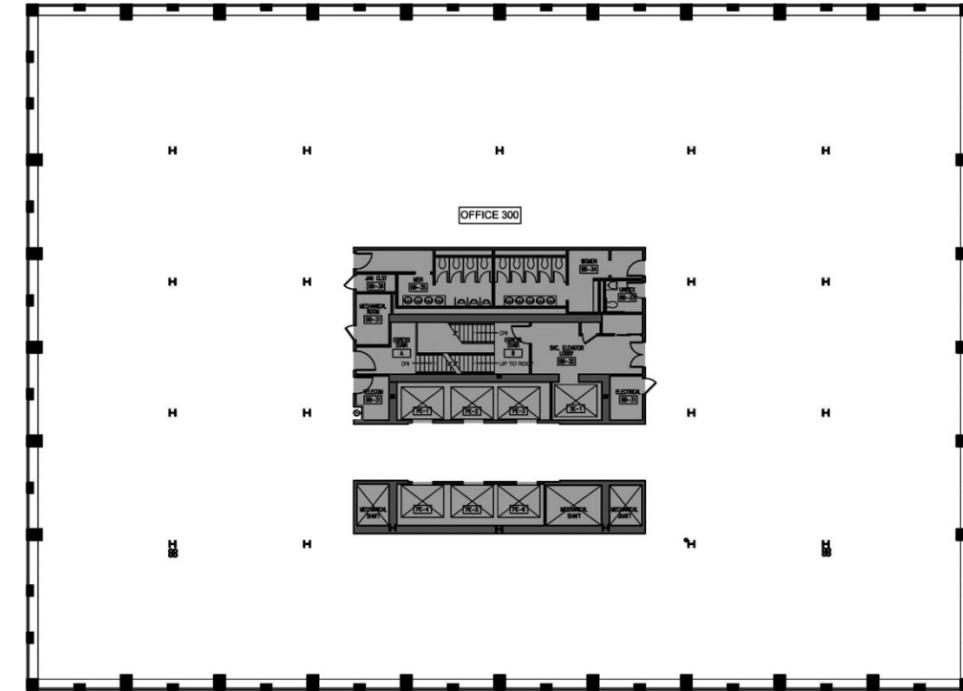
BOMA TERMINOLOGY



GROUND FLOOR



SECOND FLOOR



THIRD FLOOR

MEASUREMENT METHODS

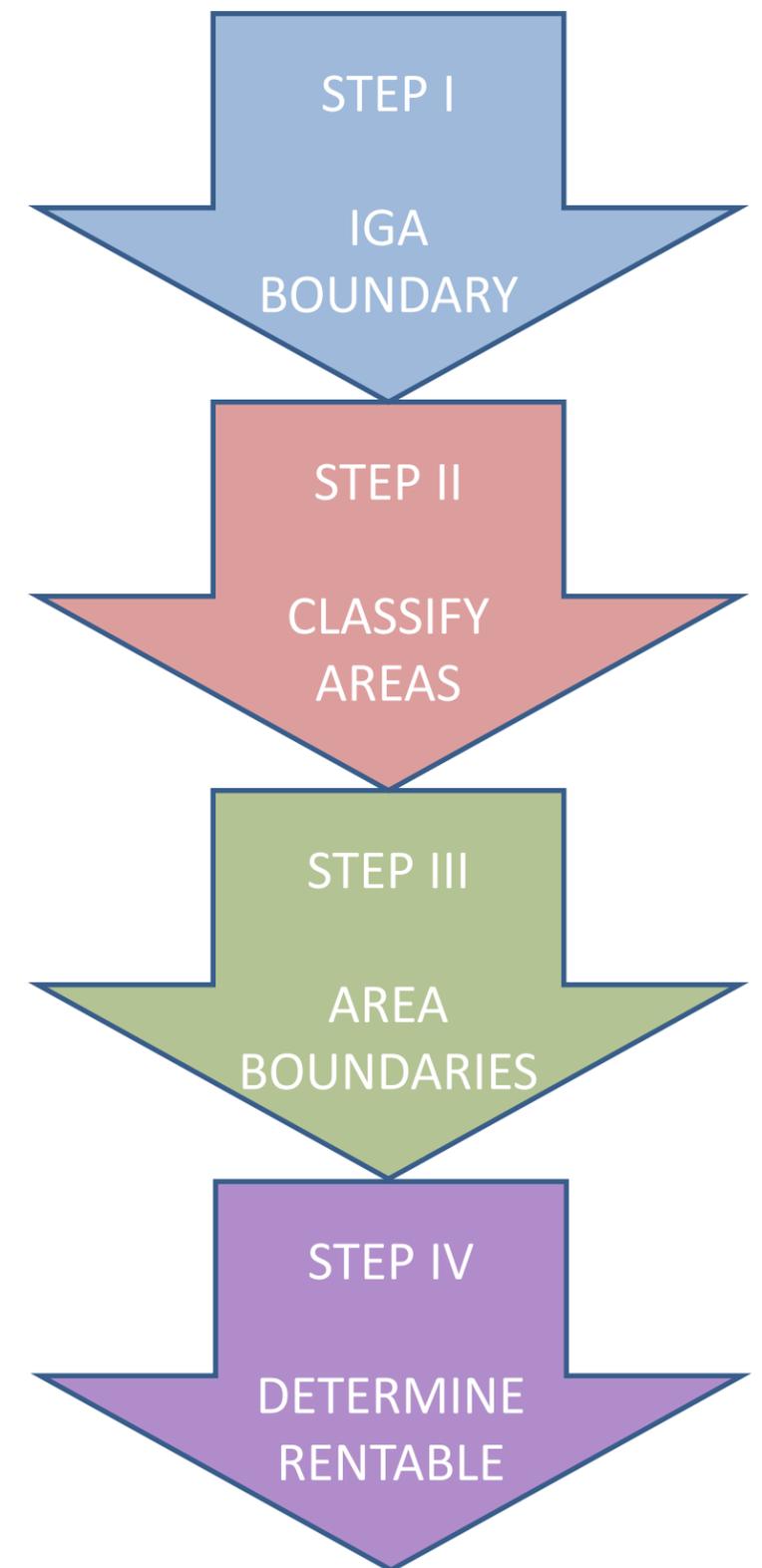
STEP I: Determine the interior gross area (IGA) of the building and each of its floors by establishing the IGA boundary.

STEP II: Classify all areas within the IGA boundary into one of the following classes of space:

- Major vertical penetrations
- Base building circulation (Method B only)
- Occupant areas
- Building amenity areas
- Building service areas
- Floor amenity areas
- Floor service areas
- Parking
- Occupant storage

STEP III: Determine the boundaries between each class of space using the wall priority diagram and calculate the areas of all classes of space.

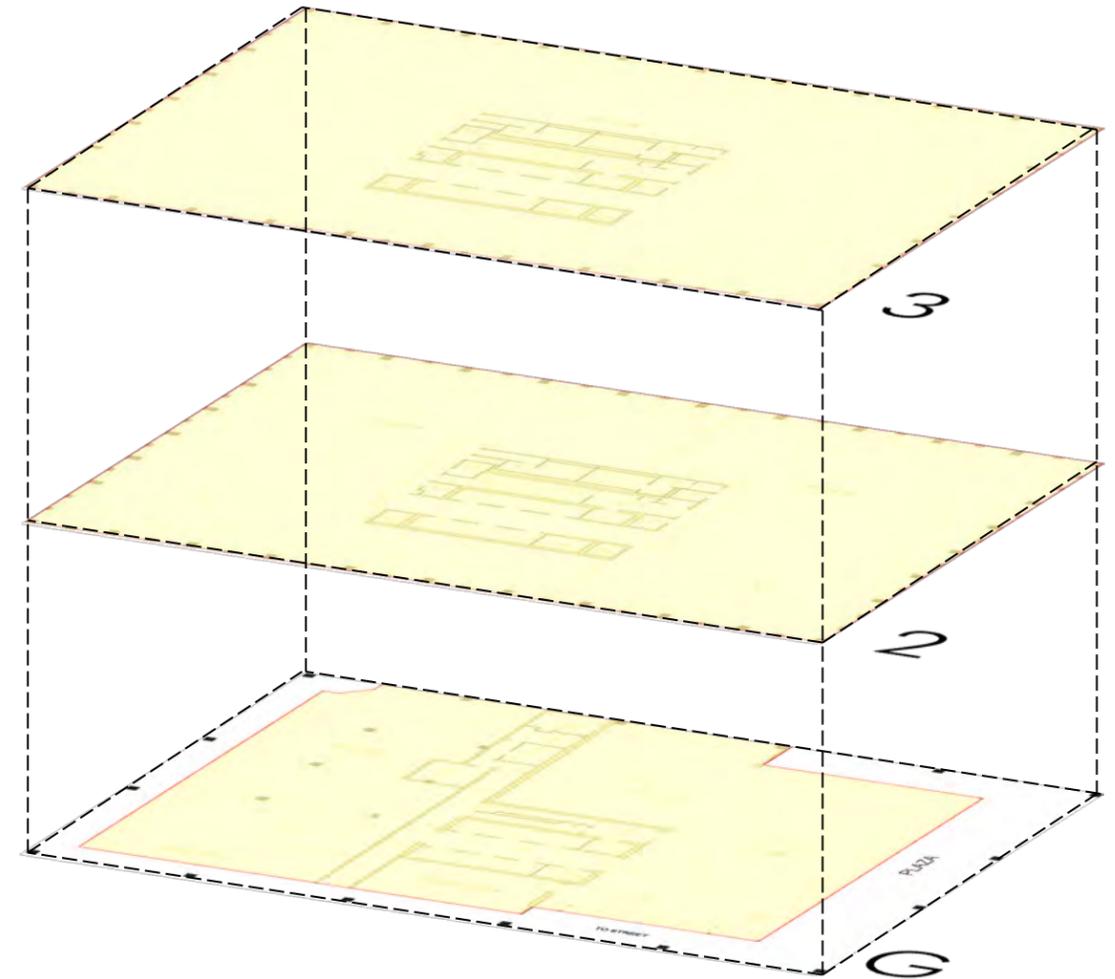
STEP IV: Utilize the global summary of areas chart to determine the rentable area of each occupant area.



Source: Office Buildings: Standard Methods of Measurement, p.6-10. Content ©2010 by BOMA International. All Rights Reserved.

INTERIOR GROSS AREA (IGA)

- The foundation of all other BOMA measurements.
- Determined for each floor of the building and forms a closed perimeter around the area of the floor.
- No deductions for columns and other projections necessary for the building.
- Excludes voids and interstitial space.
- Most typical boundary condition is vertical exterior enclosure, using the **dominant portion**.
- The combination of each floor's interior gross area establishes the IGA for the total building.



IGA BOUNDARY CONDITIONS

BOMA CONDITION ID NUMBER	CONDITION DESCRIPTION	IGA BOUNDARY
1	<u>Vertical exterior enclosure</u>	<u>Dominant portion</u>
2	Public pedestrian thoroughfare	<u>Enclosure limit</u>
3	<u>External circulation</u>	<u>Outside boundary of external circulation</u>
4	Non-vertical <u>exterior enclosure</u>	<u>Inside face of exterior enclosure</u> at floor level
5	<u>No dominant portion</u>	<u>Inside face of exterior enclosure</u> at floor level
6	Unprotected exterior opening	<u>Line at outside face of perimeter columns or exterior enclosure</u>
7	<u>IGA</u> adjacent to a <u>void</u> with a full or partial wall	<u>Dominant portion</u>
8	<u>IGA</u> adjacent to a <u>void</u> without a wall	<u>Edge of floor surface</u>
9	<u>Ownership change inside the building (except at vault space)</u>	<u>The property line</u>

Source: Office Buildings: Standard Methods of Measurement, p.6. Content ©2010 by BOMA International. All Rights Reserved.

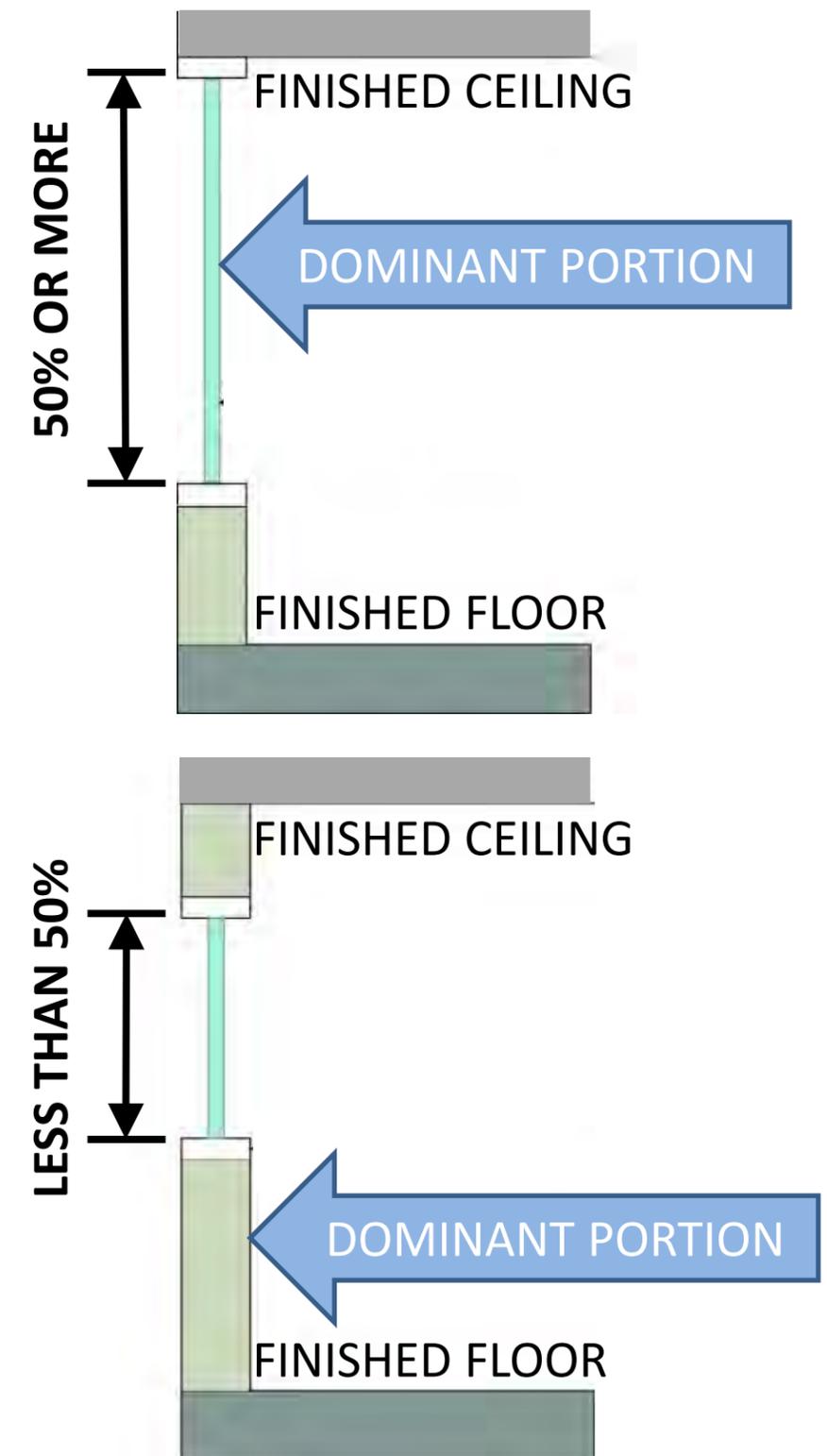
IGA BOUNDARY CONDITIONS

BOMA CONDITION ID NUMBER	CONDITION DESCRIPTION	IGA BOUNDARY
1	<u>Vertical exterior enclosure</u>	<u>Dominant portion</u>
2	Public pedestrian thoroughfare	<u>Enclosure limit</u>
3	<u>External circulation</u>	<u>Outside boundary of external circulation</u>
4	Non-vertical <u>exterior enclosure</u>	<u>Inside face of exterior enclosure</u> at floor level
5	<u>No dominant portion</u>	<u>Inside face of exterior enclosure</u> at floor level
6	Unprotected exterior opening	<u>Line at outside face of perimeter columns or exterior enclosure</u>
7	<u>IGA</u> adjacent to a <u>void</u> with a full or partial wall	<u>Dominant portion</u>
8	<u>IGA</u> adjacent to a <u>void</u> without a wall	<u>Edge of floor surface</u>
9	<u>Ownership change inside the building (except at vault space)</u>	<u>The property line</u>

Source: Office Buildings: Standard Methods of Measurement, p.6. Content ©2010 by BOMA International. All Rights Reserved.

