Mid-Rise Design, Optimizing Size, Maximizing Value

August 13, 2026

Presented by:
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WoodWorks

Image: The Canyons, Kaiser+Path, Catena Consulting Engineers, Photo Jeremy Bittermann

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

AIA Approved Continuing Education

Course Description

As cities seek increased density to address urban population growth, many building designers and developers are looking to mid-rise wood construction as a cost-effective, code-compliant and sustainable solution. This presentation will cover some of the design considerations associated with mid-rise wood-frame buildings, including how to maximize height and area through the use of sprinklers, open frontage, sloping sites, podiums and mezzanines. Construction types will be reviewed, with an emphasis on opportunities for wood use in types III and V.

Learning Objectives

1. In the context of a shift toward increased urban density, learn how mid-rise, wood-frame construction meets housing needs while contributing to vibrant and sustainable communities.

2. Discuss allowable construction types, occupancies, and building heights and areas for wood-frame mid-rise construction per the International Building Code.

3. Identify potential modifications to the IBC's base tabular heights and areas based on code provisions for building frontage, sprinklers, sloping sites, podiums and mezzanines.

4. Highlight constructed buildings that were designed using these code provisions to maximize density.

Outline

- Context for Mid-Rise Construction
- Mid-rise Building Types/Configurations
- Maximizing Height & Area

Landing Apartments, Russell Scott Steedle & Capione Architects, photo Gregory Folkins

Outline

- Context for Mid-Rise Construction
  - Mid-rise Building Types/Configurations
  - Maximizing Height & Area

1430 Q, The HR Group Architects, Buehler Engineering, Greg Folkins Photography

Global Population Boom

Global Population

7.9 billion in 2022

9.7 billion by 2050

23% increase

Urban Population

6.4 billion by 2050

62% increase

Source: United Nations Department of Economic and Social Affairs

Sustainable Multi-Family & Mixed-Use Structures

Economically Meet
Urban Housing Needs

Increase Environmental
Responsibility

These 2 items don't need to be in opposition—
Wood-framing helps them work together!

Sustainable Multi-Family & Mixed-Use Structures

Mid-rise wood-frame construction provides a common ground for both

How?

Mid-Rise Construction

Where **wood** is a viable option,
it's likely the most appropriate choice.

- Senior Living
- Apartments/Condos
- Mixed Use
- Student Housing
- Affordable Housing
- Hotels

The Gibson, Hummel Architects, KPFF Consulting Engineers, photo Leo A. Geis

Why Wood?

Using wood helps reduce environmental impact
Wood products play significant role in modern economy

- Wood Costs Less
- Wood is Versatile
- Wood Meets Code
- Wood is Durable
- Wood is Renewable

Photo courtesy OFRI

The Gibson, Hummel Architects, KPFF Consulting Engineers, photo Leo A. Geis

Outline

- Context for Mid-Rise Construction
- **Mid-rise Building Types/Configurations**
- Maximizing Height & Area

1430 Q, The HR Group Architects, Buehler Engineering, Greg Folkins Photography

Seattle, WA

Photo: Matt Todd/PB Architects

College Park , MD

Photo: Matt Church

Normal, IL

Image: OKW Architects

Los Angeles, CA

Photo: Lawrence Anderson/Esto

Atlanta, GA

Image: Lord Aeck Sargent

Wood Mid-Rise Construction

How many stories can be wood framed in the IBC?

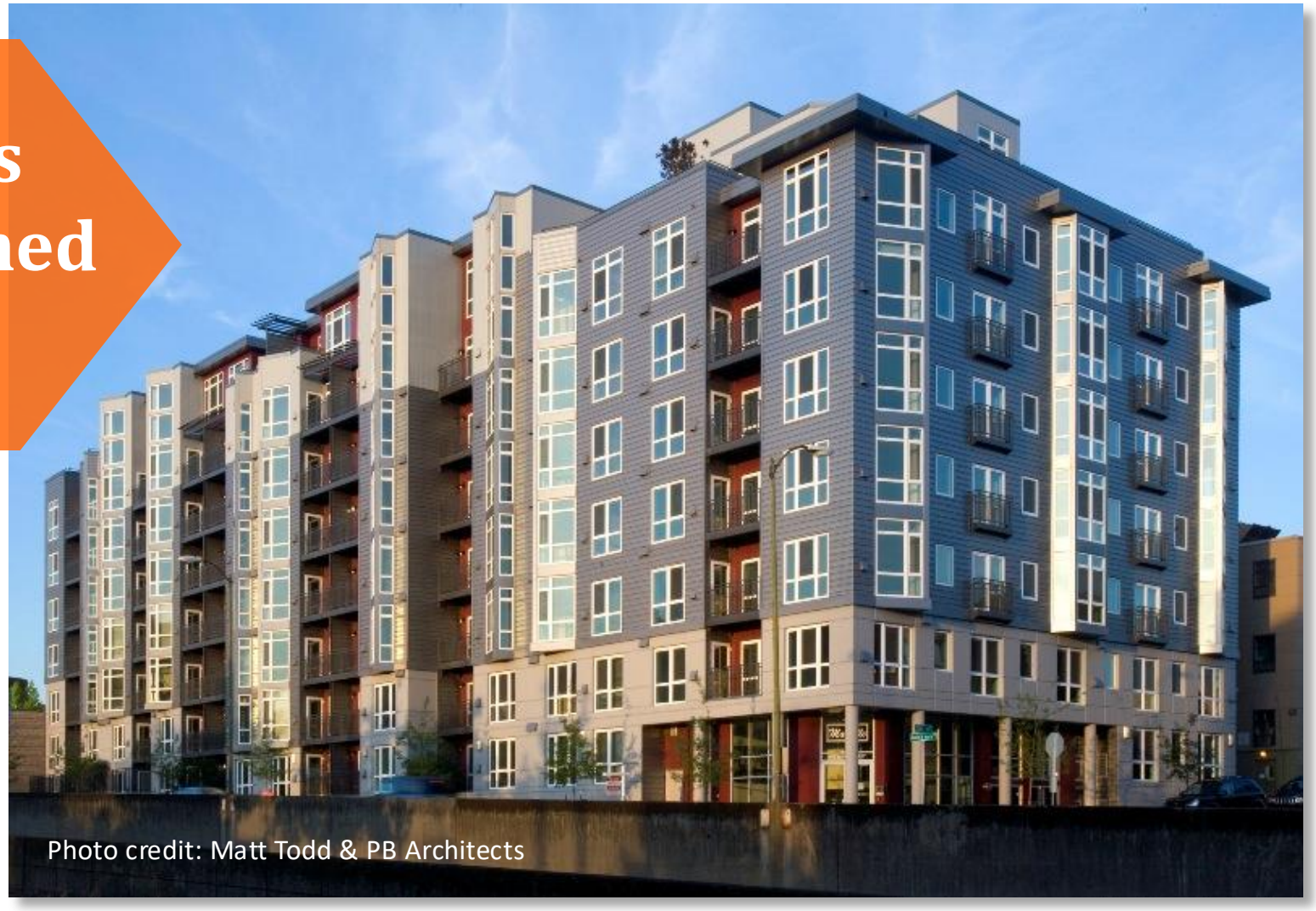


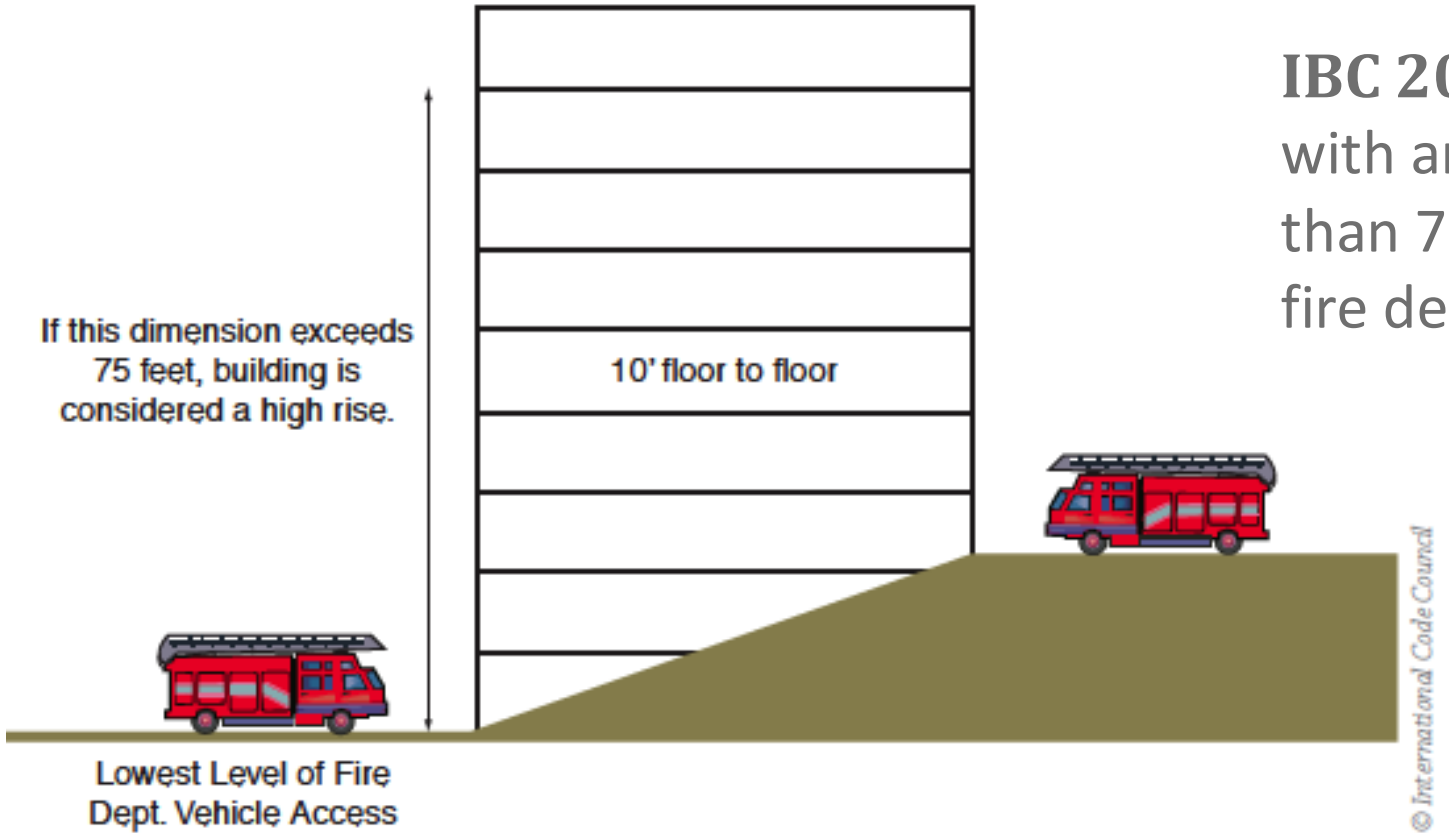
Photo credit: Matt Todd & PB Architects

Wood Mid-Rise Construction

6 stories for Offices,
5 stories for Residential
+ Mezzanine
+ Multi-Story Podium

Photo credit: Matt Todd & PB Architects

Mid-Rise vs. High-Rise Definition – 2021 IBC 202



Determination of high-rise building

IBC 202: High-Rise Building: A building with an occupied floor located more than 75 feet above the lowest level of fire department vehicle access.

