
Photos courtesy of Bonstra | Haresign Architects, LLP

Jackson Crossing

Alexandria, Virginia

Building Information


Photos courtesy of Bonstra | Haresign Architects, LLP

Location: Alexandria, Virginia

Type of Use: Multi-Family Residential

Gross Square Feet: 107,740

Number of Floors: 5


Photos courtesy of Bonstra | Haresign Architects, LLP

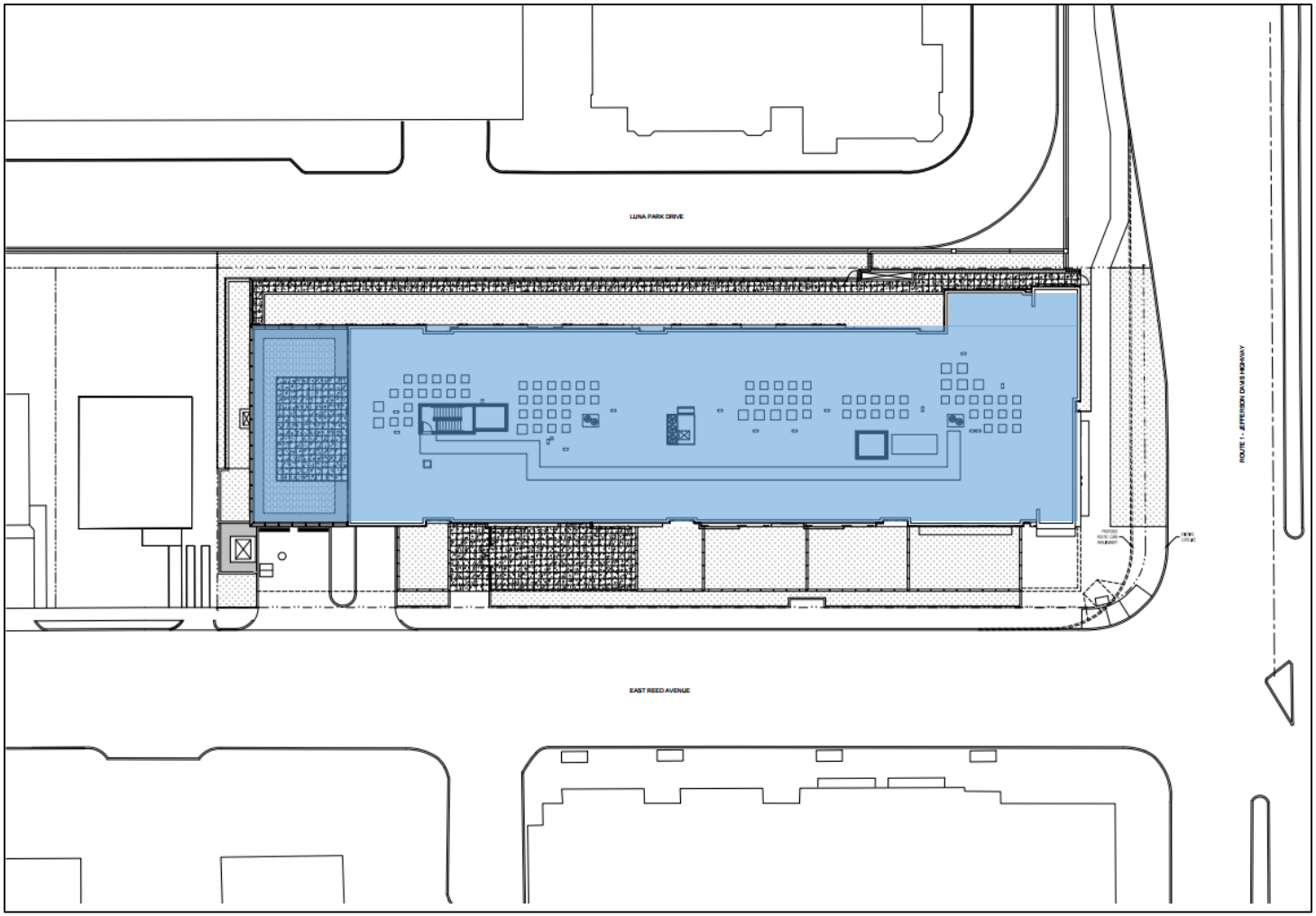
Structure

- Wood trusses
- Wood bearing walls
- First two levels concrete

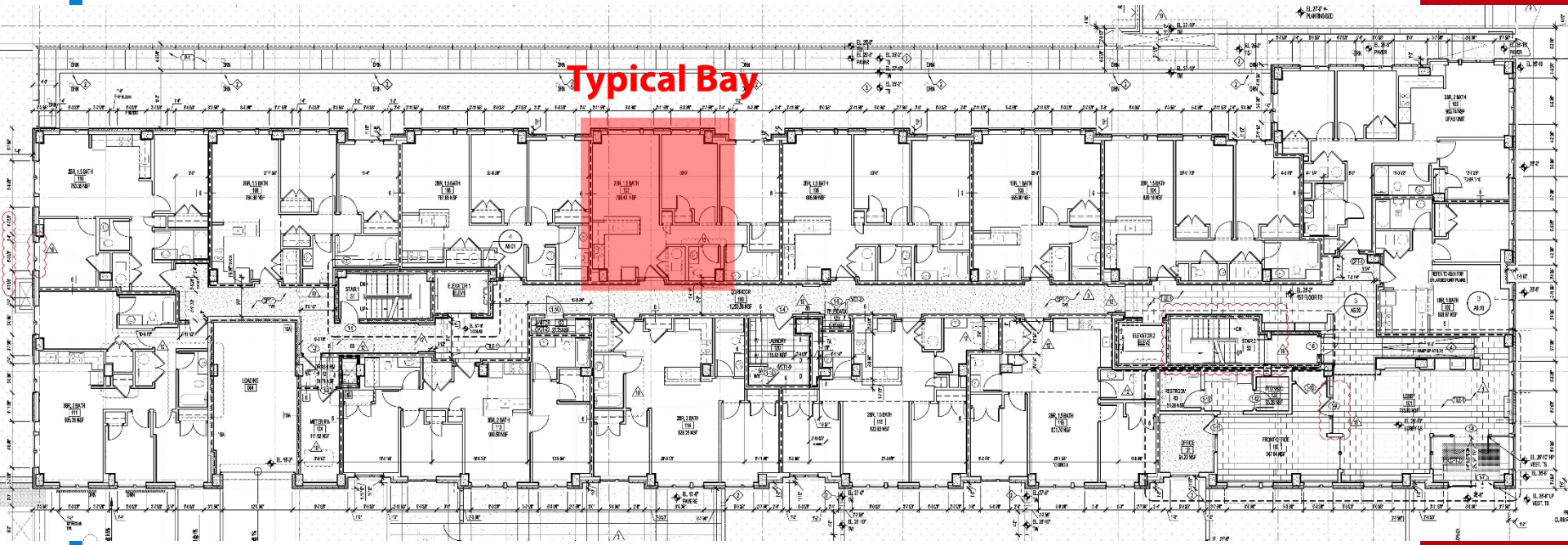

Photos courtesy of Bonstra | Haresign Architects, LLP

Location Plan

Site Plan


LUNA PARK DRIVE
EAST REED AVENUE
ROUTE 1 - JEFFERSON DAVIS HIGHWAY

Typical Bay

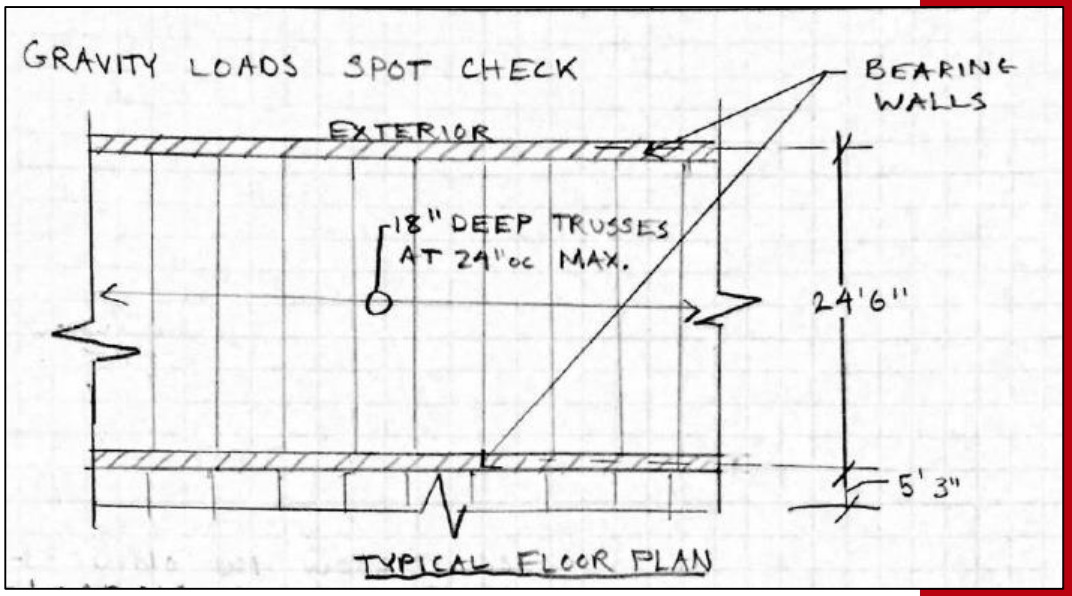


Size: 20’3” by 24’6”