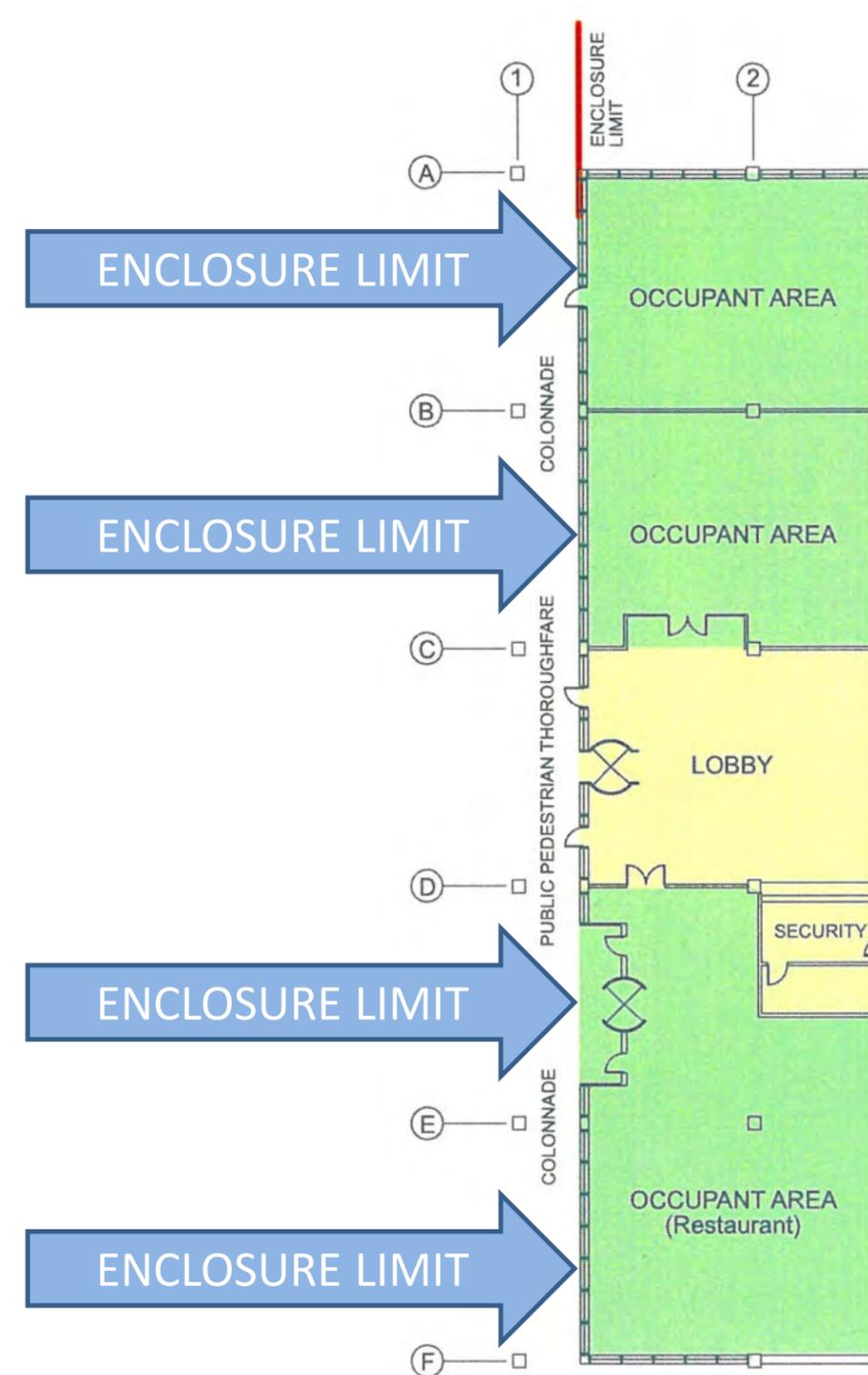
DOMINANT PORTION

- Measures to the **inside** face of the building enclosure.
- 50% or more of the vertical dimension between the finished surface of the floor and the finished surface of the ceiling.
- Determined on a vertical section of the enclosure, not a plan or elevation.
- Changes each time that the enclosure condition changes.
- Ignores columns and projections necessary to the building.



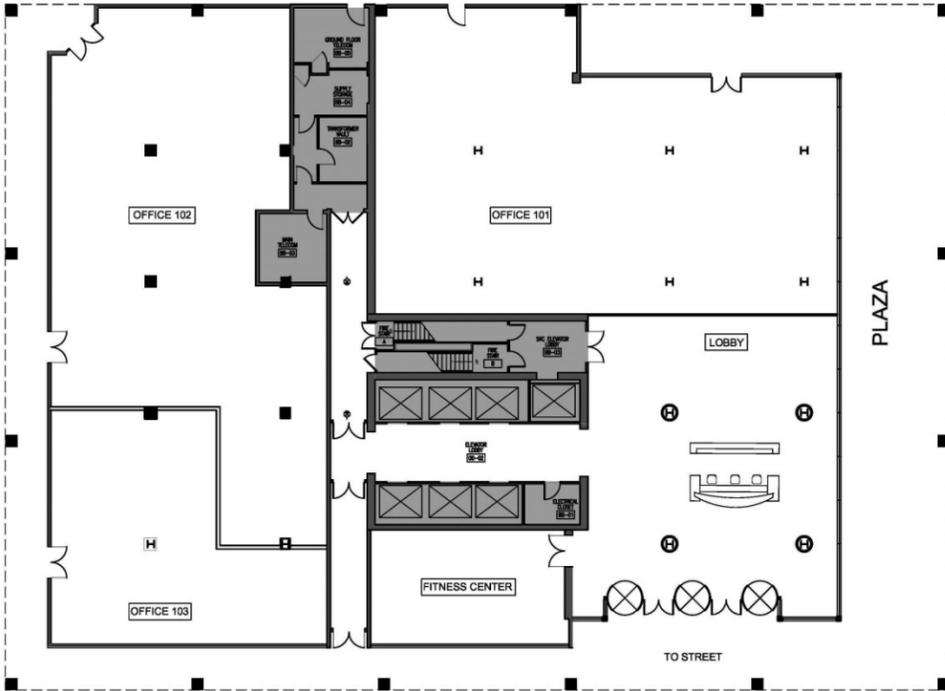
ENCLOSURE LIMIT

- Intended to represent the limit that an occupant could build up to next to a public pedestrian thoroughfare.
- Used where pedestrian traffic consists of activity beyond what is associated with the building use.
- Typically occurs at ground level areas, but could be used at any level.
- Extends to **outside** surface of perimeter columns or exterior enclosure.
- Continues past door setbacks and other recesses.

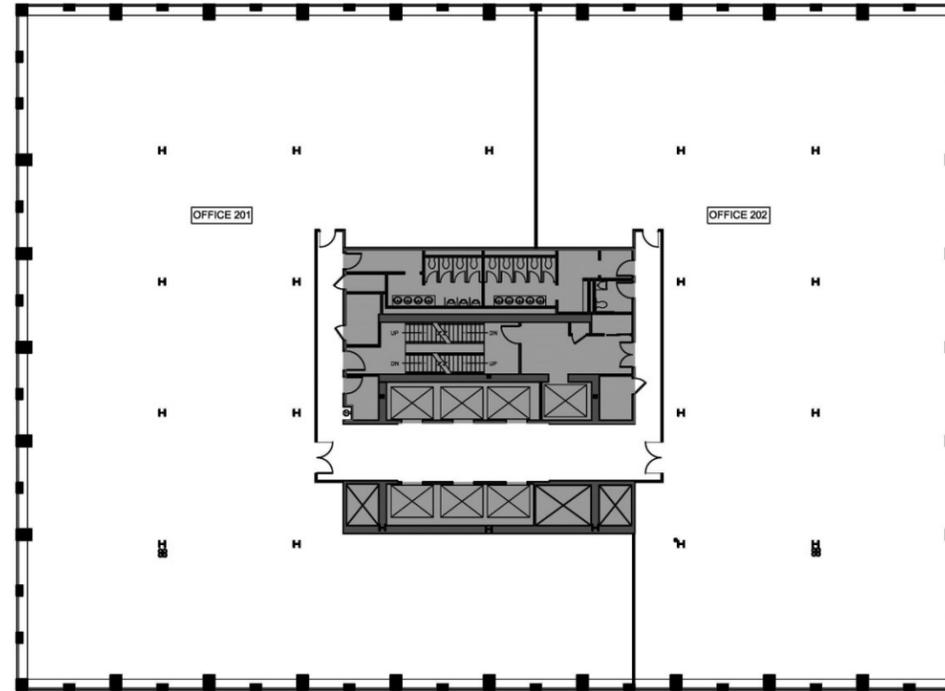


Illus. 11.3A – Colonnade

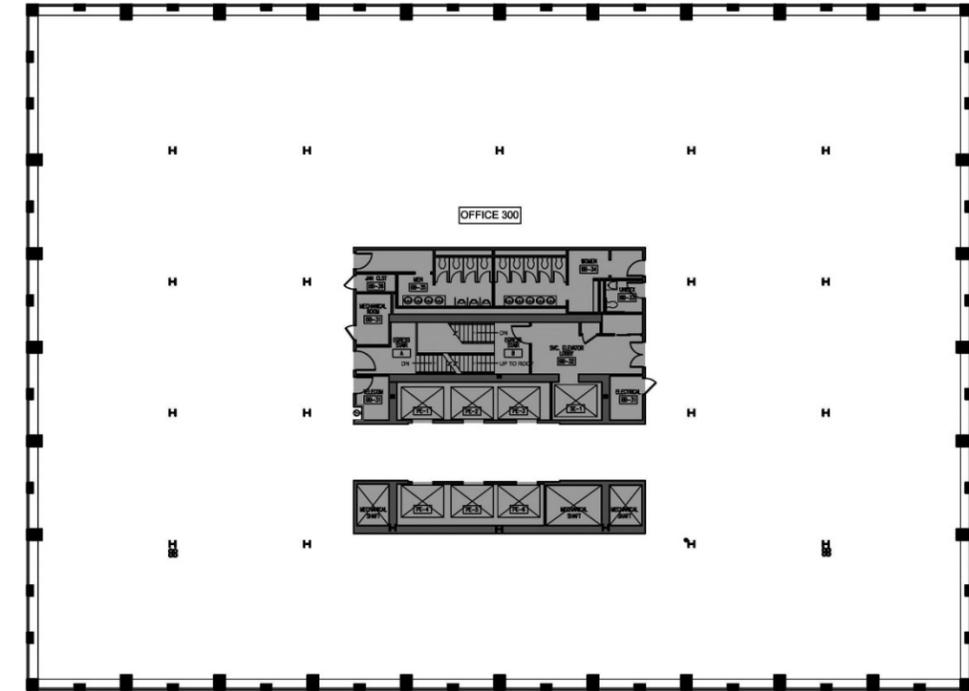
Illustration Source: Office Buildings: Standard Methods of Measurement, p.52. Content ©2010 by BOMA International. All Rights Reserved.