Walk-up / Tuck Under

First floor walk up units with private garage

Benefits:

- Eliminates need for S-2 parking garage
- Can be all wood
- Least expensive overall but lowest densification rates (20-35 units/acre)

Wrap-Around

Walk up units surround parking structure

Benefits:

- Enhanced security
- Centralized access to parking
- Visual appeal from street
- More expensive than walk/up tuck-under
- 5 story yields 60-80 units/acre

Podium

Multiple stories of wood over an elevated concrete deck

Benefits:

- Increased number of stories
- Accommodates Mixed-use occupancies
- Most expensive but can allow increased density

Podium

4 stories of residential over podium (parking or retail)

- 60–80 units/acre

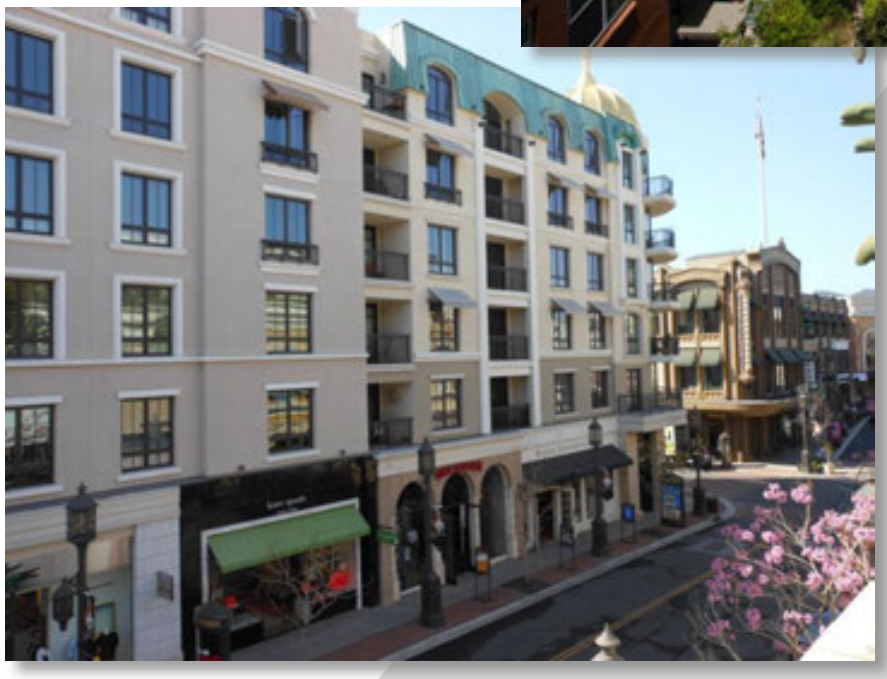
Inman Park Condos, Atlanta, GA
Davis & Church

Podium

5 stories over retail

» 100–120 units/acre

AvalonBay Stadium, Anaheim, CA
VanDorpe Chou Associates



Inman Park Condos, Atlanta, GA
Davis & Church

Podium

5 stories over residential podium

» 120–140 units/acre

16 Powerhouse, Sacramento, CA
D&S Development
LPA Sacramento

Mezzanine & Podium

5 stories with mezzanine + residential podium

» 125–145 units/acre

120 Union, San Diego, CA
Togawa Smith Martin

Outline

- » Context for Mid-Rise Construction
- » Mid-rise Building Types/Configurations
- Maximizing Height & Area
  1. Construction Types
  2. Tabulate Areas & Stories
  3. Allowable increases
  4. Mezzanine & Special Design Provisions

1430 Q, The HR Group Architects, Buehler Engineering, Greg Folkins Photography

Typical Mid-rise Occupancy

Hotels (R-1)

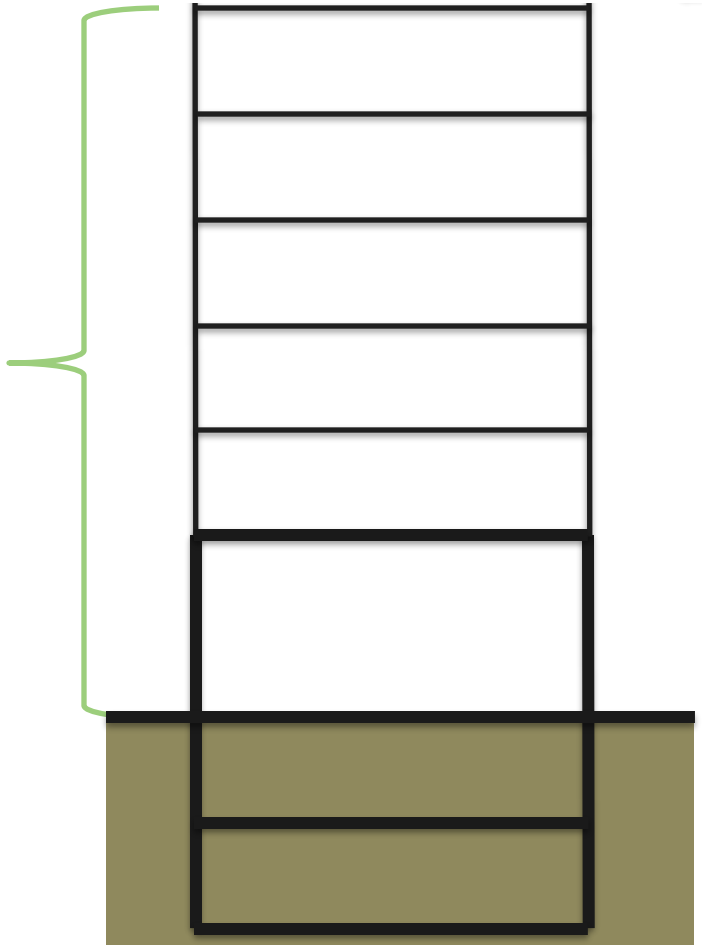
Apartments (R-2)

Condominiums (R-2)

Student housing (R-2)

Live/work units (R-2)

Assisted living (R-4)



(A-2) Restaurants/cafeterias

(A-3) Workout facilities

(A-3) Meeting rooms

(B) Offices

Nursing homes (I-2)

(M) Shops

(S-2/U) Parking

(S-1) Storage

Mid-Rise Construction Types

Type III

- Exterior walls non-combustible (may be light frame FRTW)
- Interior elements any allowed by code

Type V

- All building elements any allowed by code

Types III and V can be subdivided:

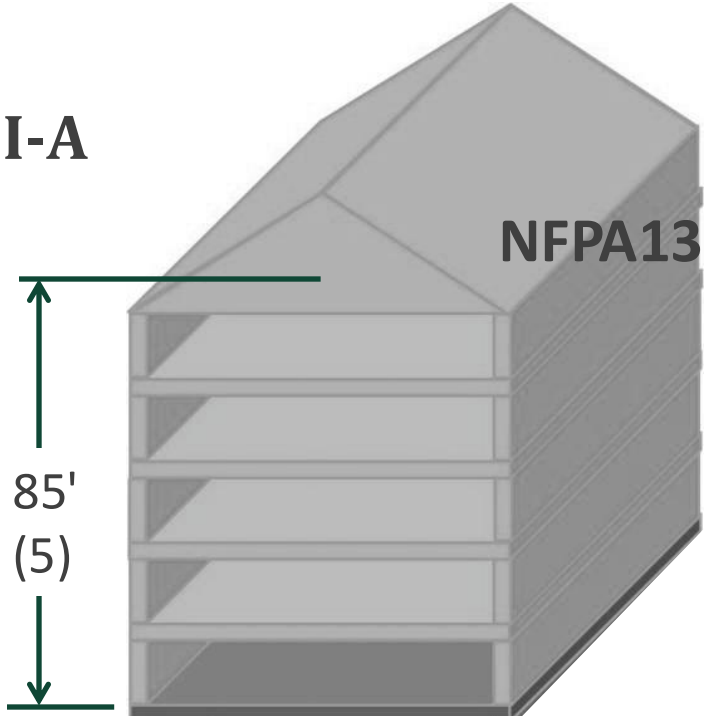
- A (protected)
- B (unprotected)

Type IV (C & HT)

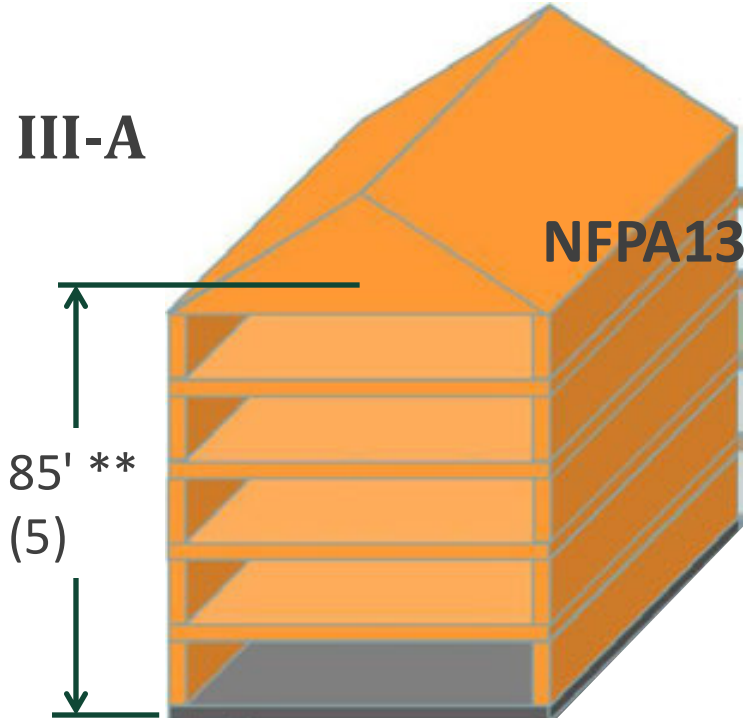
- All building elements mass timber (covered CLT) or non-combustible
  - For IV-HT, interior elements may also be 1-hour FRR light frame
  - For IV-HT, exterior walls may also be FRTW, including light frame walls)

Increased Height & Story Area: Residential Occupancy

Type II-A



Type III-A



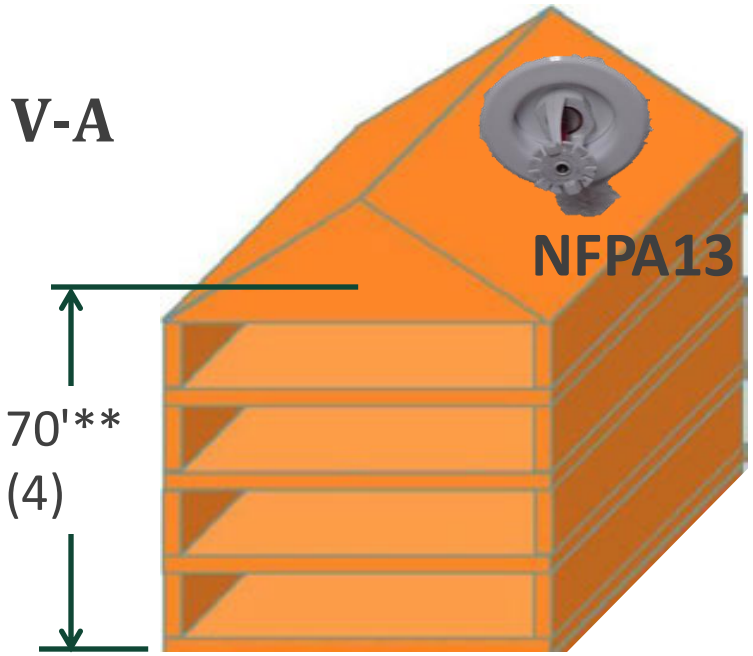
Occupancy	II-A (ft^2)*	III-A (ft^2)*
R-1	72,000 +18,000 (max frontage)	72,000 +18,000 (max frontage)
R-2	72,000 +18,000 (max frontage)	72,000 +18,000 (max frontage)

* Areas reflect PER STORY max. Total building max may limit area further.