Existing System

Bearing Wall
- 2x6 SPF/HF @ 16”oc

Engineered Wood Joist
- 18” deep truss



Checked Bearing Wall at second floor for:
- Exterior total load of 4,477 plf
- Interior total load of 3,807 plf

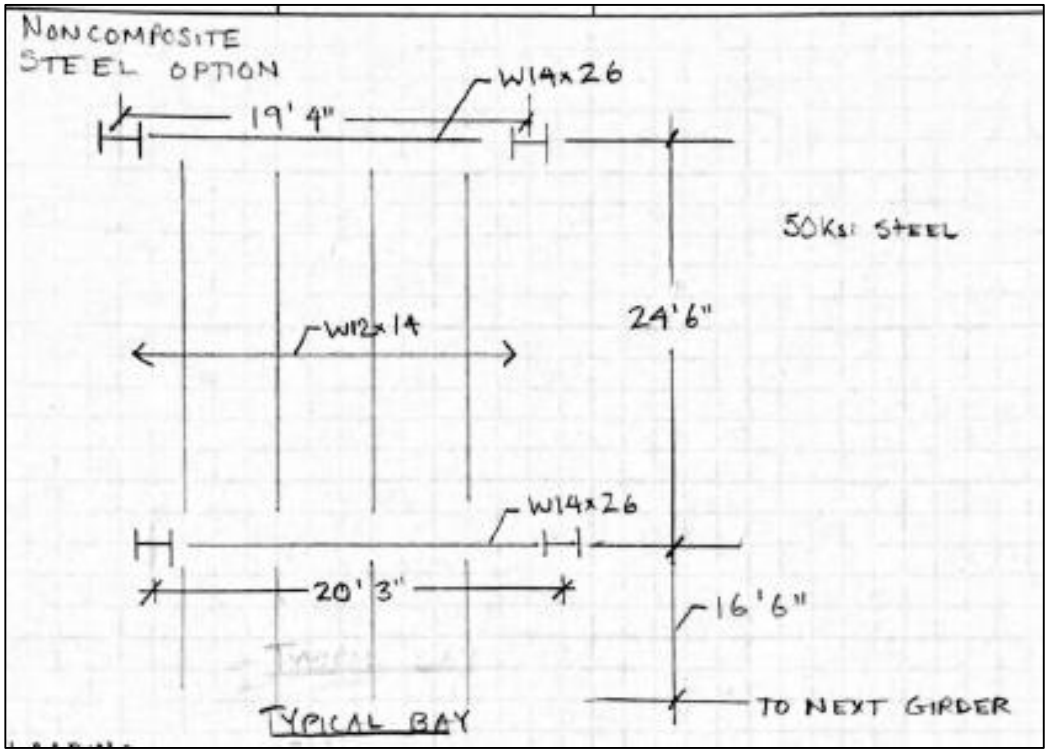
Calculated capacity of bearing wall as 4,538 plf