GROUND FLOOR

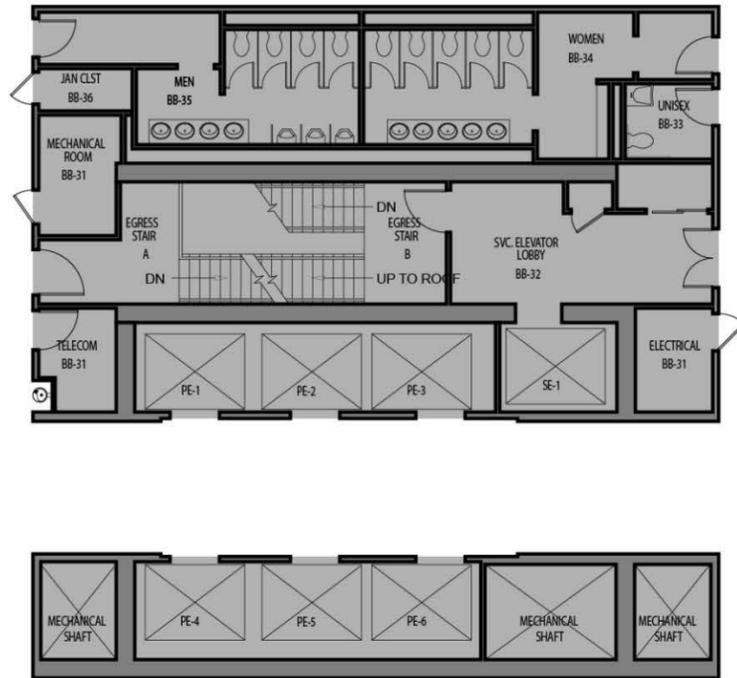


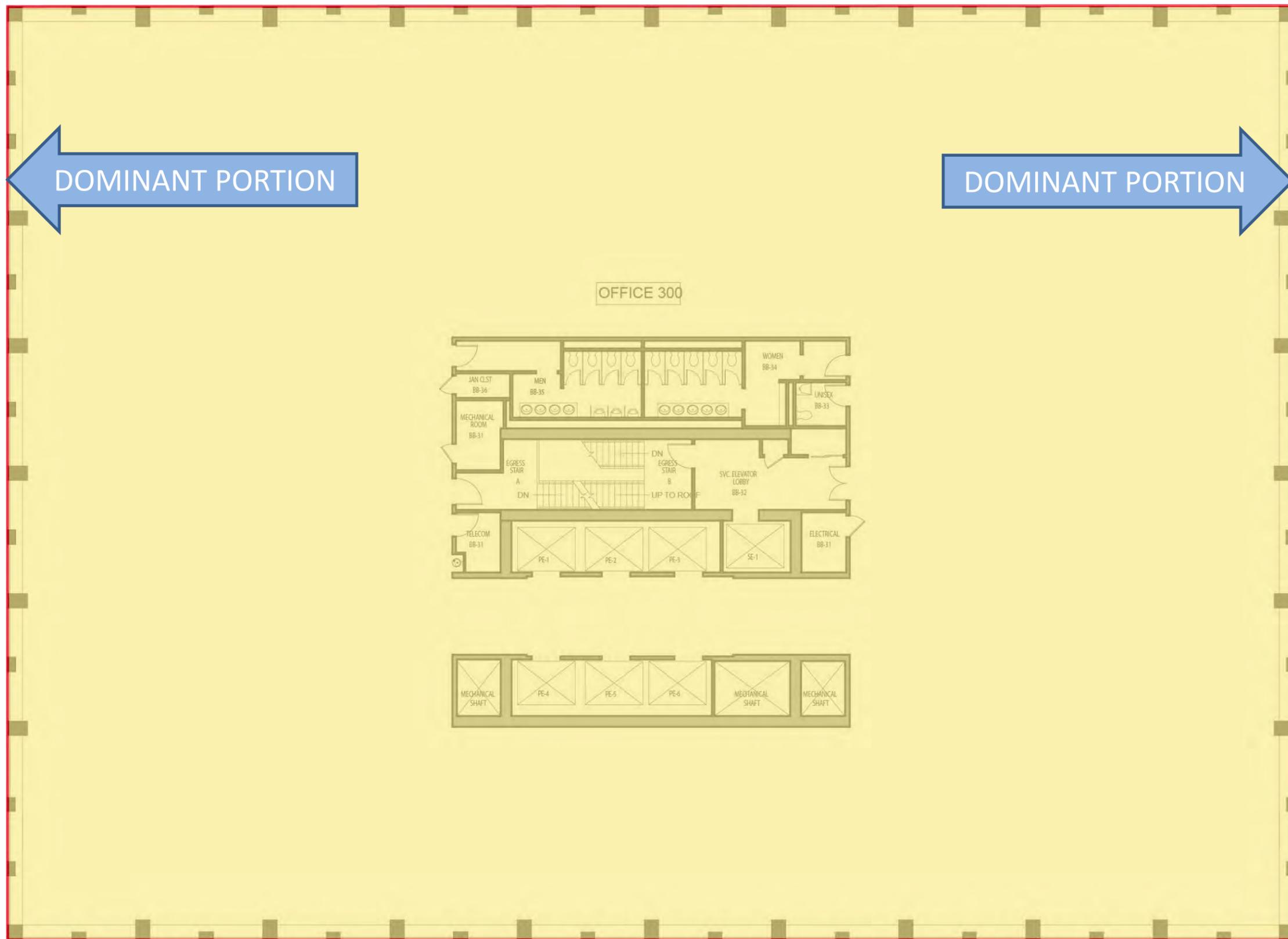
SECOND FLOOR



THIRD FLOOR

OFFICE 300





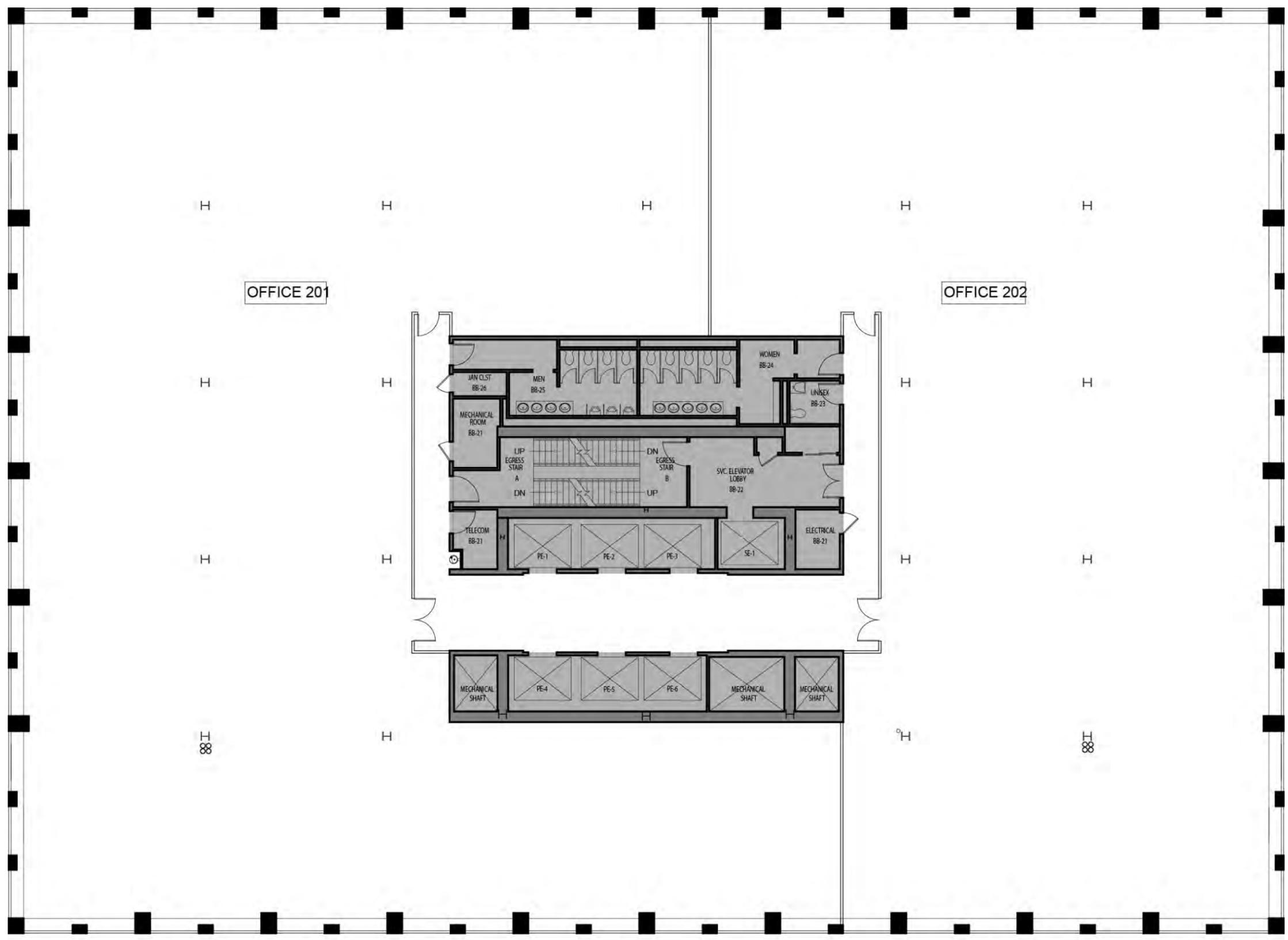
LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

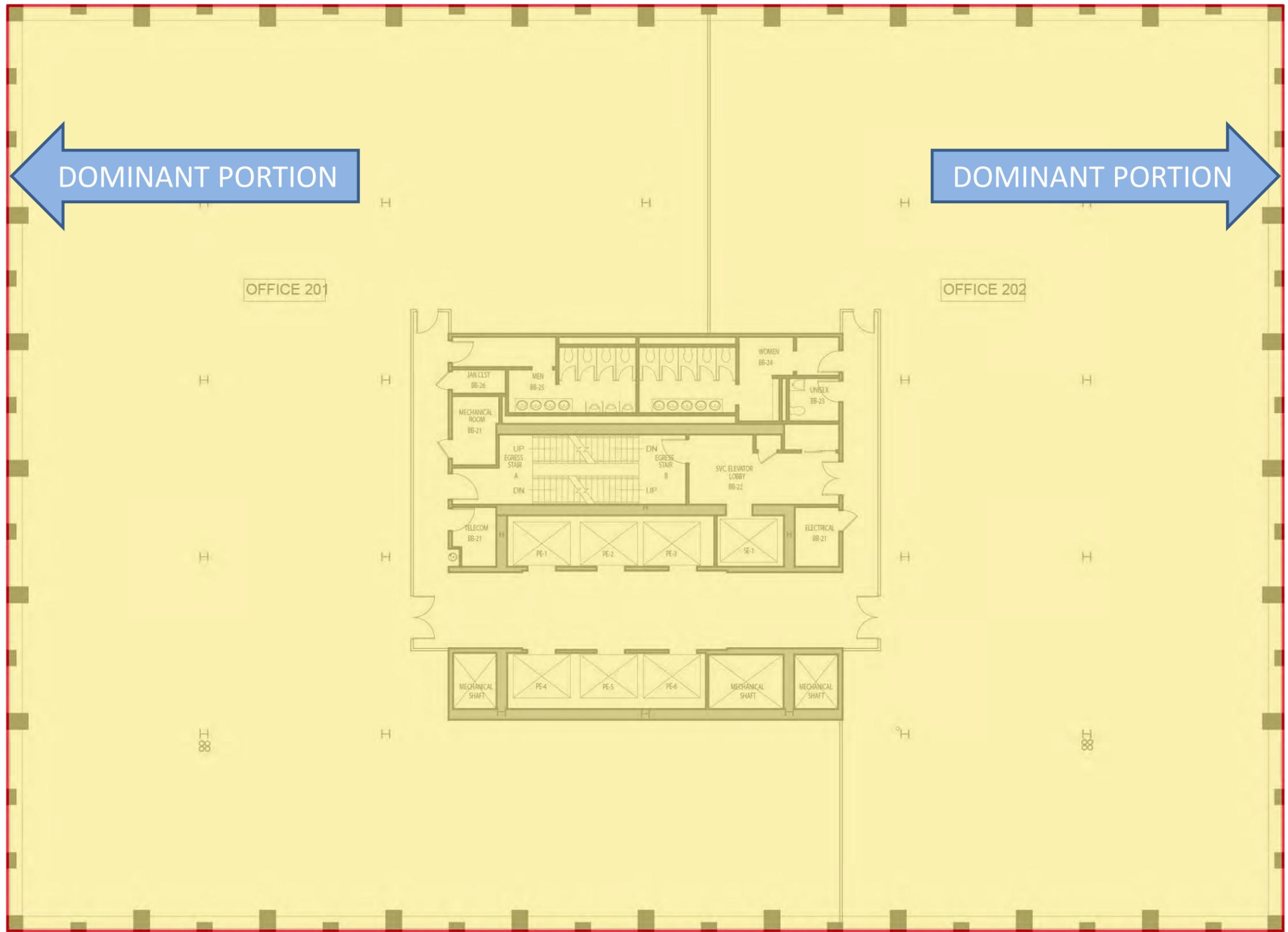
INTERIOR GROSS AREA

23,224 SF

THIRD FLOOR



SECOND FLOOR



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

INTERIOR GROSS AREA

23,224 SF

SECOND FLOOR



GROUND FLOOR



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

INTERIOR GROSS AREA

17,450 SF

GROUND FLOOR

MAJOR VERTICAL PENETRATION

- Floor area over 1 SF that serves vertical building systems or vertical occupant circulation.
- Includes stairs, elevator shafts, flues, pipe shafts, vertical ducts **and their enclosing walls**.
- Excludes voids (changed from the prior standard).
- Floor area under stairs and elevators and within their enclosing walls is generally included.
- Fully enclosed stair landings **ARE** included. An open stair landing at a floor level is **NOT** included.
- Area extends to the Far Side of the wall adjacent to all other space classes.

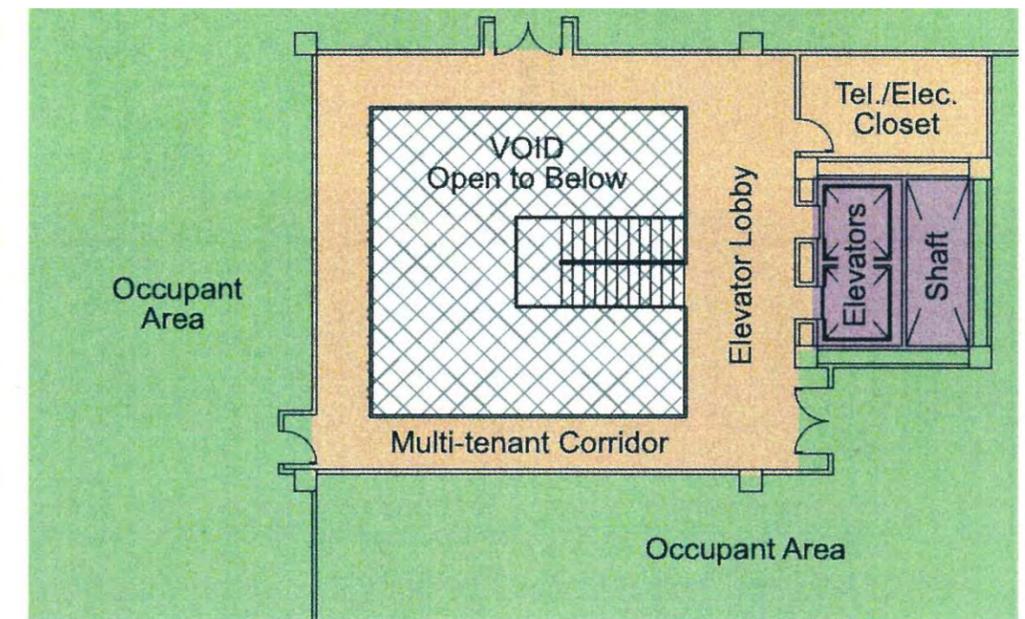
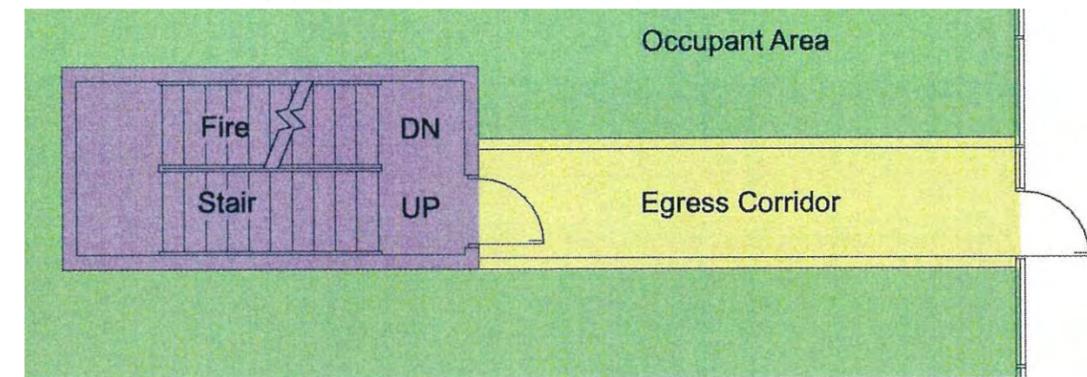
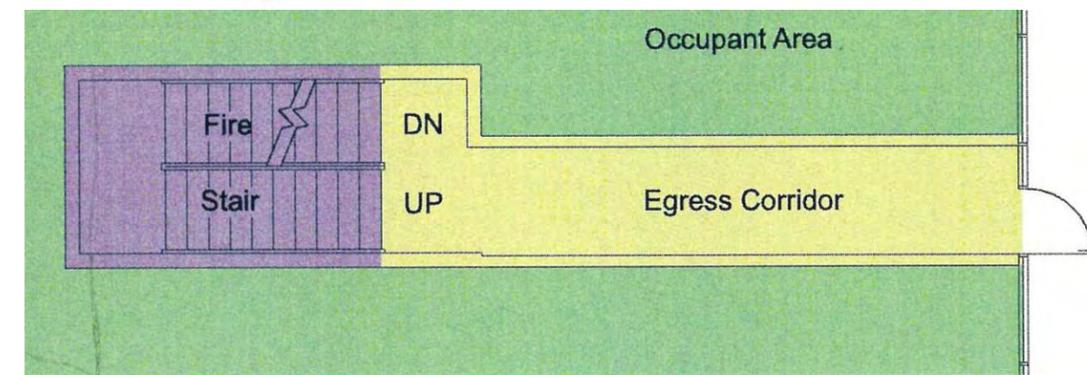