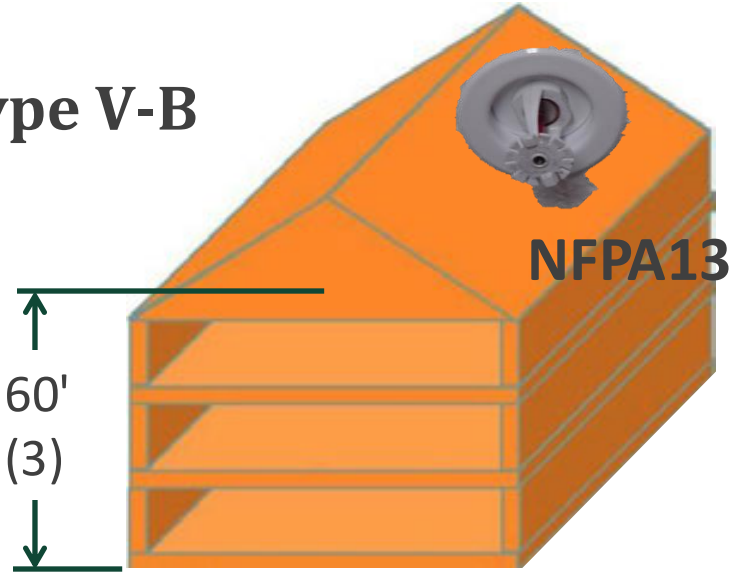
** ASCE7-16 Table 12.2-1 limits wood shear wall seismic systems to 65' in height in SDC D,E,F

Increased Height & Story Area: Residential Occupancy

Type V-A



Type V-B



Occupancy	V-A (ft^2)*	V-B (ft^2)
R-1	36,000 +9,000 (max frontage)	21,000 +5,250 (max frontage)
R-2	36,000 +9,000 (max frontage)	21,000 +5,250 (max frontage)

* Areas reflect PER STORY max. Total building max may limit area further.

** ASCE7-16 Table 12.2-1 limits wood shear wall seismic systems to 65' in height in SDC D,E,F

Height – 2021/2024 IBC Table 504.3

- IBC 2021: Table 504.3 provides base & increased heights

TABLE 504.3
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE[a]

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION											
	See Footnotes	Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A, B, E, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60
R[h]	NS[d]	UL	160	65	55	65	55	65	65	65	65	50	40
	S13D	60	60	60	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	270	180	85	85	70	60

NS = Buildings not equipped throughout with an automatic sprinkler system

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 (NFPA 13)

S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2 (NFPA 13R)

S13D (not shown) = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3 (NFPA 13D)

Stories – 2021/2024 IBC Table 504.4

TABLE 504.4
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a, b]

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-2	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-3	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
B	NS	UL	11	5	3	5	3	5	3	2
	S	UL	12	6	4	6	4	6	4	3
R-1[h]	NS[d]	UL	11	4	4	4	4	4	3	2
	S13R	4	4						4	3
	S	UL	12	5	5	5	5	5	4	3
R-2[h]	NS[d]	UL	11	4	4	4	4	4	3	2
	S13R	4	4	4					4	3
	S	UL	12	5	5	5	5	5	4	3
S-1	NS	UL	11	4	2	3	2	4	3	1
	S	UL	12	5	3	4	3	5	4	2

Sloped Sites

Fashion Valley, CA
AvalonBay Communities

Seattle, WA
PB Architects

Sloped Sites – Chapter 2 Definitions

HEIGHT, BUILDING. The vertical distance from *grade plane* to the average height of the highest roof surface.

GRADE PLANE. A reference plane representing the average of finished ground level adjoining the building at *exterior walls*. Where the finished ground level slopes away from the *exterior walls*, the reference plane shall be established by the lowest points within the area between the building and the *lot line* or, where the *lot line* is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.

626 Dekalb Avenue, Atlanta, GA
Matt Church - Davis Church Structural Engineers

Basements –IBC 506.1.3

A basement is not included in the total allowable building area if it doesn't exceed the area permitted for a building with no more than one story above grade plane.

"Basement" is defined as "not a story above grade plane" and has a finished floor surface of the next floor above:

- Less than 6 feet above grade plane; or
- Less than 12 feet above the finished ground level at any point

Fashion Valley, CA
AvalonBay Communities

Basements –IBC 506.1.3

To qualify as a basement (and therefore not be included in building area):

Summary of Building Heights

Building Heights and Stories by Building Type With NFPA 13 Sprinklers				
Occupancy	III-A	III-B	V-A	V-B
	85 ft	75 ft	70 ft	60 ft
R-1/R-2/R-4	5	5	4	3
A-2/A-3	4	3	3	2
B	6	4	4	3
M	5	3	4	2
S-2	5	4	5	3
S-1	4	4	4	2

**ASCE7 12.2-1 limits wood shear wall seismic systems to 65’ in height in SDC D,E,F

Area Increases – 2021/2024 IBC Table 506.2

TABLE 506.2
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a, b]

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
R-1[h]	NS[d]	UL	UL	24,000	16,000	24,000	16,000	61,500	41,000	25,625	20,500	12,000	7,000
	S13R												
	S1	UL	UL	96,000	64,000	96,000	64,000	246,000	164,000	102,500	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	184,500	123,000	76,875	61,500	36,000	21,000

**Can still increase these areas by the Frontage Factor of Section 506.3

NS = Buildings not equipped throughout with an automatic sprinkler system

S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 (NFPA 13)

SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 (NFPA 13)

S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2 (NFPA 13R)

Sprinkler Systems: IBC 903.2

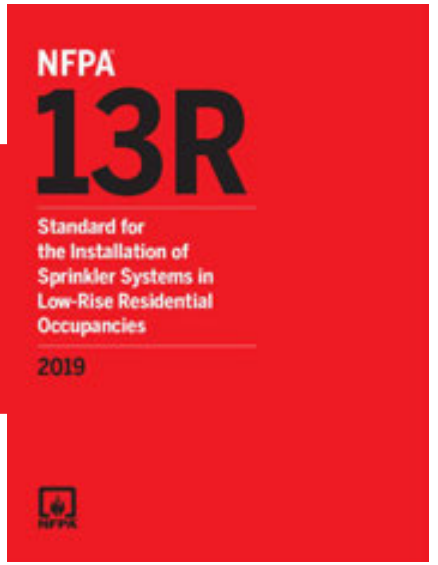
In some cases, sprinklers are required by code depending on occupancy

- Most new Group R fire areas
- Group A, E, M, S-1, I fire areas exceeding 1-12k sf

Stella Apartments, DesignARC, Taylor and Syfan, photo Lawrence Anderson

Commercial Sprinkler Systems – IBC 903.3.1

- NFPA 13
  Standard for Commercial Construction 903.3.1.1
- NFPA 13R
  Residential Occupancies (One- and Two-Family or Low-Rise Multi-Family and Commercial) 903.3.1.2
- NFPA 13D
  Standard for One- and Two-Family Residences (but allowed in a few commercial occupancies) 903.3.1.3

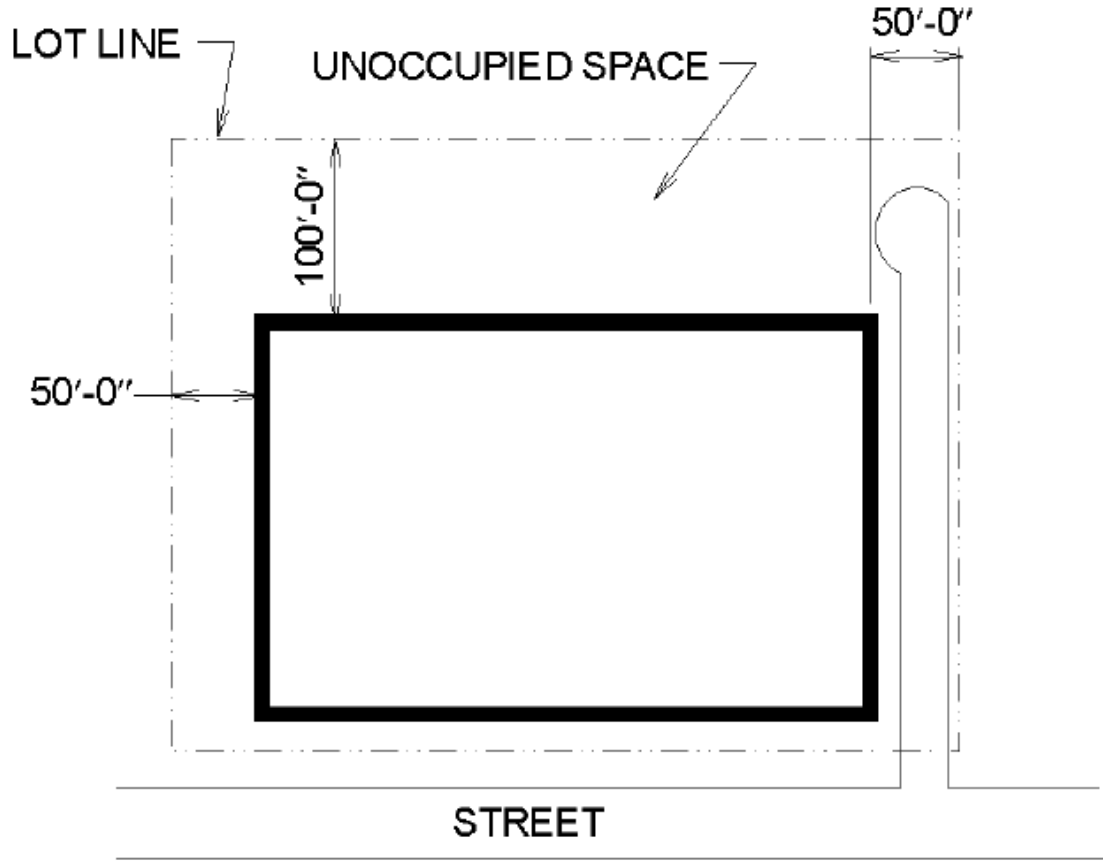


NFPA 13 vs. NFPA 13R

NFPA 13	NFPA 13R
Goal: Provide life safety and property protection	Goal: Provide life safety only
Fully sprinklered system throughout entire building even in unoccupied spaces (closets, attics)	Partially sprinklered system; unoccupied spaces often don't require sprinklers
Can cost more	Lower levels of water discharge, shorter water supply time can result in smaller pipe sizes, reduce need for storage & pumps
Permitted for many occupancies, buildings of many sizes, allows greater building size increases	Limited applications, mainly for multi-family up to 4 stories, 60 feet

Area Modification – Frontage IBC 506.3

- Allowable area increase for frontage
  - Streets (public ways)
  - Open Spaces
- Frontage provides:
  - Access by fire service personnel
  - Temporary refuge for occupants
  - Reduced exposure to/from adjacent structures



Single Occupancy – IBC 506.2.1

$$A_a = A_t + [NS \times I_f]$$

(Equation 5-1)

A_a = Allowable area per story (sq. ft.)