Non-Composite Beams and Girder

Joists
- @5ft o.c.
- W12x14
- DL: 245 PLF
- LL: 200 PLF

Girder
- W14x26
- DL: 1,005 PLF
- LL: 820 PLF

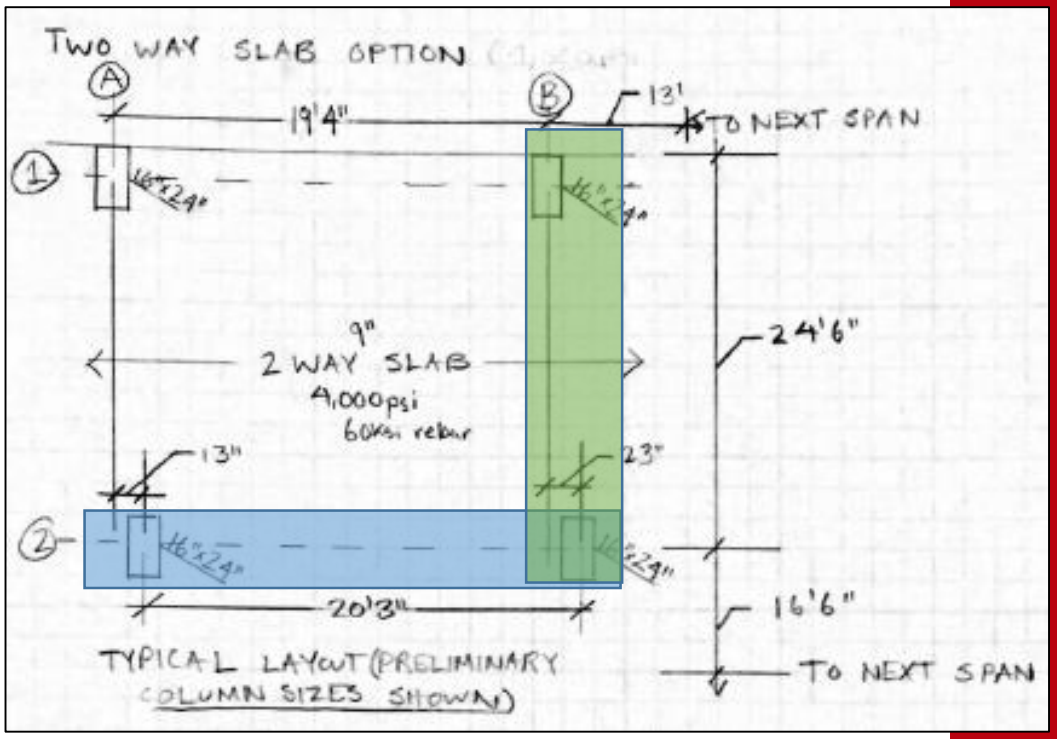
Metal Deck
- 1.0C24 with 2 ½” Topping



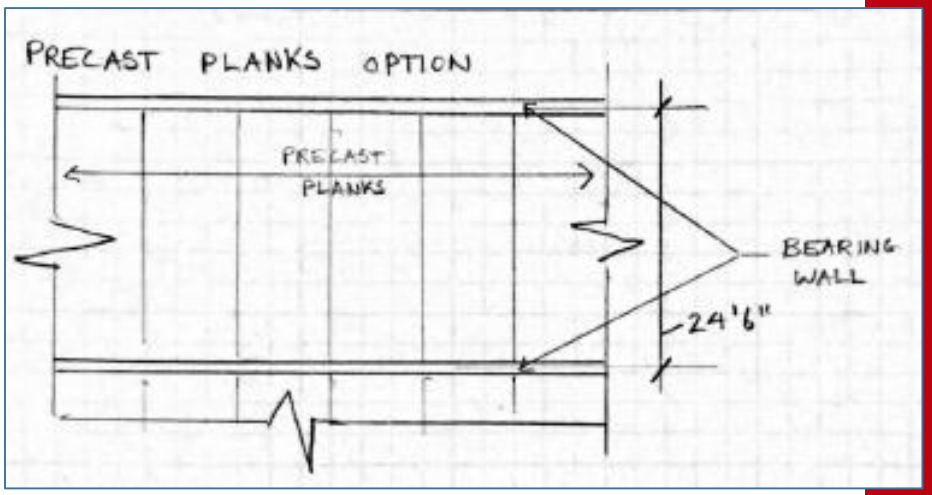
Two-Way Slab

F’c=4,000
Grade 60 Rebar

POSITIVE INTERIOR MOMENT	$A_{s req}/A_{s min}$ (in^2)	(No.) BAR SIZE
COLUMN STRIP		
A2-B2	1.97	(5)#6
B1-B2	2.14	(5)#6
MIDDLE STRIP		
A2-B2	1.40	(4)#6
B1-B2	0.71	(4)#4
NEGATIVE INTERIOR MOMENT		
COLUMN STRIP		
A2-B2	2.35	(3)#9
B1-B2	3.64	(4)#9
MIDDLE STRIP		
A2-B2	1.40	(4)#6
B1-B2	0.84	(5)#4



Precast Planks



Manufacturer:

- Old Castle Precast

E8”x48” w/ No Topping

- Added ½” Gypcrete for Fire Protection

Loading:

- 18 k-ft Ultimate Bending Moment
- 60 psf Max Total Load

Capacity (25 ft span)

- 58.88 k-ft
- 77 psf

Summary

	Systems			
Parameters	Existing Wood Truss Joists	Non-Composite Joists and Girder	Flat Plate Two-Way Slab	Precast Planks
Thickness (in)	19	17	9	8
Weight (psf)	13	40	113	61
Fire Rating (Hr)	1	2	3+	2
Material Cost ($/sq.ft.)	6.24	8.80	5.95	7.80
Installation Cost ($/sq.ft.)	4.01	3.19	9.20	2.57
Total Cost ($/sq.ft.)	10.25	11.99	15.15	10.37
Advantages	-Lowest Cost -Lightest -Voids for Mechanical -Stable during construction	-Light weight system -Relatively Low Cost	-Small slab thickness -Durable	-Thinnest thickness -Low Cost -Efficient with prestressed strands -Easy construction
Disadvantages	-Largest Structural depth	-Vibrations could cause uncomfortablility	-Heaviest -Most Expensive	-Heavy Structure -Transportation can cause trouble as planks are fragile and large
Potential for In-depth Investigation		Yes	No	Yes

Questions?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