Illustration 7A Second Floor Plan



8A – Egress Stair with Door at Corridor



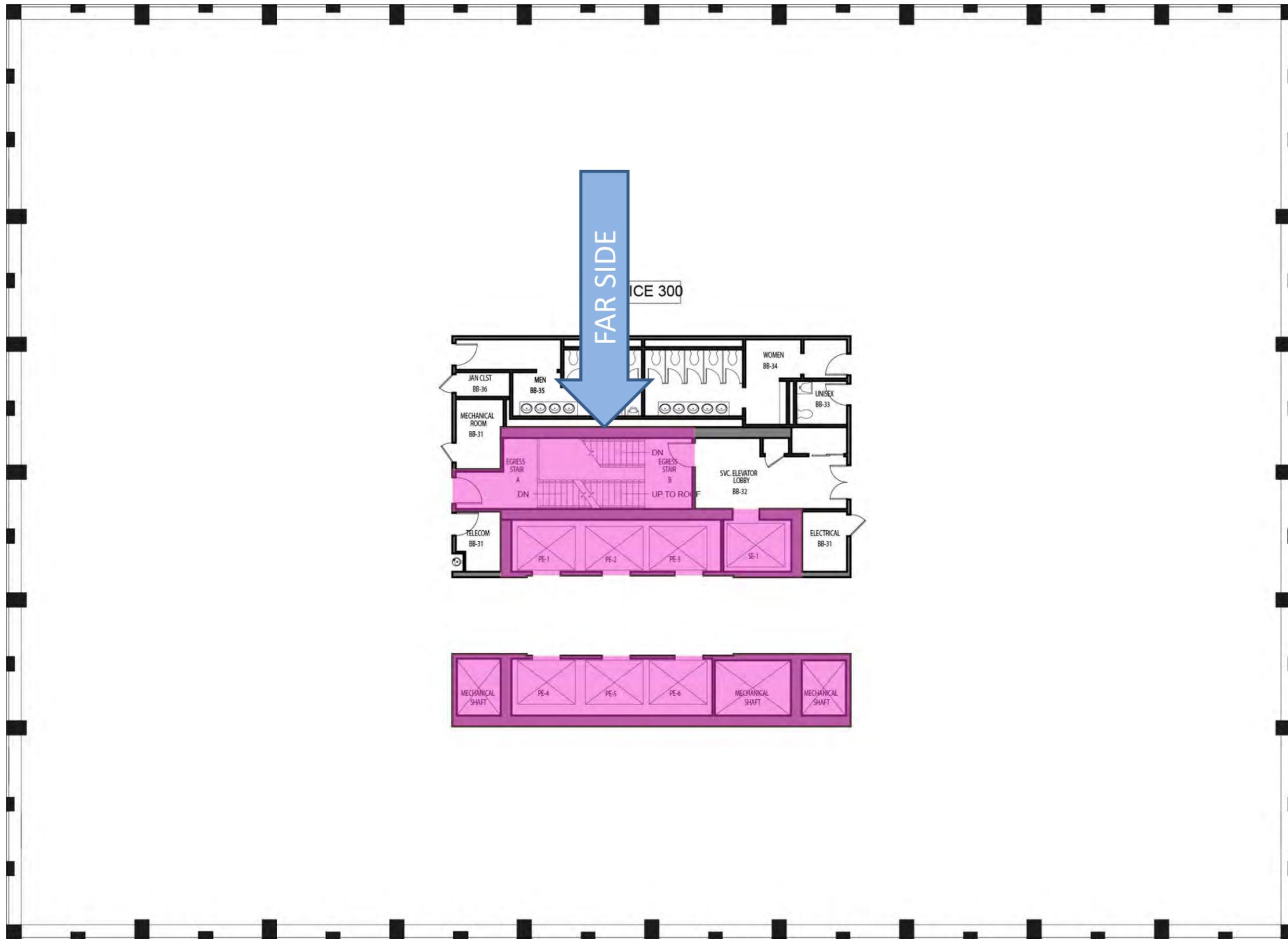
8B – Egress Stair without Door Corridor

Image Source: Office Buildings: Standard Methods of Measurement, p.42-43. Content ©2010 by BOMA International. All Rights Reserved.

WALL PRIORITY DIAGRAM

		MAJOR VERTICAL PENETRATION	BUILDING SERVICE AREAS PARKING (EXCLUDED)	FLOOR SERVICE AREAS	BASE BUILDING CIRCULATION (METHOD B ONLY)	OCCUPANT & AMENITY AREAS OCCUPANT STORAGE (EXCLUDED)
	FS: Far Side wall surface					
	CL: <u>Centerline</u> of wall					
	NS: Near Side wall surface					
	MAJOR VERTICAL PENETRATION	CL	FS	FS	FS	FS
	BUILDING SERVICE AREAS PARKING (EXCLUDED)	NS	CL	FS	FS	FS
	FLOOR SERVICE AREAS	NS	NS	CL	FS	FS
	BASE BUILDING CIRCULATION (METHOD B ONLY)	NS	NS	NS	CL	FS
	OCCUPANT AREA & AMENITY AREAS OCCUPANT STORAGE (EXCLUDED)	NS	NS	NS	NS	CL

Source: Office Buildings: Standard Methods of Measurement, p.6-10. Content ©2010 by BOMA International. All Rights Reserved.

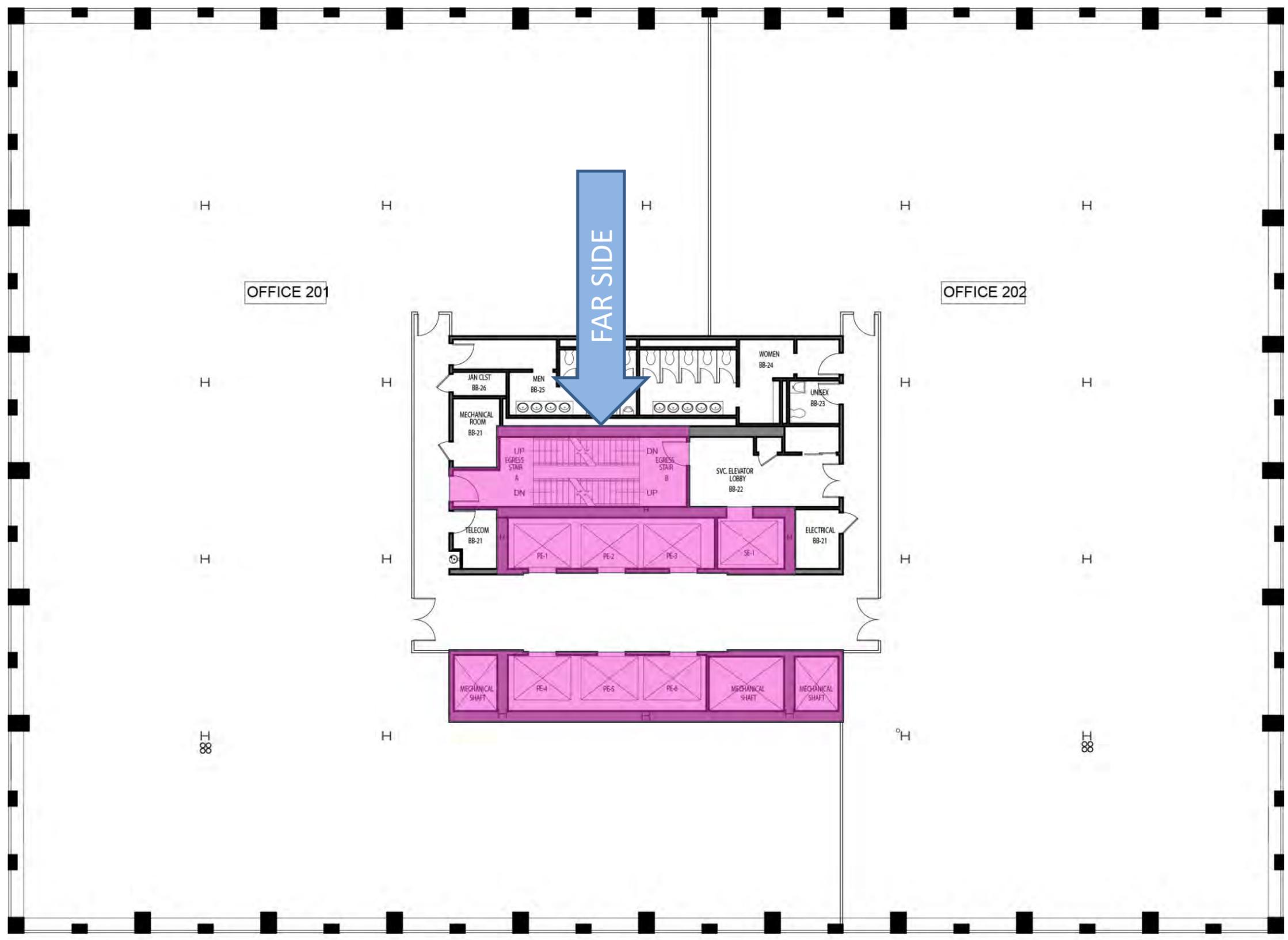


LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

MAJOR VERTICAL PENETRATIONS

1,293 SF



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

MAJOR VERTICAL PENETRATIONS

1,293 SF



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

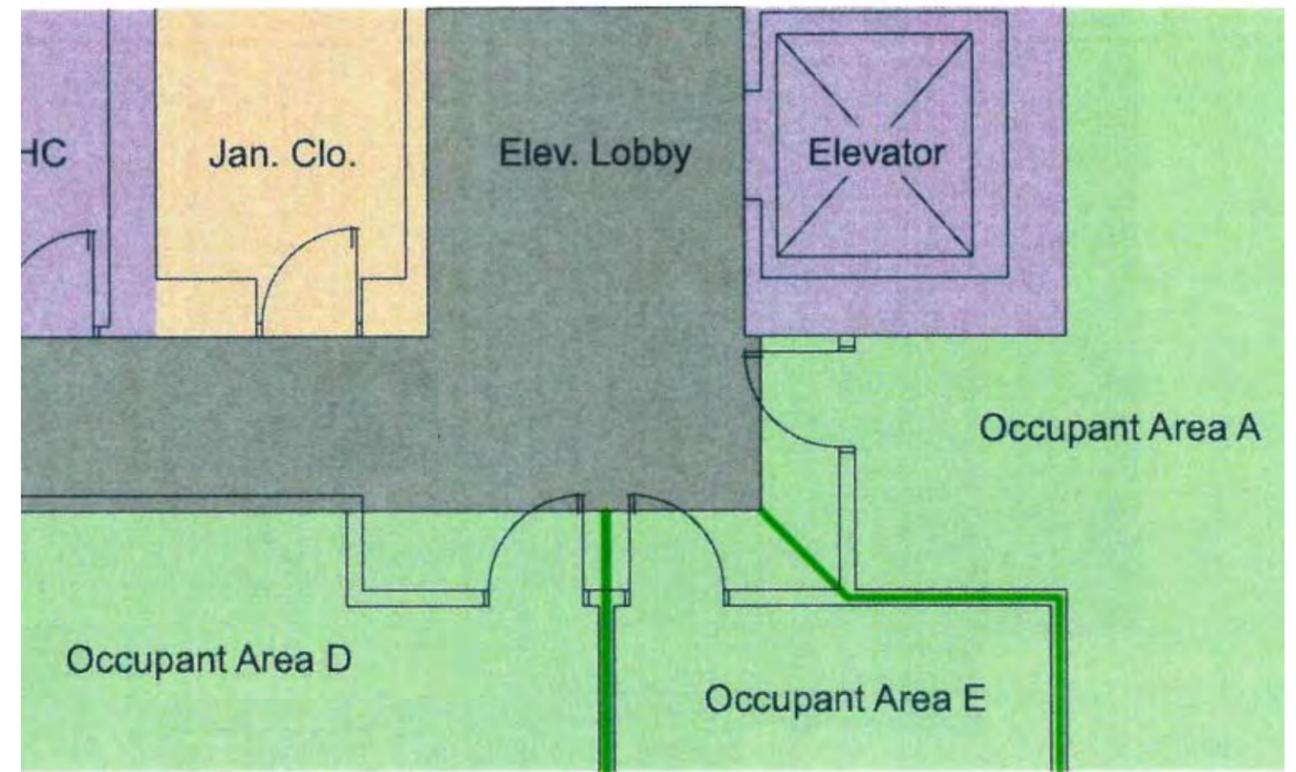
MAJOR VERTICAL PENETRATIONS

968 SF

GROUND FLOOR

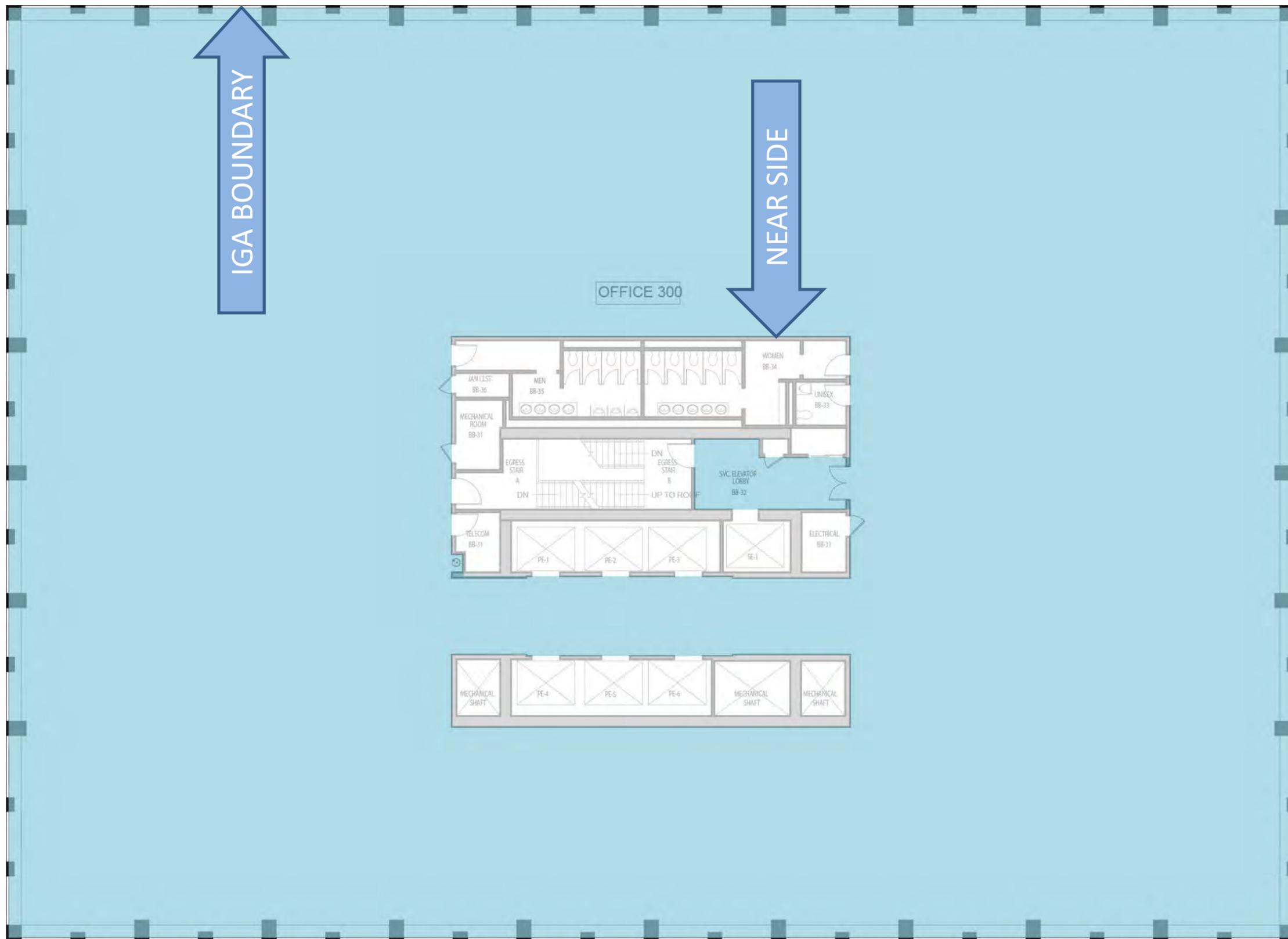
OCCUPANT AREA

- Area where an occupant houses personnel, equipment, fixtures, furniture, supplies, goods or merchandise.
- Was “office area” or “store area” in the prior standard.
- Includes the area of Door Setbacks when required.
- Measured to the Near Side of walls when adjacent to all other space classes.
- Measured to the Centerline of walls when adjacent to other Occupant Areas.
- Excludes hypothetical Base Building Circulation on single-tenant floors in Method B only.