A_t = Tabular allowable area per story per Table 506.2 for NS, S1 or S13R (sq. ft.)

NS = Tabular allowable area per story per Table 506.2 for non-sprinklered building (sprinklered or not)

I_f = Area increase factor due to frontage per 506.3
$I_{f,\ max} = 0.75$

Frontage Increases – 2021/2024 IBC 506.3.3

I_f = Area factor increase due to frontage

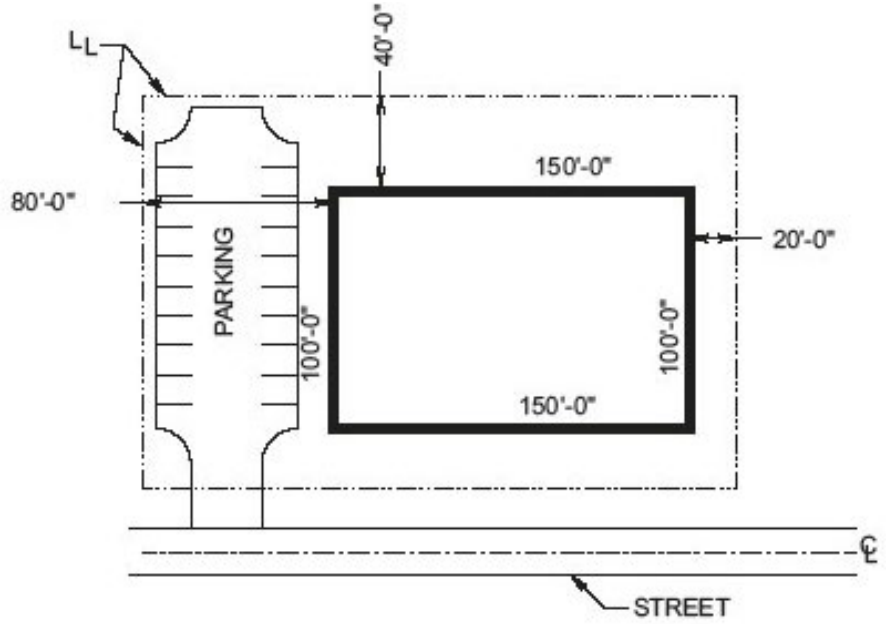


TABLE 506.3.3
FRONTAGE INCREASE FACTOR[a]

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)			
	0 to less than 20	20 to less than 25	25 to less than 30	30 or greater
0 to less than 25	0	0	0	0
25 to less than 50	0	0.17	0.21	0.25
50 to less than 75	0	0.33	0.42	0.50
75 to 100	0	0.50	0.63	0.75

Area Modification – Frontage IBC 506.3

MINIMUM QUALIFICATIONS

25% min of building perimeter is on a public way or open space 20' min distance from building face to:

- Closest interior lot line
- Entire width of street, alley, or public way
- Exterior face of adjacent building

EXCEPTIONS

Where building meets Unlimited requirements of IBC 507

And W > 30'

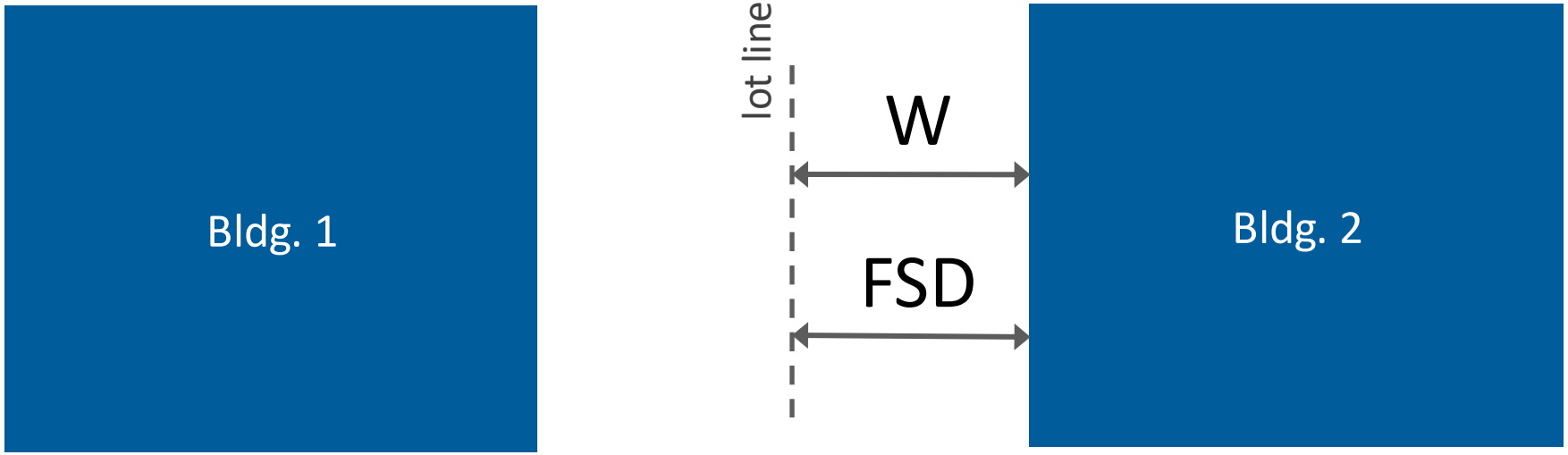
W_{max} = 60'

Frontage Increases – IBC 506.3

"W" for area increases NOT always the same as Fire Separation Distance (FSD) for purposes of fire resistance ratings of walls and openings

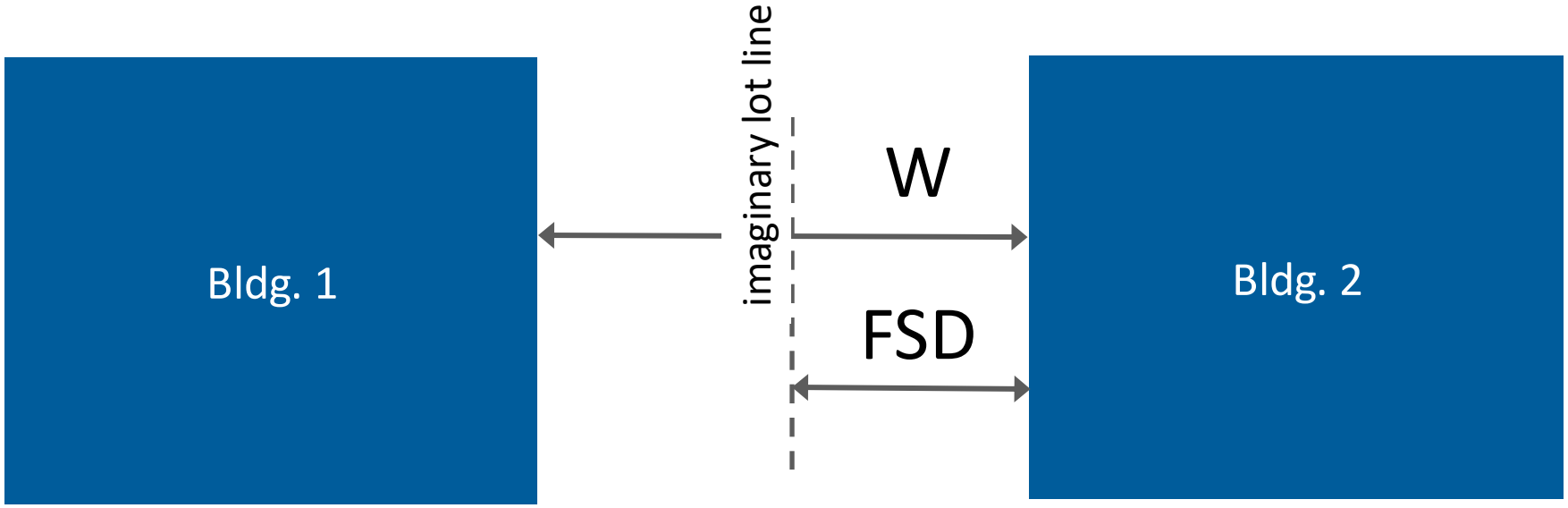
Frontage Increases – IBC 506.3

Two buildings on DIFFERENT lots



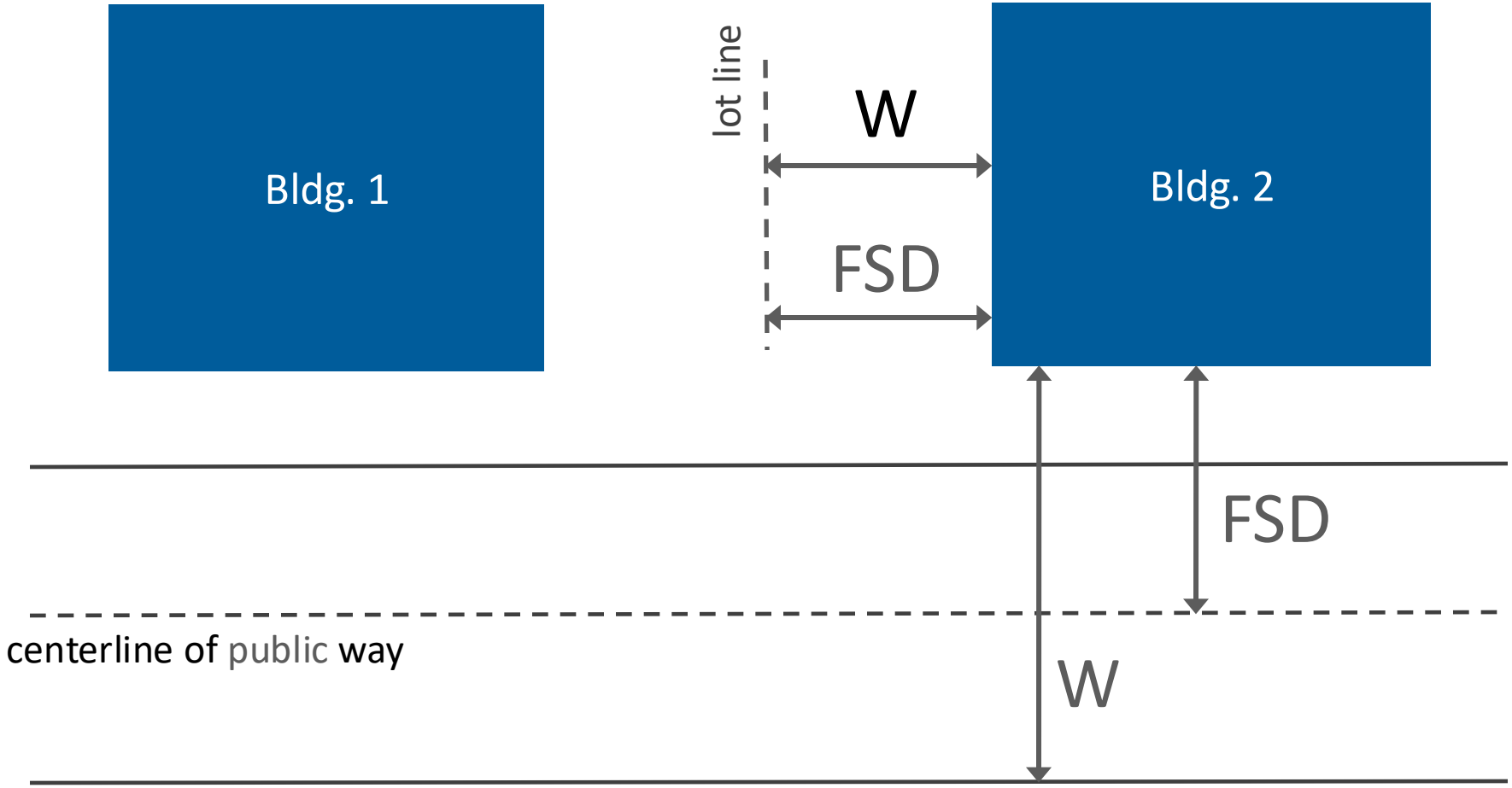
Frontage Increases – IBC 506.3

Two buildings on SAME lot



Frontage Increases – IBC 506.3

Buildings near public right of ways:



Total Building Area – IBC 506.2

$$A_a = [A_t + (NS \times I_f)] \times S_a$$

(Equation 5-2)

A_a = Allowable area, total (sq. ft.)