5A – Interior Door Set-backs

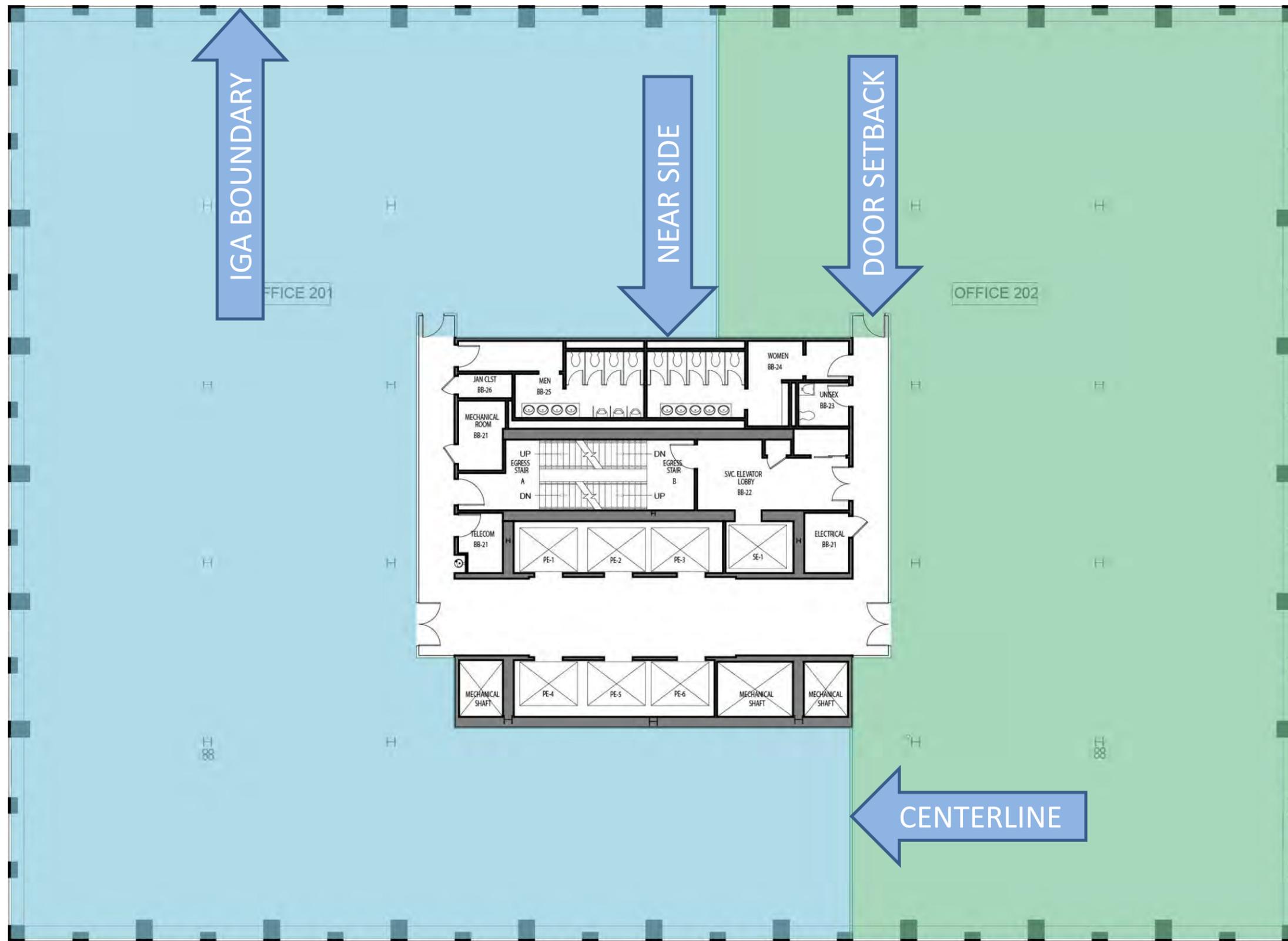
Image Source: Office Buildings: Standard Methods of Measurement, p.40. Content ©2010 by BOMA International. All Rights Reserved.



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

OCCUPANT AREAS
 OFFICE 300: 20,997 SF



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

OCCUPANT AREAS
 OFFICE 201: 11,070 SF
 OFFICE 202: 8,622 SF



LEGEND

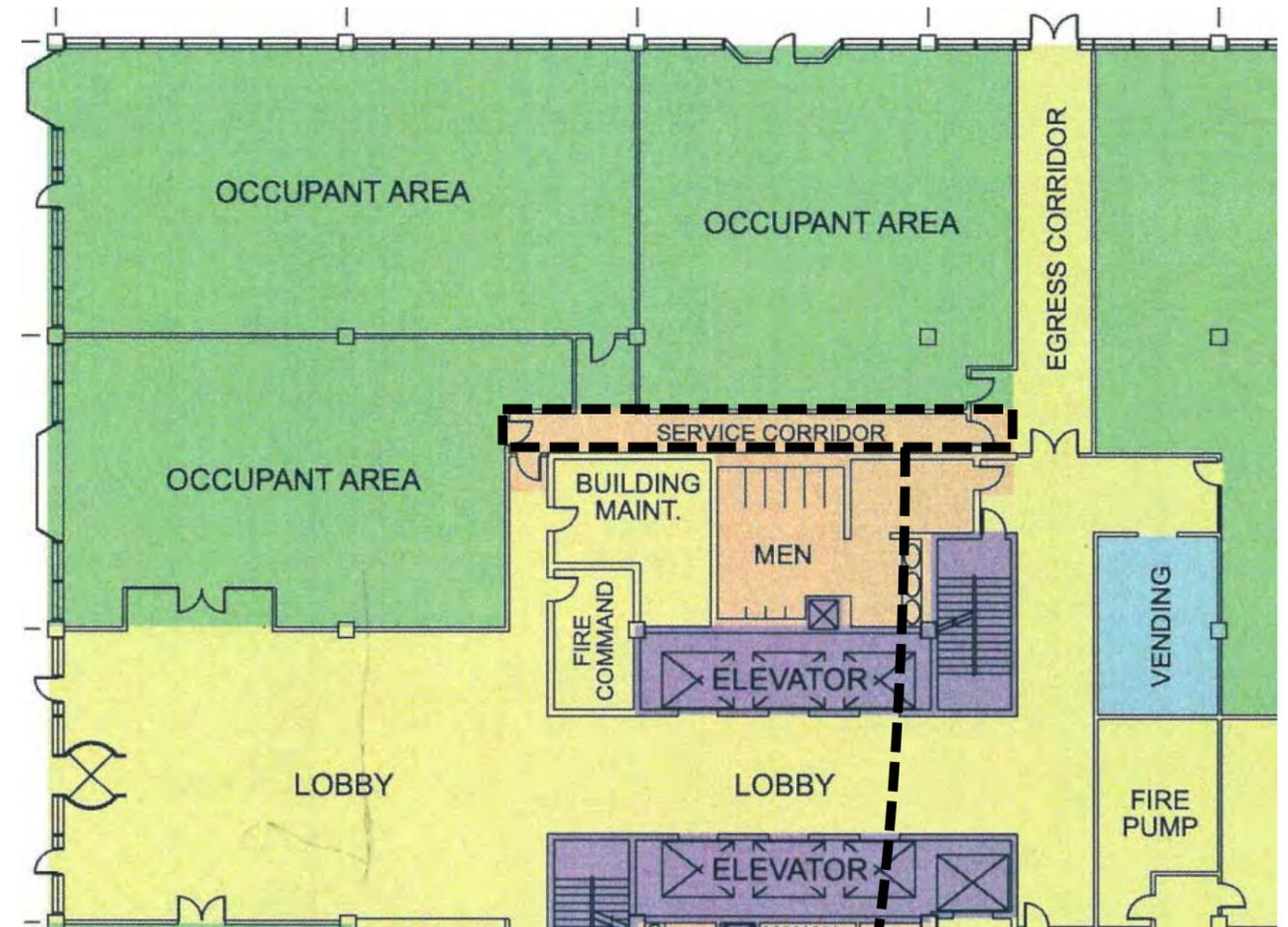
- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

- OCCUPANT AREAS
- OFFICE 101: 4,552 SF
 - OFFICE 102: 4,806 SF
 - OFFICE 103: 1,872 SF

GROUND FLOOR

FLOOR SERVICE AND AMENITY AREAS

- FLOOR SERVICE AREA provides services that allow occupants to work on that floor.
- Primarily services ONLY the floor it is located on.
- Includes Restrooms, Janitorial closets, Electrical and Telephone closets, Mechanical rooms.
- On a multi-tenant floor, includes the elevator lobby and the common corridor (Method A).
- On an entry floor, any public corridor beyond the Building Service Area for common access/egress (Method A).
- FLOOR AMENITY AREAS are uncommon in today's commercial market.
- Could include items such as a common break or vending area.

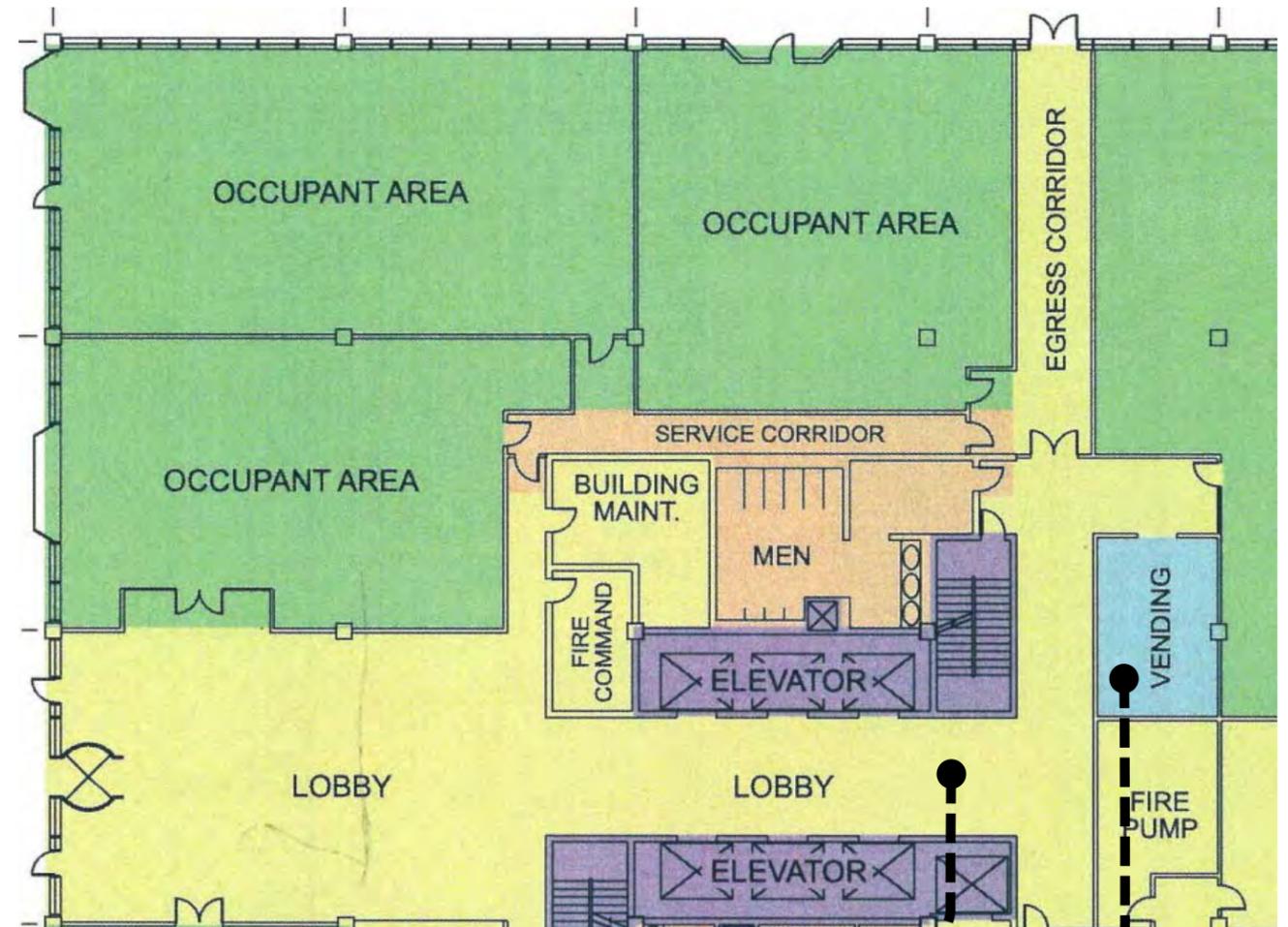


Example of a Floor Service Area on an entry-level floor. Corridor serves tenants on this floor only.

Image Source: Office Buildings: Standard Methods of Measurement, p.51. Content ©2010 by BOMA International. All Rights Reserved.

BUILDING SERVICE AND AMENITY AREAS

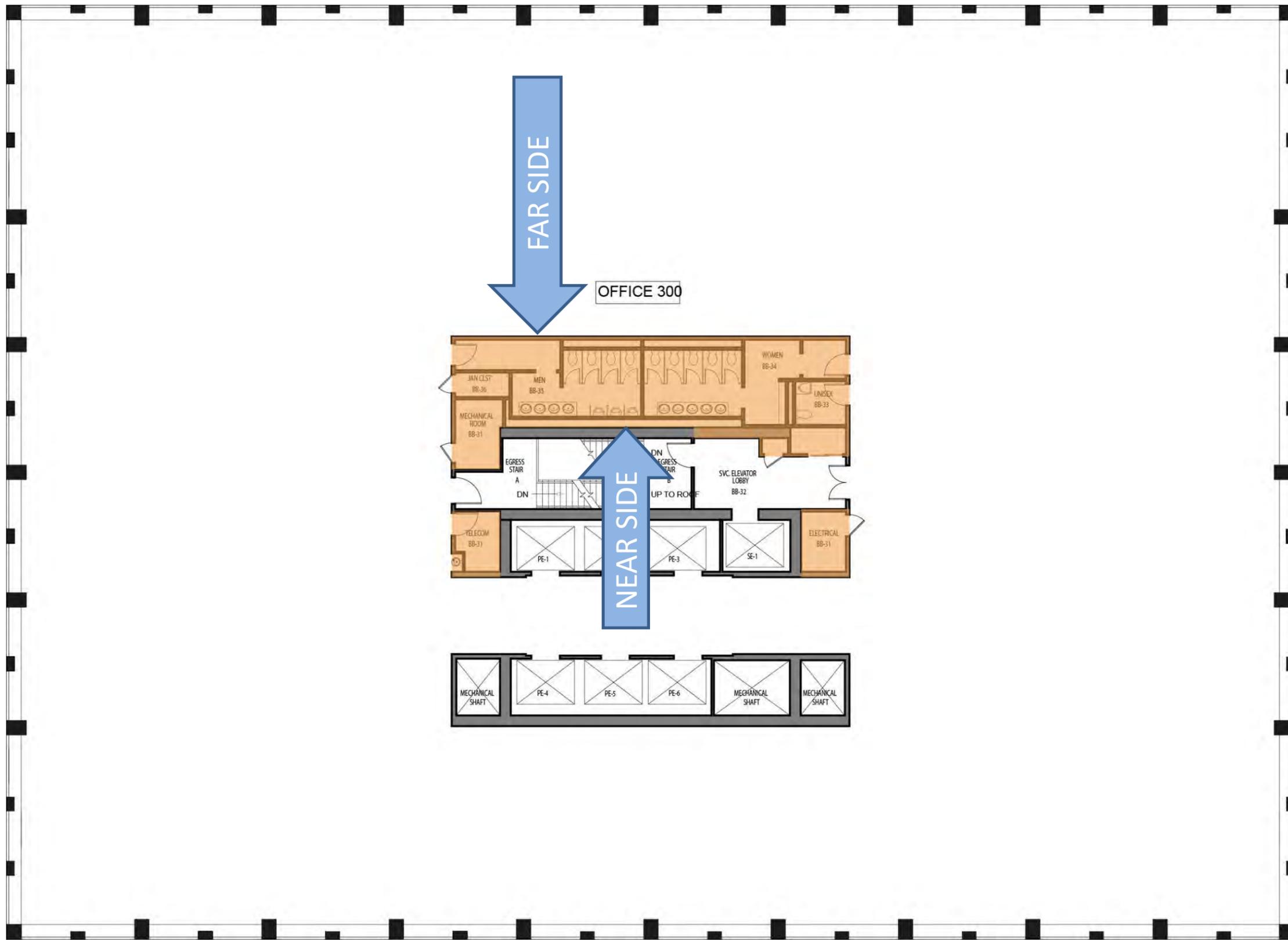
- Similar concept to Floor Service Areas and Floor Amenity Areas, but serving the entire building.
- BUILDING SERVICE AREAS enable occupants to work in the building.
- Includes main entrance lobbies, access and egress corridors on entrance floors.
- Includes building infrastructure such as main electrical, mechanical and fire protection rooms.
- Includes common facilities such as loading docks and landlord's building storage areas and offices.
- BUILDING AMENITY AREAS provide a convenience for all occupants of the building.
- Could include common lounges, vending areas, fitness centers or locker and shower facilities.



Building Service Area

Building Amenity Area

Image Source: Office Buildings: Standard Methods of Measurement, p.51. Content ©2010 by BOMA International. All Rights Reserved.

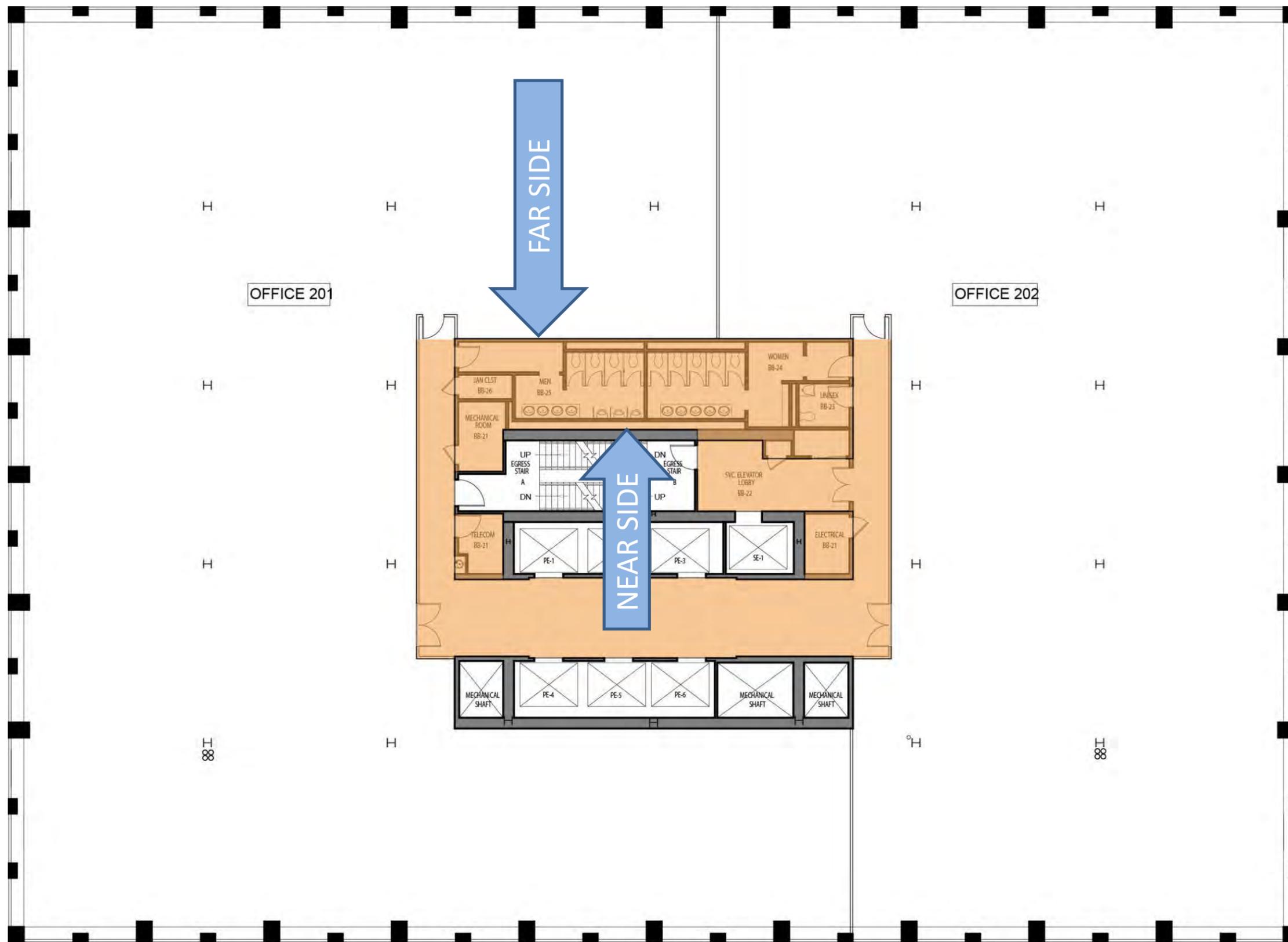


LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

FLOOR SERVICE AND AMENITY AREAS

934 SF



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

FLOOR SERVICE AND AMENITY AREAS

2,239 SF

SECOND FLOOR



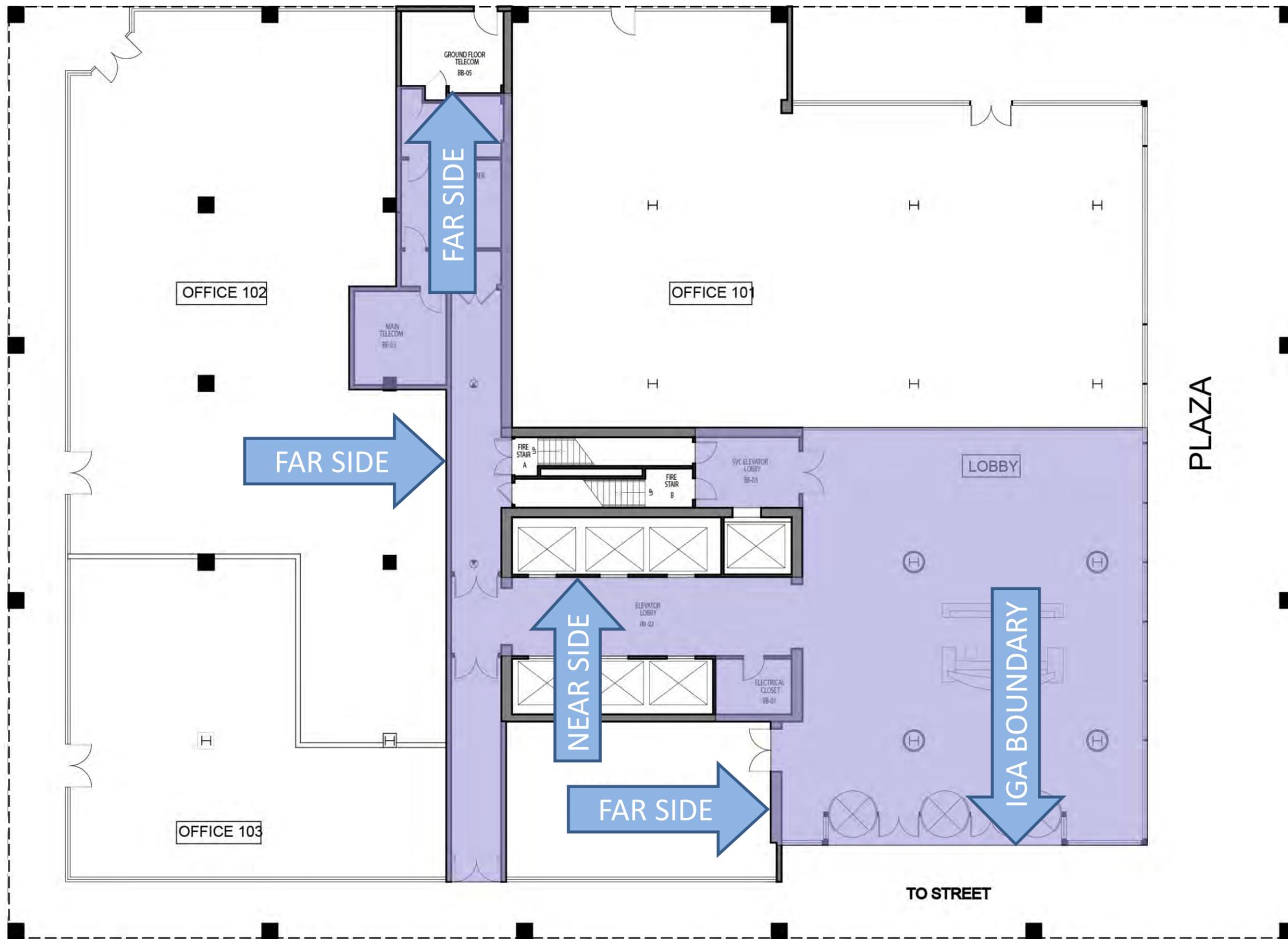
LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

FLOOR SERVICE AND AMENITY AREAS

184 SF

GROUND FLOOR



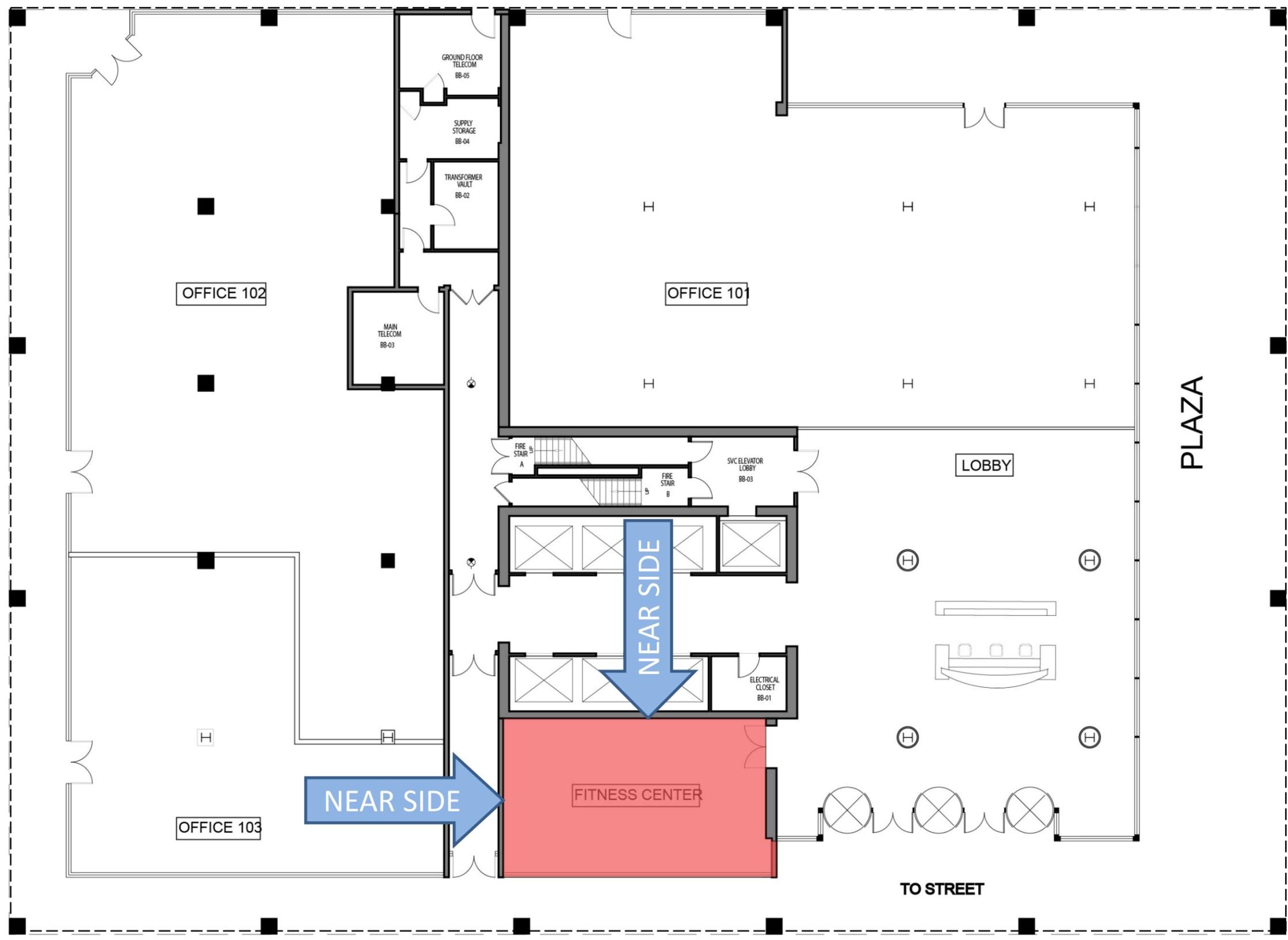
LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