A_t = Tabular allowable area per story per Table 506.2 for NS, S1, SM or S13R (sq. ft.)

NS = Tabular allowable area per story per Table 506.2 for non-sprinklered building (sprinklered or not)

I_f = Area increase factor due to frontage per 506.3
I_f, max = 0.75

S_a = Actual number of building stories above grade

$S_{a,\,max}$ = 3 for non-sprinklered buildings and those w/ NFPA13

$S_{a,\,max}$ = 4 for buildings w/ NFPA 13R

Total Building Area –IBC 506.2

1 story building (Type III-A)

» Total Area is 1 x A_a

R-2
S13R

Max Area =
24,000 sf total

R-2
S1

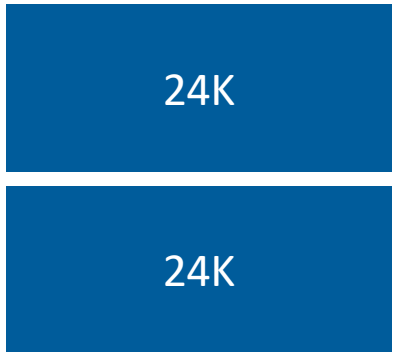
Max Area =
96,000 sf total

Total Building Area – IBC 506.2

2 story building (Type III-A)

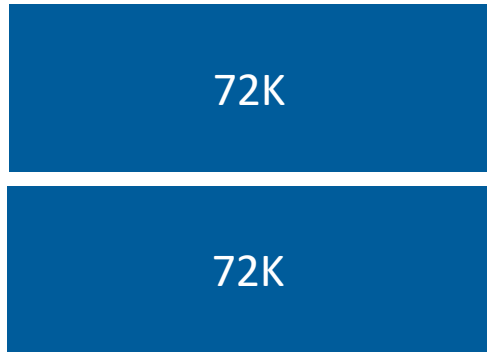
- Total Area is 2 x A_a
- No frontage increase shown

R-2
S13R



Max Area =
48,000 sf total

R-2
SM



Max Area =
144,000 sf total

Total Building Area – IBC 506.2

3 story building (Type III-A)

- Total Area is 3 x A_a
- Includes maximum frontage increase

R-2
S13R + I_f (NS)

24K +	.75(24K)
24K +	.75(24K)
24K +	.75(24K)

Max Area =
126,000 sf total

R-2
SM + I_f (NS)

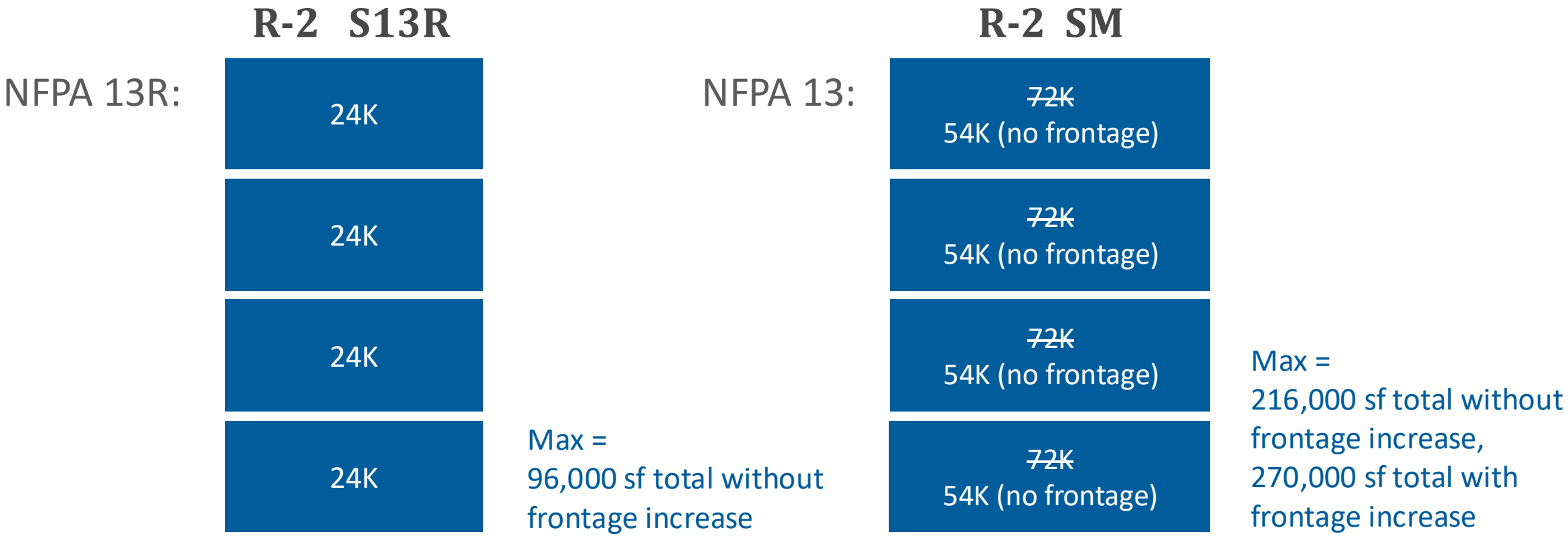
72K +	.75(24K)
72K +	.75(24K)
72K +	.75(24K)

Max Area =
270,000 sf total

Total Building Area – IBC 506.2

4 story building (Type III-A)

- Total Area is 3 x A_a for NFPA 13 sprinkler system (no frontage increase)
- Total area is 4 x A_a for NFPA 13R sprinkler system (no frontage increase)



Mixed Occupancy, Multi-story

Story Area: $\Sigma\ (A_i / A_{a,i}) \leq 1$

(Described in 2021/2024 IBC 508.4.2)

Total Building Area: $\Sigma\ (A_i / A_{a,i}) \leq S_a$

(Described in 2021/2024 IBC 506.2.2)

$\mathbf{A_i}$ = Actual area of occupancy *i* at a given story (sq. ft)

$\mathbf{A_{a,i}}$ = Allowable area per story for occupancy *i* (sq. ft) = $[A_{t,i} + (NS_i \times I_f)]$

$\mathbf{A_{t,i}}$ = Tabular allowable area per story for occupancy *i* per Table 506.2 (sq. ft.)

$\mathbf{NS_i}$ = Tabular allowable area per story for occupancy *i* per Table 506.2 for non-sprinklered building (sprinklered or not)

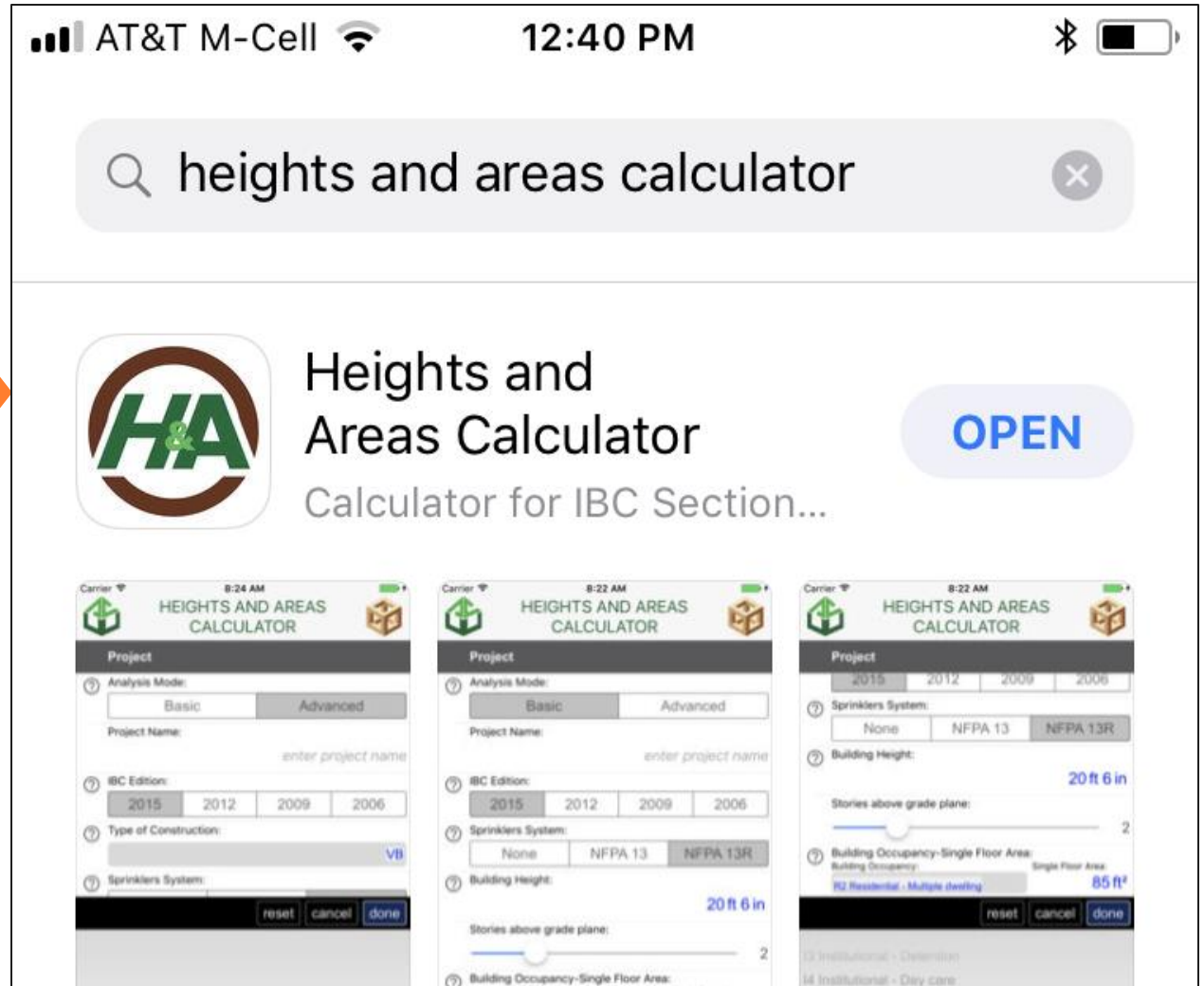
$\mathbf{I_f}$ = Area increase factor due to frontage per 506.3
I_f, max = 0.75