BUILDING SERVICE AREAS

4,953 SF

GROUND FLOOR



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

BUILDING AMENITY AREAS

835 SF

GROUND FLOOR

AREA MEASUREMENT: METHOD A

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD A

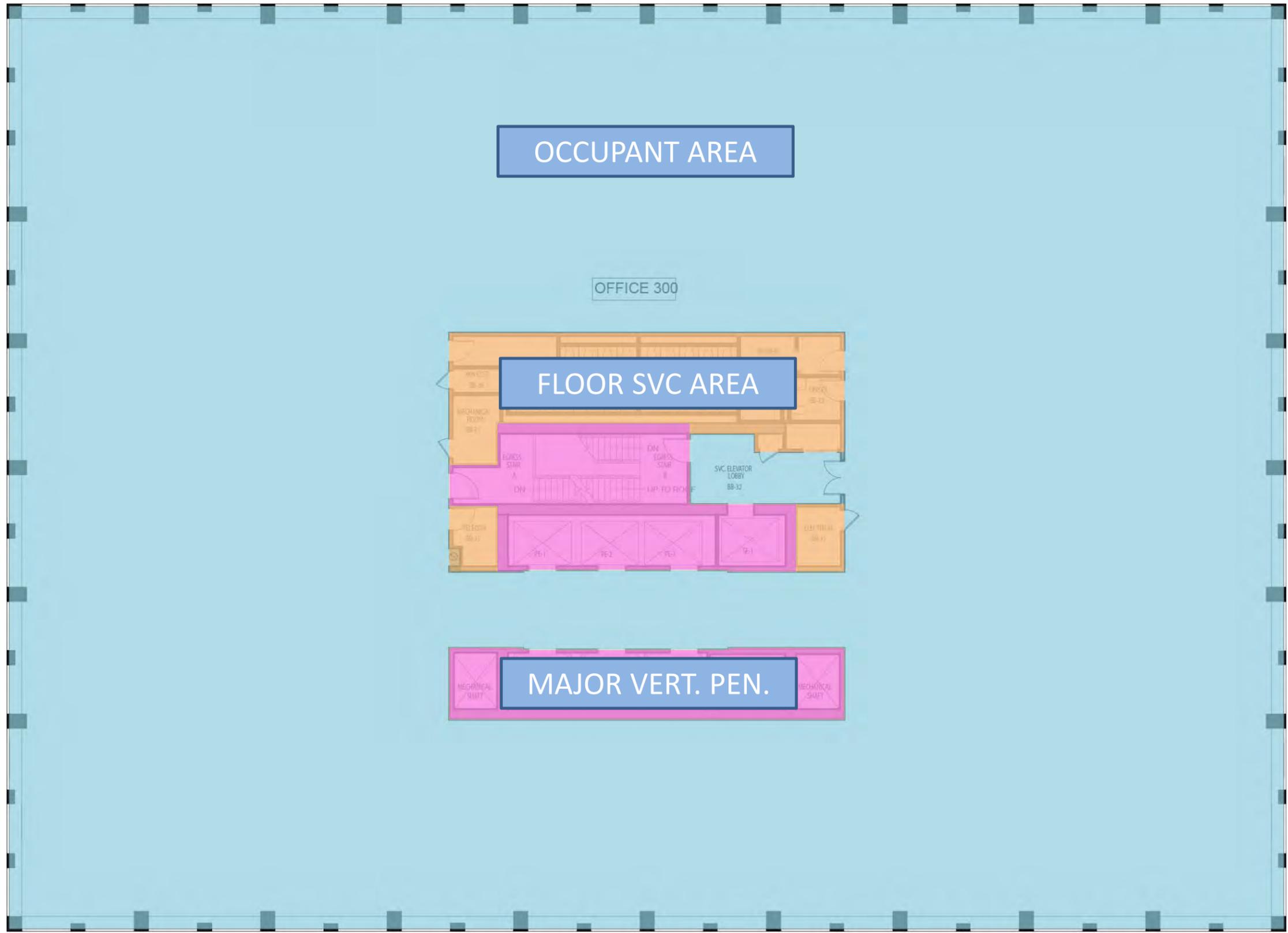
	Preliminary Calculations (not for leasing)					Intermediate Calculations (not for leasing)							Final Calculations			Optional Adjustments		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
INPUT	MEASURE	MEASURE	MEASURE	MEASURE	=B-C-D-E	INPUT	MEASURE	MEASURE	=H+I	MEASURE	=F-J-K	=(J+L)/J	=H*M	=ΣF/ΣN	=M*O	=N*O or H*P		=H*R
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Building Amenity Areas	Usable Area	Building Service Areas	Floor Service & Amenity	R/U Ratio	Occupant + Allocated Area (O)	R/O Ratio	Load Factor A	Rentable Area	Capped Load Factor	Capped Rentable Area
3rd Floor Totals																		
2nd Floor Totals																		
1st Floor Totals																		
Building Totals																		

PRELIMINARY CALCULATIONS
 Interior Gross Area
 Major Vertical Penetrations
 Parking
 Occupant Storage

INTERMEDIATE CALCULATIONS
 Occupant Area(s)
 Building Amenity Areas
 Building Service Areas
 Floor Service & Amenity Areas

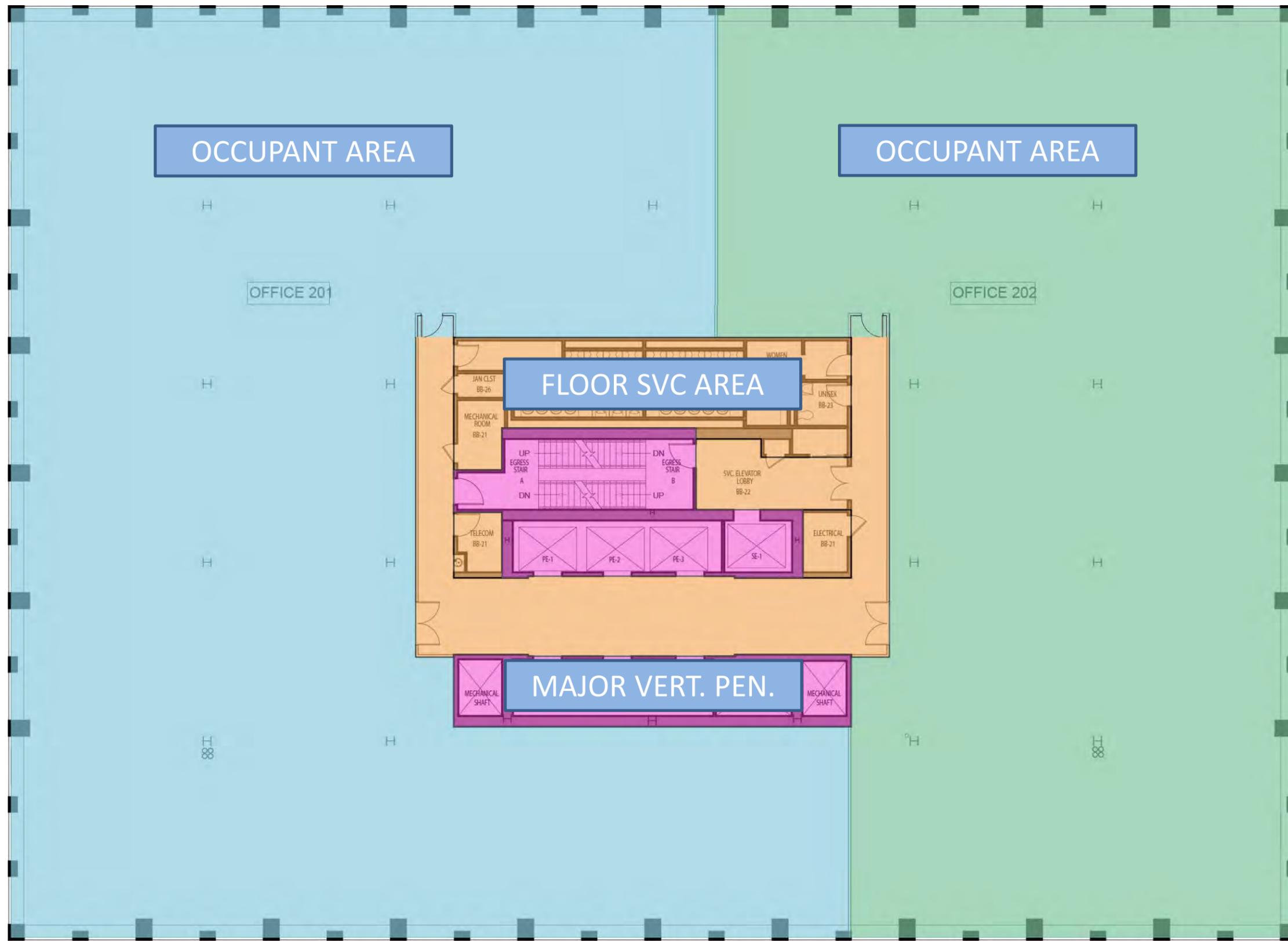
FINAL CALCULATIONS
 Load Factor
 Rentable Area

OPTIONAL ADJUSTMENTS
 Capped Load Factor
 Capped Rentable Area



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

GROUND FLOOR

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD A

A INPUT	Preliminary Calculations (not for leasing)					Intermediate Calculations (not for leasing)							Final Calculations			Optional Adjustments		
	B MEASURE	C MEASURE	D MEASURE	E MEASURE	F =B-C-D-E	G INPUT	H MEASURE	I MEASURE	J =H+I	K MEASURE	L =F-J-K	M =(J+L)/J	N =H*M	O =ΣF/ΣN	P =M*O	Q =N*O or H*P	R	S =H*R
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Building Amenity Areas	Usable Area	Building Service Areas	Floor Service & Amenity	R/U Ratio	Occupant + Allocated Area (O)	R/O Ratio	Load Factor A	Rentable Area	Capped Load Factor	Capped Rentable Area
3rd Floor Totals																		
2nd Floor Totals																		
1st Floor Totals																		
Building Totals																		

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD A

	Preliminary Calculations (not for leasing)					Intermediate Calculations				
A	B	C	D	E	F	G	H	I	J	K
INPUT	MEASURE	MEASURE	MEASURE	MEASURE	=B-C-D-E	INPUT	MEASURE	MEASURE	=H+I	MEASURE
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Building Amenity Areas	Usable Area	Building Service Areas
3rd Floor Totals										
	23,224	1,293	-	-	21,931					
2nd Floor Totals										
	23,224	1,293	-	-	21,931					
1st Floor Totals										
	17,450	968	-	-	16,482					
Building Totals	63,898	3,554	-	-	60,344					

METHOD A

		Intermediate Calculations (not for leasing)						Final Calculations			
	G INPUT	H MEASURE	I MEASURE	J =H+I	K MEASURE	L =F-J-K	M =(J+L)/J	N =H*M	O =ΣF/ΣN	P =M*O	Q =N*O or H
Area	Space ID	Occupant Area	Building Amenity Areas	Usable Area	Building Service Areas	Floor Service & Amenity	R/U Ratio	Occupant + Allocated Area (O)	R/O Ratio	Load Factor A	Rentable Area
	Office 300	20,997	0	20,997	0		1.0445	21,931			
				0			1.0445	-			
031		20,997	-	20,997	-	934	1.0445	21,931			
	Office 201	11,070		11,070			1.1137	12,329			
	Office 202	8,622		8,622			1.1137	9,602			
031		19,692	-	19,692	-	2,239	1.1137	21,931			
	Office 101	4,552		4,552			1.0162	4,626			
	Office 102	4,086		4,086			1.0162	4,152			
	Office 103	1,872		1,872			1.0162	1,902			
	Fitness Ctr.		835	835			1.0162	-			
	Bldg. Svc.			0	4,953		1.0162	-			
482		10,510	835	11,345	4,953	184	1.0162	10,680			
344		51,199	835	52,034	4,953	3,357		54,542			

sing)		Final Calculations				Optional Adjustments	
	M	N	O	P	Q	R	S
K	$=(J+L)/J$	$=H*M$	$=\sum F/\sum N$	$=M*O$	$=N*O$ or $H*P$		$=H*R$
Service Unit	R/U Ratio	Occupant + Allocated Area (O)	R/O Ratio	Load Factor A	Rentable Area	Capped Load Factor	Capped Rentable Area
	1.0445	21,931	1.1064	1.1556	24,264	1.1556	24,264
	1.0445	-	1.1064	1.1556	0	1.1556	0
934	1.0445	21,931	1.1064	1.1556	24,264	1.1556	24,264
	1.1137	12,329	1.1064	1.2322	13,640	1.2322	13,640
	1.1137	9,602	1.1064	1.2322	10,624	1.2322	10,624
2,239	1.1137	21,931	1.1064	1.2322	24,264	1.2322	24,264
	1.0162	4,626	1.1064	1.1243	5,118	1.1243	5,118
	1.0162	4,152	1.1064	1.1243	4,594	1.1243	4,594
	1.0162	1,902	1.1064	1.1243	2,105	1.1243	2,105
	1.0162	-	1.1064	1.1243	0	1.1243	0
	1.0162	-	1.1064	1.1243	0	1.1243	0
184	1.0162	10,680	1.1064	1.1243	11,817	1.1243	11,817
3,357		54,542	1.1064		60,344		60,344

METHOD A

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD A

A INPUT	Preliminary Calculations (not for leasing)					Intermediate Calculations (not for leasing)							Final Calculations			Optional Adjustments		
	B MEASURE	C MEASURE	D MEASURE	E MEASURE	F =B-C-D-E	G INPUT	H MEASURE	I MEASURE	J =H+I	K MEASURE	L =F-J-K	M =(J+L)/J	N =H*M	O =ΣF/ΣN	P =M*O	Q =N*O or H*P	R	S =H*R
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Building Amenity Areas	Usable Area	Building Service Areas	Floor Service & Amenity	R/U Ratio	Occupant + Allocated Area (O)	R/O Ratio	Load Factor A	Rentable Area	Capped Load Factor	Capped Rentable Area
3rd Floor Totals						Office 300	20,997	0	20,997	0		1.0445	21,931	1.1064	1.1556	24,264	1.1556	24,264
	23,224	1,293	-	-	21,931		20,997	-	20,997	-	934	1.0445	21,931	1.1064	1.1556	24,264	1.1556	24,264
2nd Floor Totals						Office 201	11,070		11,070			1.1137	12,329	1.1064	1.2322	13,640	1.2322	13,640
	23,224	1,293	-	-	21,931	Office 202	8,622		8,622		2,239	1.1137	21,931	1.1064	1.2322	24,264	1.2322	24,264
1st Floor Totals						Office 101	4,552		4,552			1.0162	4,626	1.1064	1.1243	5,118	1.1243	5,118
						Office 102	4,086		4,086			1.0162	4,152	1.1064	1.1243	4,594	1.1243	4,594
						Office 103	1,872		1,872			1.0162	1,902	1.1064	1.1243	2,105	1.1243	2,105
						Fitness Ctr. Bldg. Svc.		835	835		4,953	1.0162		1.1064	1.1243	0	1.1243	0
Building Totals	63,898	3,554	-	-	60,344		51,199	835	52,034	4,953	3,357		54,542	1.1064		60,344		60,344

AREA MEASUREMENT: METHOD B

BASE BUILDING CIRCULATION

- For Method B only to allow the creation of a single load factor for the entire building.
- Hypothetical common circulation at each floor.
- Measured regardless of occupancy or actual existing conditions.
- Minimum path for access and egress from:
 - Occupant areas
 - Access stairs, escalators and elevators
 - Restrooms, janitor's closets, drinking fountains
 - Required areas of refuge
 - Life safety equipment (FHC, FEC)
 - Building service and amenity areas
- Width determined by building standard (such as actual corridors), not code minimum.

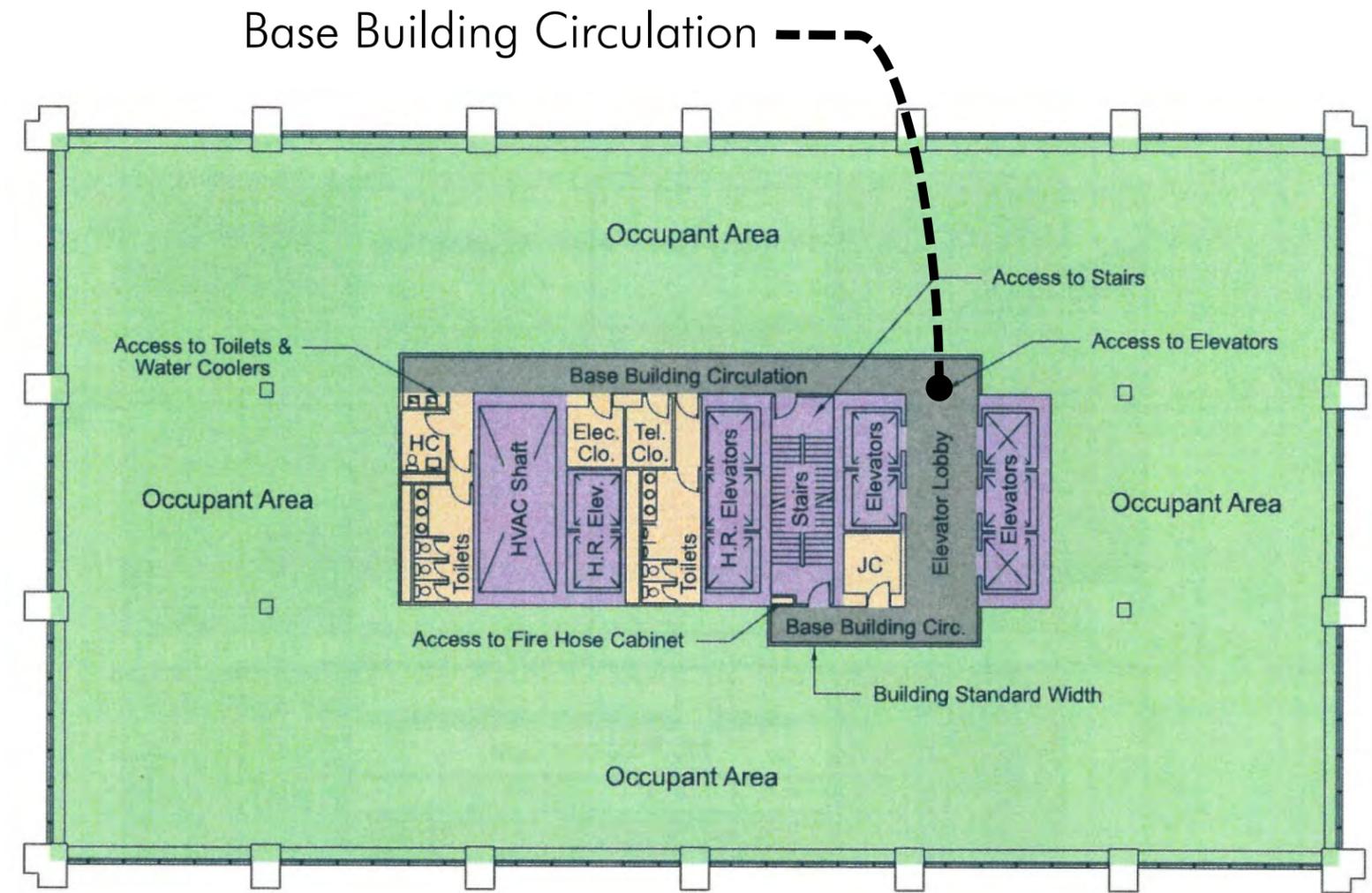
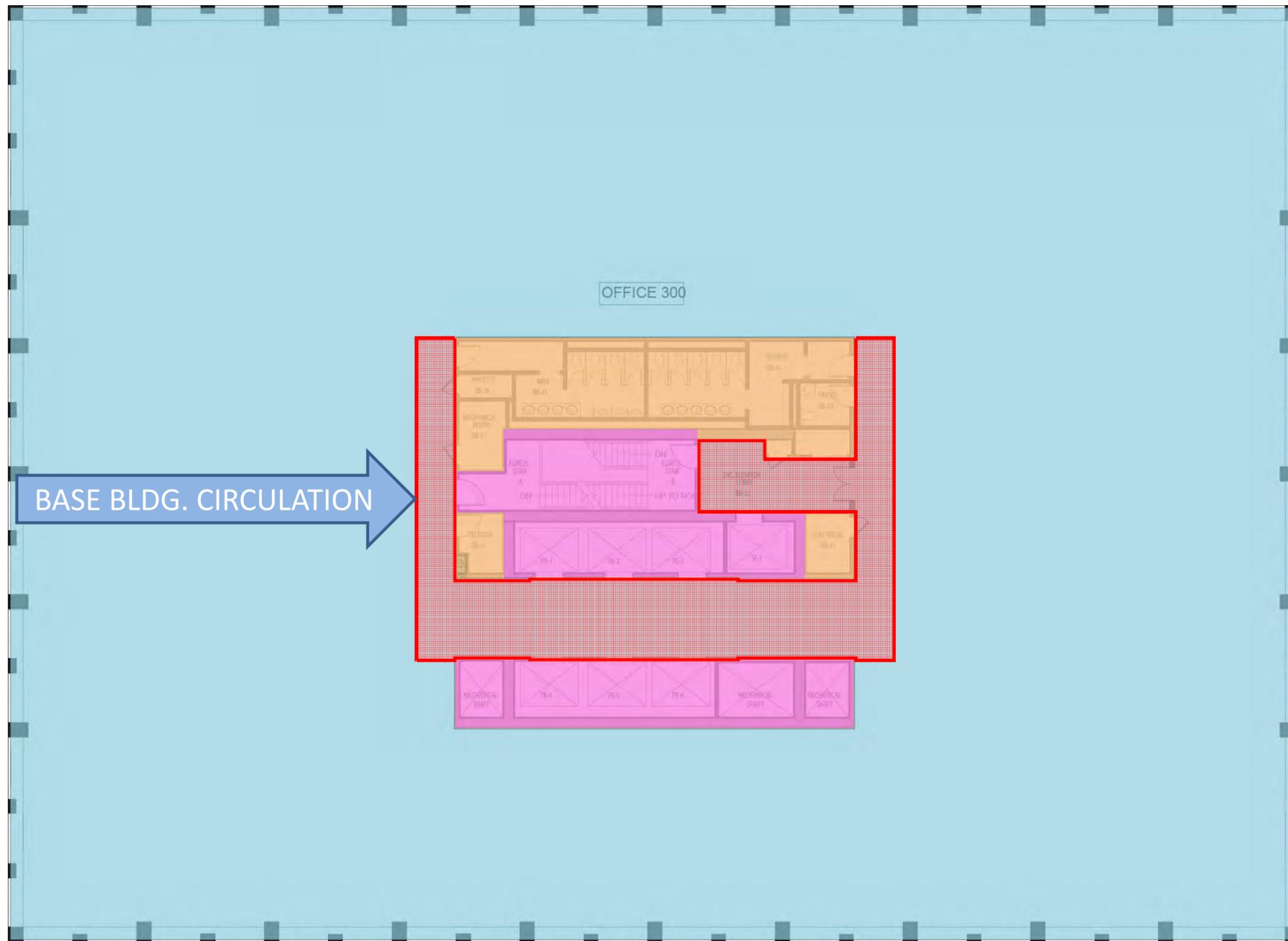


Illustration 3A Base Building Circulation Layout

Image Source: Office Buildings: Standard Methods of Measurement, p.38. Content ©2010 by BOMA International. All Rights Reserved.



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

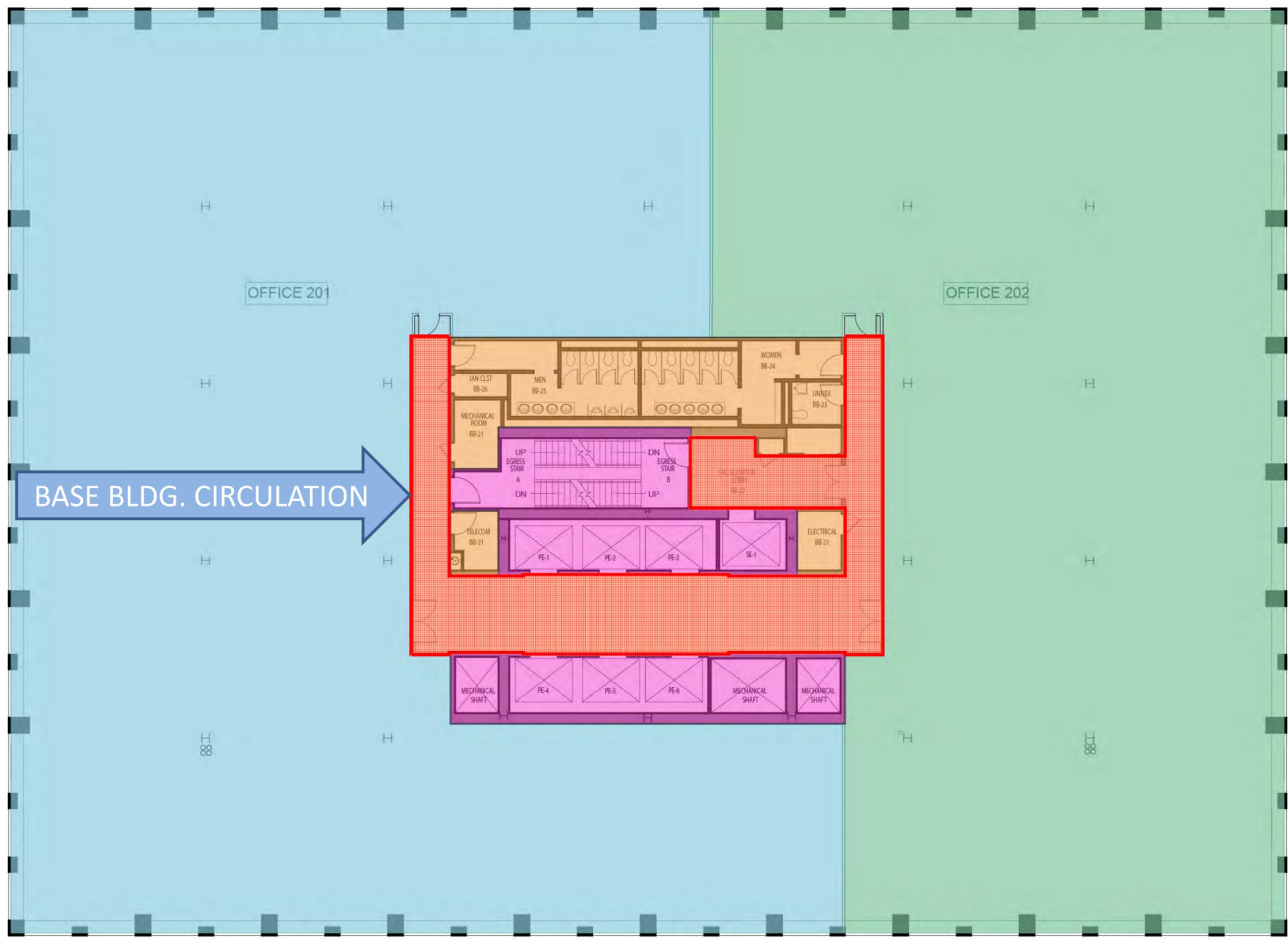
BASE BLDG. CIRCULATION

BASE BUILDING
CIRCULATION: 1,267 SF

OCCUPANT AREA
(REDUCED)

OFFICE 300: 19,731 SF

THIRD FLOOR



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

BASE BLDG. CIRCULATION

BASE BUILDING
CIRCULATION: 1,267 SF

FLOOR SERVICE AREA
(REDUCED): 933 SF

SECOND FLOOR



LEGEND

- IGA
- MVP
- OA
- OA
- OA
- BAA
- BSA
- FSA

BASE BUILDING
CIRCULATION: (NONE)

NO CHANGE TO
METHOD A AREAS

GROUND FLOOR

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD B

Preliminary Calculations (not for leasing)						Intermediate Calculations (not for leasing)					Optional Adjustments		
A	B	C	D	E	F	G	H	I	J	K	L	M	N
INPUT	MEASURE	MEASURE	MEASURE	MEASURE	=B-C-D-E	INPUT	MEASURE	MEASURE	=F-H-I	=ΣF/ΣH	=H*K		=H*M
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Base Building Circulation	Service & Amenity Areas	Load Factor B	Rentable Area	Capped Load Factor	Capped Rentable Area
1st Floor Totals													
2nd Floor Totals													
3rd Floor Totals													
Building Totals													

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD B

	Preliminary Calculations (not for leasing)					Intermediate Calculations (not for leasing)					Optional Adjustments		
A INPUT	B MEASURE	C MEASURE	D MEASURE	E MEASURE	F =B-C-D-E	G INPUT	H MEASURE	I MEASURE	J =F-H-I	K =ΣF/ΣH	L =H*K	M	N =H*M
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Base Building Circulation	Service & Amenity Areas	Load Factor B	Rentable Area	Capped Load Factor	Capped Rentable Area
1st Floor Totals	17,450	968	-	-	16,482								
2nd Floor Totals	23,224	1,293	-	-	21,931								
3rd Floor Totals	23,224	1,293	-	-	21,931								
Building Totals	63,898	3,554	-	-	60,344								

ANSI/BOMA Z65.1-2010 OFFICE BUILDING STANDARD, METHOD B

	Preliminary Calculations (not for leasing)					Intermediate Calculations (not for leasing)					Optional Adjustments		
A INPUT	B MEASURE	C MEASURE	D MEASURE	E MEASURE	F =B-C-D-E	G INPUT	H MEASURE	I MEASURE	J =F-H-I	K =ΣF/ΣH	L =H*K	M	N =H*M
Floor Level	Interior Gross Area	Major Vertical Penetrations	Parking	Occupant Storage	Preliminary Floor Area	Space ID	Occupant Area	Base Building Circulation	Service & Amenity Areas	Load Factor B	Rentable Area	Capped Load Factor	Capped Rentable Area
1st Floor Totals						Office 101	4,552			1.2076	5,497	1.2076	5,497
						Office 102	4,086			1.2076	4,934	1.2076	4,934
						Office 103	1,872			1.2076	2,261	1.2076	2,261
						Fitness Ctr.				1.2076	0	1.2076	0
						Bldg. Svc.				1.2076	0	1.2076	0
	17,450	968	-	-	16,482		10,510	-	5,972	1.2076	12,691	1.2076	12,691
2nd Floor Totals						Office 201	11,090			1.2076	13,392	1.2076	13,392
						Office 202	8,641			1.2076	10,434	1.2076	10,434
	23,224	1,293	-	-	21,931		19,731	1,267	933	1.2076	23,826	1.2076	23,826
3rd Floor Totals						Office 300	19,731			1.2076	23,826	1.2076	23,826
										1.2076	0	1.2076	0
	23,224	1,293	-	-	21,931		19,731	1,267	933	1.2076	23,826	1.2076	23,826
Building Totals	63,898	3,554	-	-	60,344		49,972	2,534	7,838	1.2076	60,344		60,344

CONCLUSIONS

CONCLUSIONS

- Method A and Method B yield the same total Rentable Area for a building.
- Method A is most common, and familiar to those used to the prior BOMA 1996 standard.
- Method B may be useful in limited cases where Landlord wishes to allocate common space more equally among all tenants, and reduce Rentable numbers on inefficient floors.
- When performing CAD take-offs, establish clearly-named separate layers for each BOMA space class for ease of reference.
- When measuring space in a building for a tenant, always ask for the Landlord's Rentable factor.
- This presentation is only a summary of basic concepts. Refer to the full BOMA Office Measurement Standard book for the most complete information.

KEY RESOURCES

BOMA WEBSITE

<http://www.boma.org>

BOMA MEASUREMENT STANDARDS

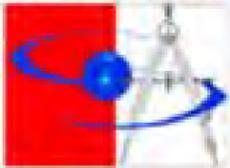
<http://www.boma.org/MEASUREMENTSTANDARDS/Pages/default.aspx>

OFFICIAL BOMA INTERPRETERS

STANDARDS QUESTIONS



*Do you have questions about the BOMA Measurement Standards?
The BOMA International Official Interpreters can help.*

<p>Submit your question to American Building Calculations</p>  <p>American Building Calculations</p> <p>2209 Collier Parkway Land O Lakes, FL 34639 (813) 600-5472 www.abcalc.biz</p>	<p>Submit your question to Extreme Measures</p>  <p>extreme measures INC</p> <p>55 Avenue Road Toronto, Ontario M5R 3L2 (877) 963-2787 www.xmeasures.com</p>	<p>Submit your question to Stevenson Systems</p>  <p>STEVENSON <small>BOMA Measurement Standards Official Interpreter</small></p> <p>27822 El Lazo Road, #100 Laguna Niguel, CA 92677 (949) 297-4200 www.stevensonsystems.com</p>
---	--	---

QUESTIONS AND ANSWERS



THANK YOU!





Andrew Patapoff, AIA
Senior Associate
IA Interior Architects



Erik Hodgetts, AIA, LEED AP
Director of Legal Services
IA Interior Architects

Submit a question to the moderator via the Chat box. They will be answered as time allows.

Mary Burke, AIA
Moderator



Thank you for joining us!

This concludes the AIA/CES Course #IAC001.

The webinar survey/report form URL is listed in the chat box *and* will be included in the follow-up email sent to you in the next few hours.

Report credit for all attendees at your site by completing the webinar survey/report form within the next 24 hours. You will be prompted to download a certificate of completion at the end of the survey.

Learn about other AIA webinar offerings at <http://network.aia.org/events/webinars/>.