$\mathbf{S_a}$ = Actual number of building stories above grade not to exceed 3 for non-sprinklered buildings and those w/ NFPA13. **OR** 4 for buildings w/ NFPA 13R

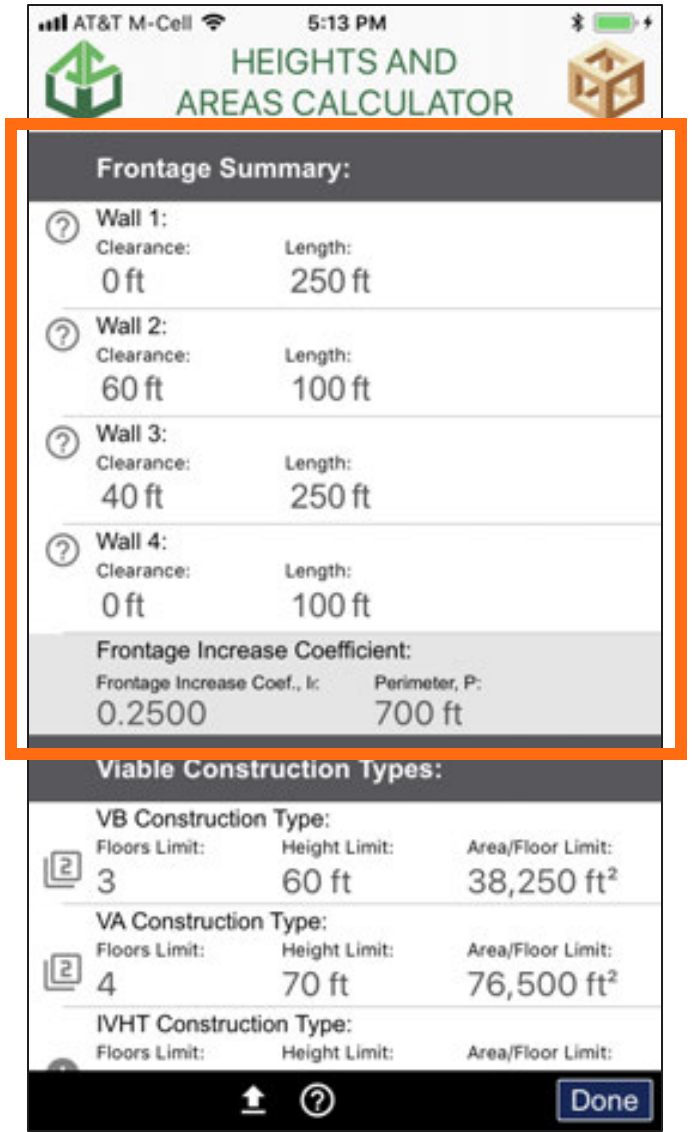
Mixed Use Occupancy – Design Aid

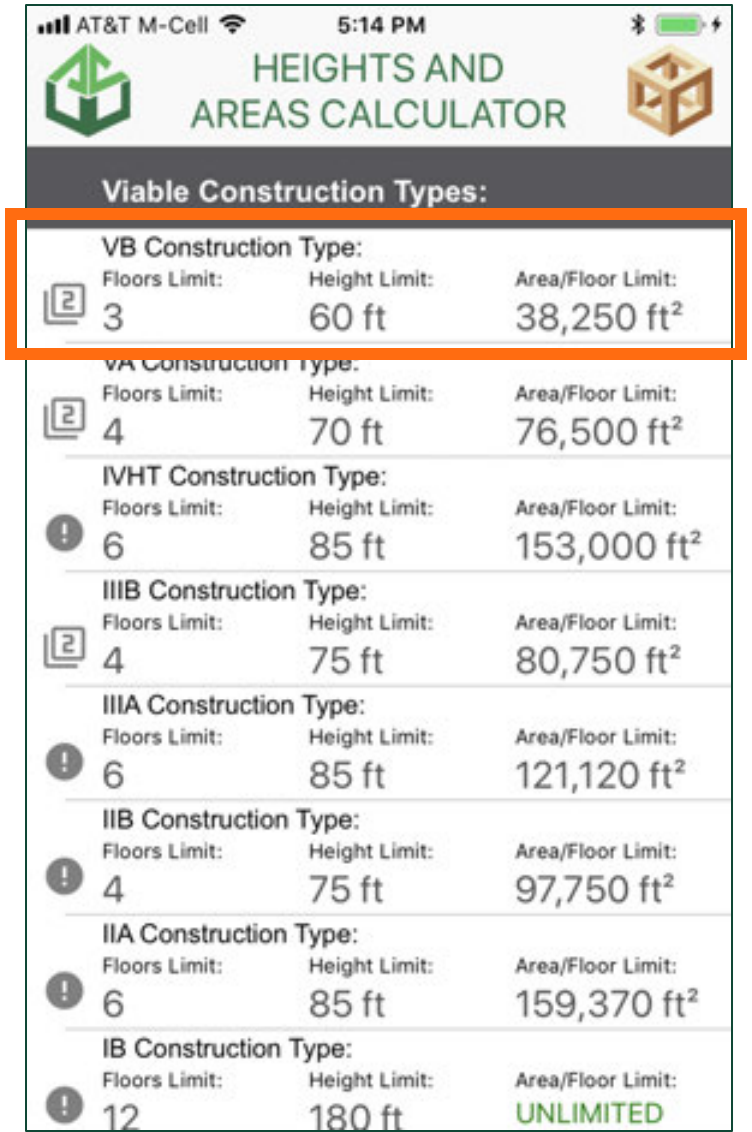
WoodWorks/AWC Heights & Areas Calculator App

Available for FREE at woodworks.org



Frontage Calculation – Design Aid





Mezzanines – IBC 505

Not counted toward building area* or number of stories if:

- Maximum 1/3 floor area of *room* or *space* where located
- Special egress provisions apply
- Must be open and unobstructed to room in which it's located (walls ≤ 42" allowed)
  - Several exceptions
- Slightly different for equipment platforms

*Does count toward fire area with regard to fire protection in Chapter 9

Case Study Maximizing View and Value With Wood

Marselle Condominiums

Seattle, WA

- Type III-A condo complex
- 5-1/2 stories of wood over 2 stories of concrete
- Mezzanine added $250K cost but $1M in value
- 30% cost saving over concrete
- Time savings over steel

Architect: PB Architects

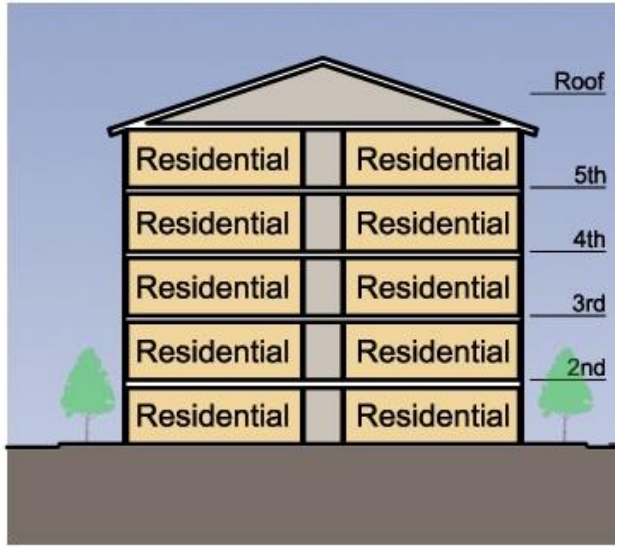
Engineer: Yu & Trochalakis

Contractor: Norcon, NW

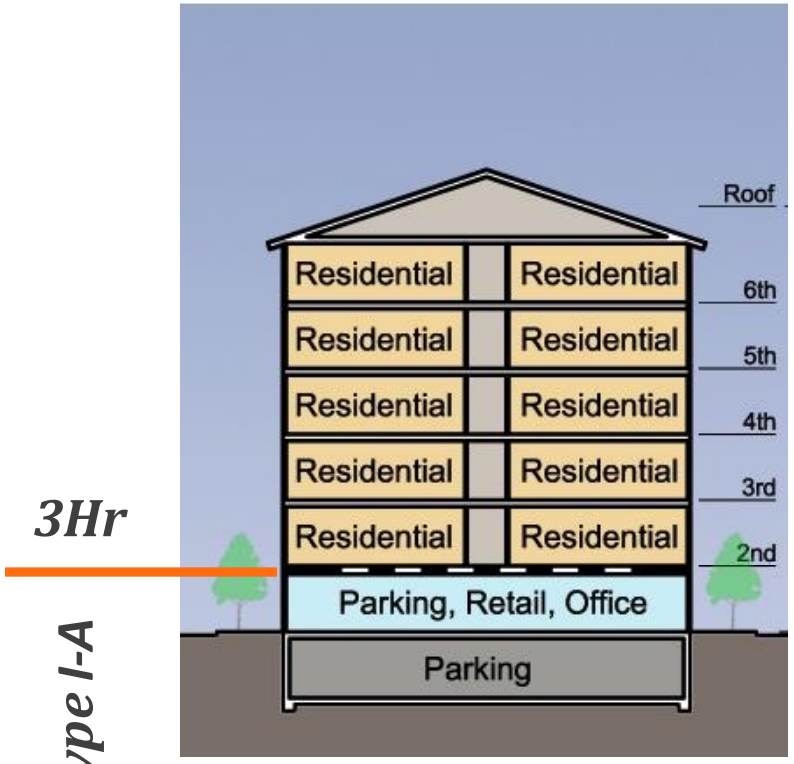
Completed: 2009

Photo Credit: Matt Todd Photography

IBC Podium Provisions



5 story Type III Building



5 story Type III Building
On Top of a Type I-A Podium

Special Provisions for Podiums in IBC 510.2
Increases allowable stories… not allowable building height

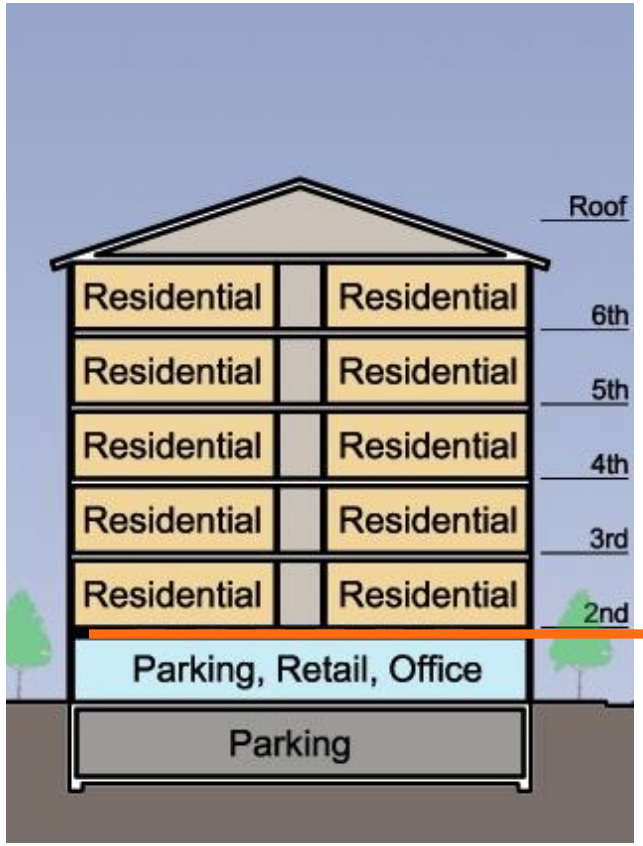
Horizontal Building Separation – 510.2

Considered separate buildings above and below for purposes of area calculations if:

- Overall height is still limited to min of either building
- 3-hr rated horizontal assembly
- Building below is Type I-A with sprinklers
- Enclosures penetrating horizontal assembly are 2-hr rated
- Occupancy above is A (occupant load <300), B, M, R or S
- Occupancy below is any except H

The Flats at ISU, Normal, IL
OKW Architects
Precision Builders & Associates

Evolution of IBC Mixed-Use Podium



IBC	2006	2009	2012	2015	2018	2021	2024
Section	509.2	509.2	510.2	510.2	510.2	510.2	510.2
Upper Occupancy	A, B, M, R or S						
3Hr							
Lower Occupancy	S-2 Parking	A, B, M, R or S-2 Parking		Any Except H			
Type IA							
Podium Height	1 Story				No Restriction		

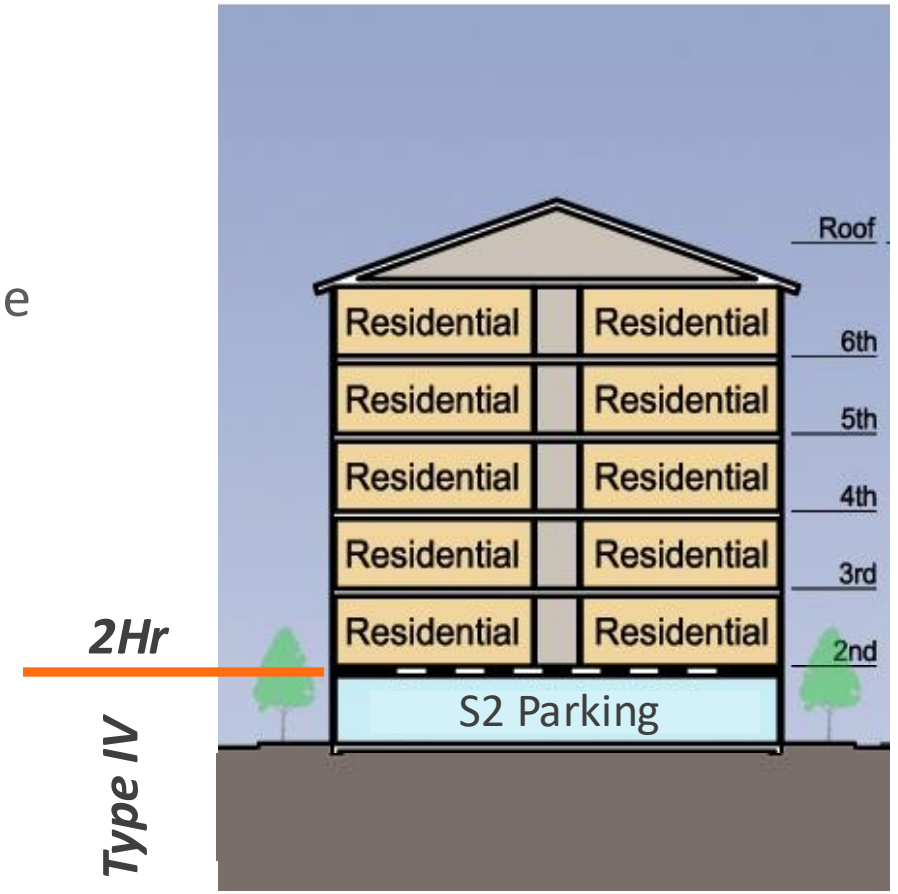
IBC Provisions for mixed-use podiums have been evolving.

Starting in 2015, IBC allows multiple podium stories above grade.

Parking Beneath Group R – IBC 510.4

Possibility of a Type IV podium where number of stories starts above parking when:

- Occupancy above is R and below is S-2
- Lower floor is Type IV (open) parking with grade entrance
- Horizontal assembly between 1st and 2nd floor shall be:
  - Same construction type as lower floor (Type IV)
  - 1-hr fire resistance rating when sprinklered
  - Overall height is still limited to occupancy



5 story Type III Building On Top of a Type IV

http://www.woodworks.org/experttip/can-parking-incorporated-mixed-use-wood-frame-buildings-construction-type-perspective/

Horizontal Separation

SEAOC 2012 CONVENTION PROCEEDINGS

All-wood Podiums in Mid-rise Construction

Michelle Kam-Biron, S.E.
WoodWorks
Newbury Park, CA

Karyn Beebe, P.E., LEED AP
APA
San Diego, CA

Abstract

Concern for the environment and climate change as well as the economic downturn of the past few years have created a demand for sustainable multi-family housing. According to the Washington, D.C.-based National Association of Home Builders Multifamily Production Index (MPI), a leading indicator for the multi-family market, the apartment and condominium housing market has shown steady improvement for six consecutive quarters. However, today's economic and environmental realities have led the building industry to re-evaluate the way we design and build multi-story buildings.

Mid-rise podium construction, consisting of two to four stories of wood framing above a concrete first story (the "podium") and often incorporating additional subterranean concrete levels, is common throughout North America and in levels of residential units built on top of one or two levels of parking or other non-residential occupancies below. In this paper, we are defining wood podium as the level (or transfer level) between the two or more stories of wood-framed residential occupancy and the lower non-residential occupancy which is traditionally constructed of concrete. In an article titled, "What to Build Now," by Michael Russo, Dan Withee, AIA, LEED AP, and partner with Withee Malcolm Architects LLP in Torrance, CA states, "Wood podium is basically tuck-under apartments on steroids."

The projects described in this paper have parking, retail, and restaurant space on their first level. The podium is composed of gypcrete (or light weight concrete) topping over wood structural panels supported by I-joists and glued laminated (glulam) beams. Both design teams made a conscientious effort to not utilize concrete or steel framing.

ALL-WOOD PODIUMS

Although a podium structure typically refers to wood-frame construction over concrete, a handful of designers have lowered their costs even further by designing the podium in wood.

"When determining the cost of a structure, there are a lot variables, including most notably time, materials and labor," said Karyn Beebe, P.E., of APA. "Using wood instead of concrete lowers the mass of the building, which results in more economical podium shear walls and foundations. Using the same material for the entire structure may also mean lower design costs, and the construction team experiences savings in the form of fewer trades on site, which means less mobilization time, greater efficiency because framing is repeated on all of the levels, easier field modifications, and a faster schedule."

Architect Dan Withee, AIA, LEED AP, of Withee Malcolm Architects designed an 85-unit wood podium project in San Diego. He estimated that a concrete podium can cost $15,000 per parking space compared to $9,500 for wood podium.[6]

Horizontal Wood Assemblies are effectively used to transition from Residential units above to Retail/Parking below

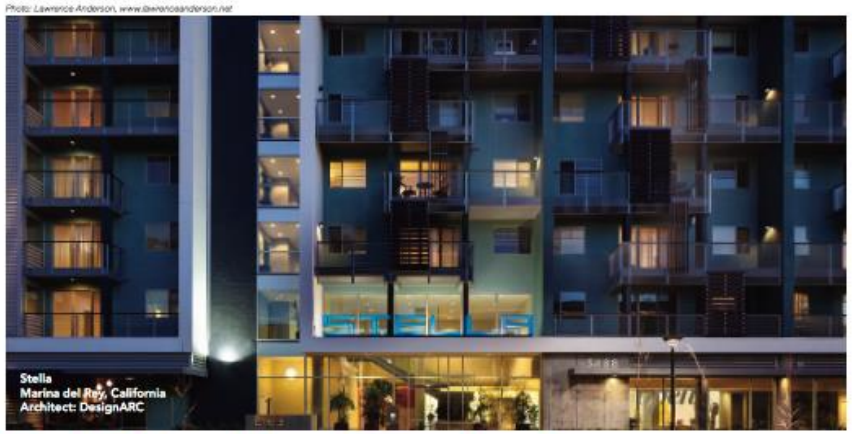


Photo: Lawrence Anderson, www.lawrenceanderson.net

Stella
Marina del Rey, California
Architect: DesignARC

CONTINUING EDUCATION

Multi-Story Wood Construction

A cost-effective and sustainable solution for today's changing housing market

Sponsored by reThink Wood and WoodWorks

Cost-effective, code-compliant and sustainable, mid-rise wood construction is gaining the attention of design professionals nationwide, who see it as a way to achieve higher density housing at lower cost—while reducing the carbon footprint of their projects. Yet, many familiar with wood construction for two- to four-story residential structures are not aware that the International Building Code (IBC) allows wood-frame construction for five stories and more in building occupancies that range from business and mercantile to multi-family, military, senior, student and affordable housing.

but its benefits are equally applicable to other occupancy types."

Among their benefits, wood buildings typically offer faster construction and reduced installation costs. For example, after completing the first phase of a developer-funded five-story student housing project using steel construction, OKW Architects in Chicago switched to wood. "The 12-gauge steel panels were expensive, very heavy and difficult to install; and welding and screwing the shear strap bracing was very time consuming," says project architect Eileen Schoeb. "Using wood was far more economical for the second phase." Farooq Maniar, president

CONTINUING EDUCATION

EARN ONE AIA/CES HSW LEARNING UNIT (LU)

EARN ONE GBCI CE HOUR FOR LEED CREDENTIAL MAINTENANCE

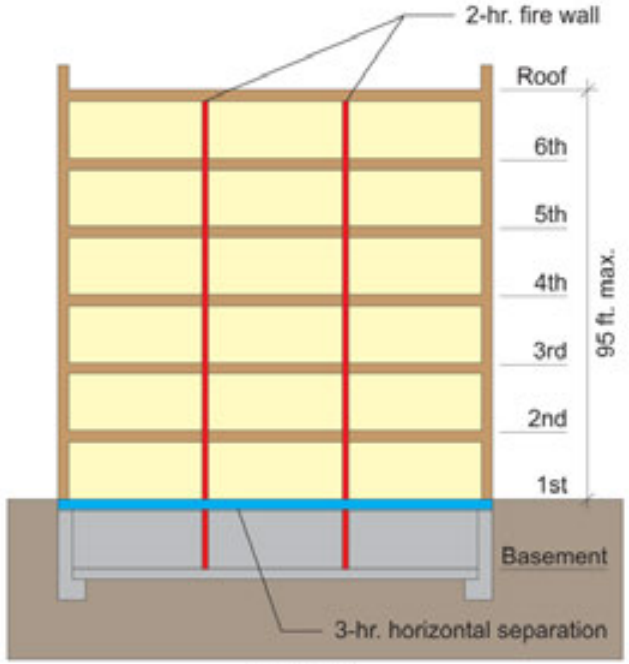
Learning Objectives

After reading this article, you should be able to:

1. Identify the sustainability and economic benefits of using wood construction for mid-rise buildings.
2. Summarize building code requirements and provisions for mid-rise multi-family

Group R-1 & R-2 Buildings of Type III-A – IBC 510.5

- **Allows 6 stories of Type III-A**
- 10-ft height increase
- 3-hr separation between basement and first floor
- 2-hr fire walls to subdivide floor into areas not exceeding 3,000 sqft



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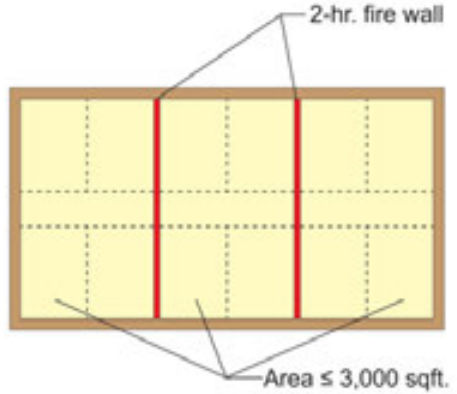
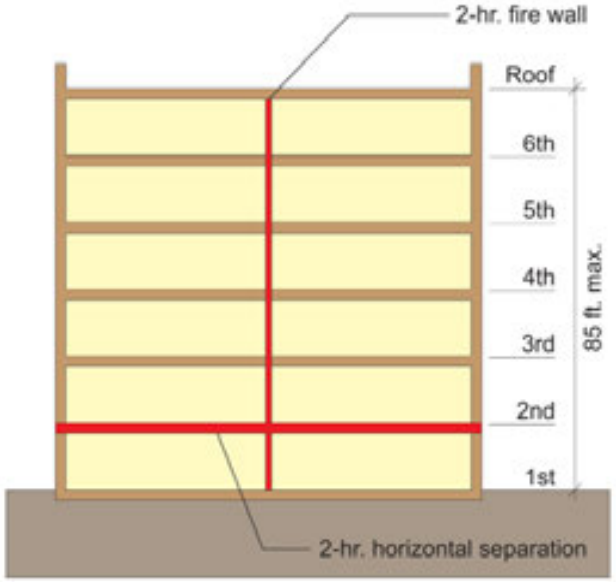


PLAN

Group R-2 Buildings of Type III-A

Seattle Building Code Section 510.10

- **Allows 6 stories of Type III-A**
- No height increase, no mezzanines
- 2-hr separation between first floor and floors above
- If floor area >6,000 sqft, subdivide into areas ≤12,000 sqft using 2-hr fire walls
- See code for additional requirements



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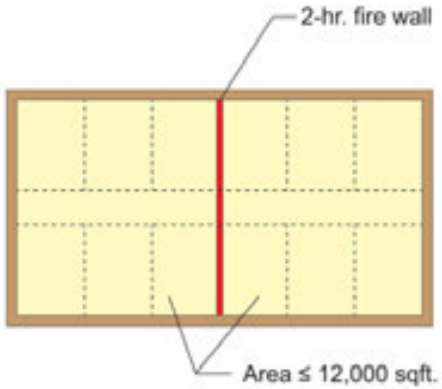
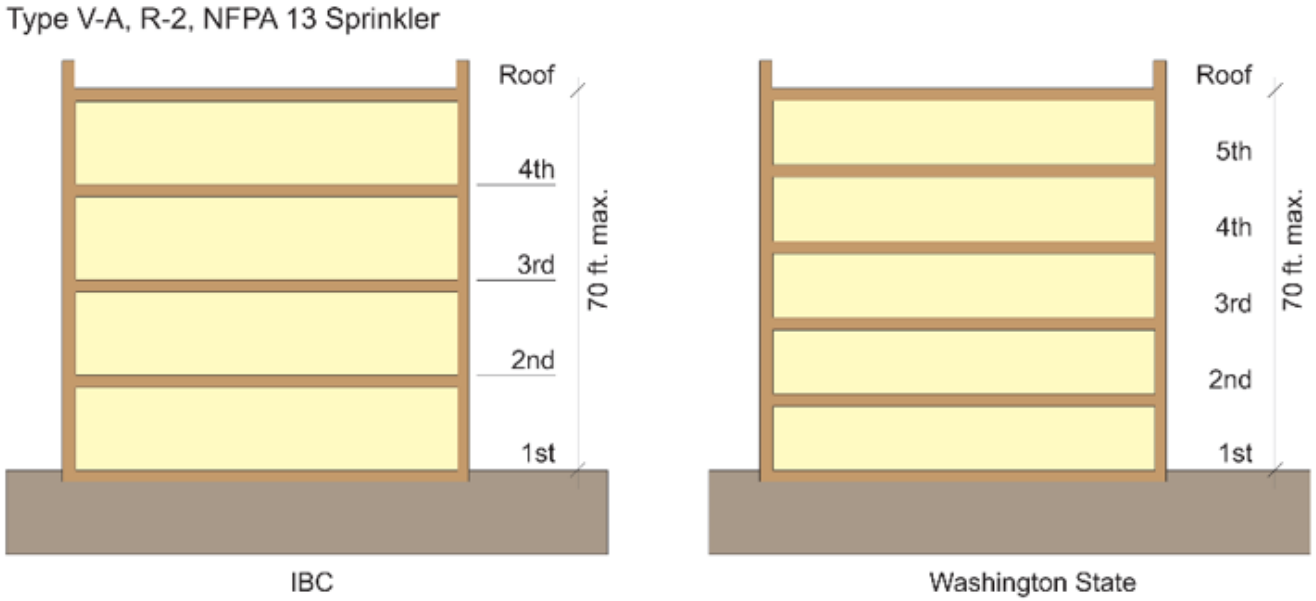


PLAN

Story Increase for Type V-A for R-1 & R-2

Washington State Building Code Section 504.4.1

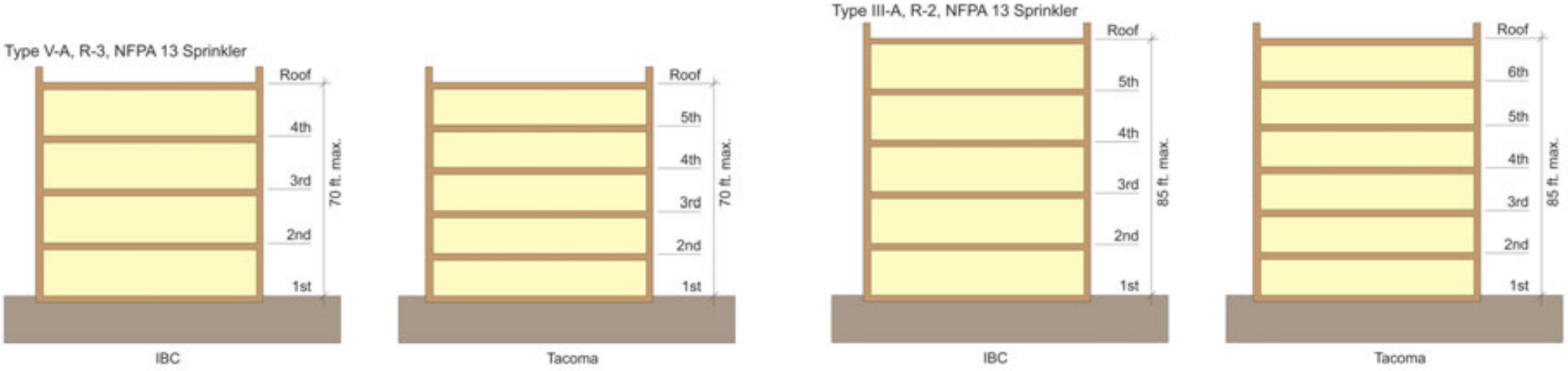
- **Allows 5 stories of Type V-A**
- No height increase
- Exit stairways and ramps pressurized per 909.6.3 & 909.20
- Also applies to assisted living facilities (Group I-1, condition 2)
- See code for additional requirements



Story Increase for Types V-A & III-A for R-1 & R-2

Tacoma Municipal Code Section 2.02.140

- **Allows 5 stories of Type V-A and 6 stories of Type III-A**
- No height increase
- Exit stairways and ramps pressurized per 909.6.3 & 909.20
- V-A increase applies to assisted living facilities (Group I-1, condition 2)
- See code for additional requirements

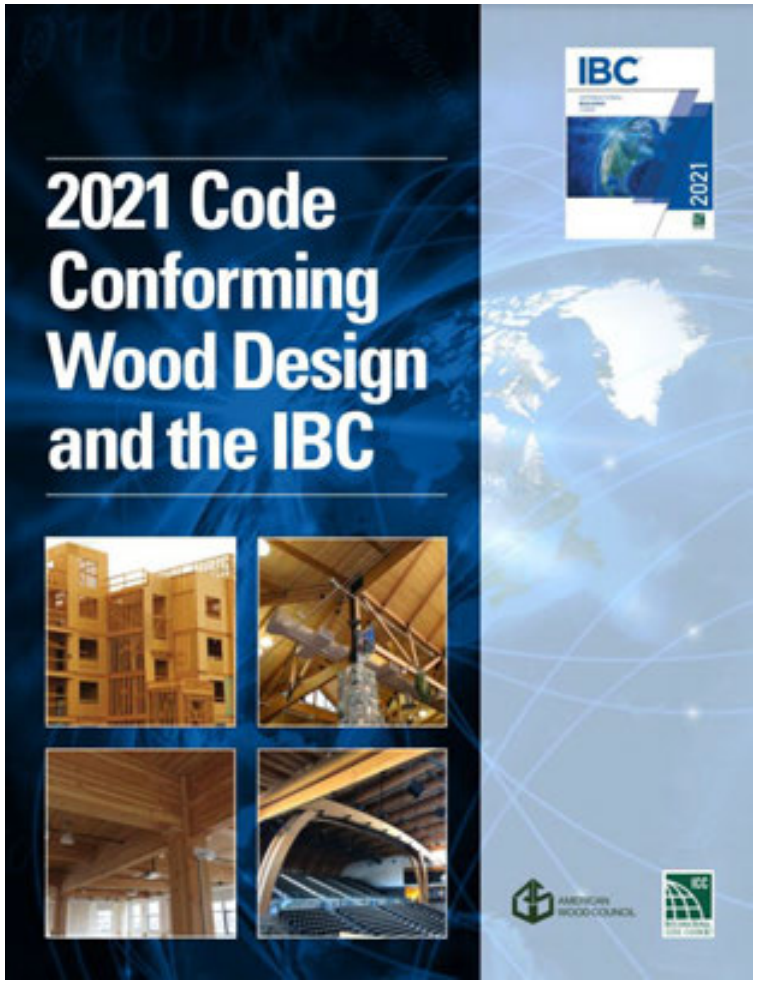


Moraine

Tacoma, WA

Architect: WORKS Architecture
Engineer: PCS Structural Solutions
Photo: WORKS Architecture

2021 Code Conforming Wood



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Please take our survey!

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901 East Sixth, Thoughtbarn-Delineate Studio, Leap!Structures, photo Casey Dunn

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