

Building 2 at Atlantic Yards

Public Presentation

November 29, 2012

Overview
Affordable Housing
Design
Modular Construction
Construction Logistics
Modular Benefits

Atlantic Yards: Barclays Center Grand Opening September 28th, 2012



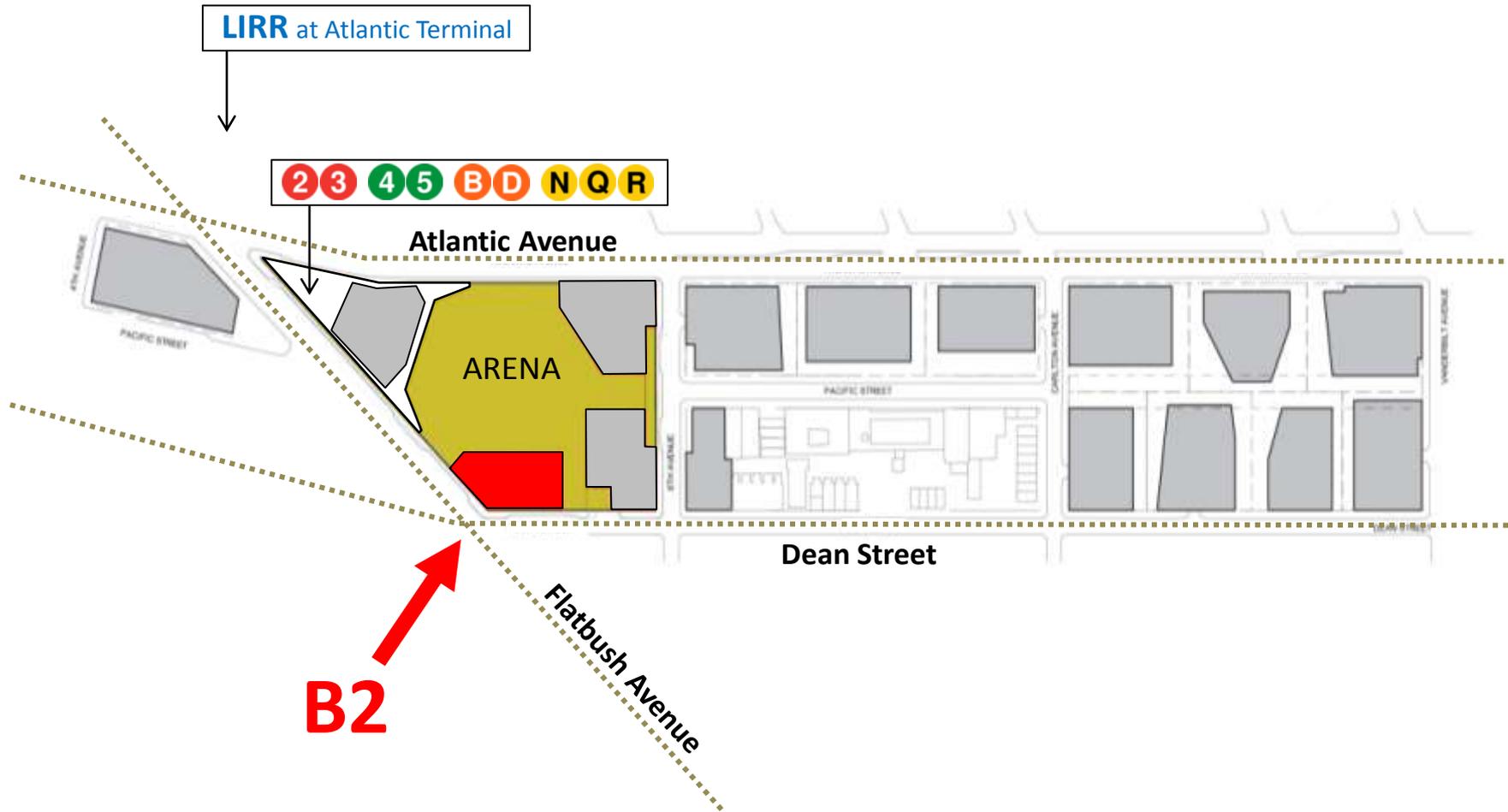
Photograph of Barclays Center September 2012

Atlantic Yards: Barclays Center and Housing



Rendering of Barclays Center and Residential Buildings 2,3 & 4

Atlantic Yards: Master Plan and Building 2 Site



- B2 will lead the residential roll-out of Atlantic Yards
- Atlantic Yards = 6,430 total units (2,250 affordable)

Building 2: Overview



- Tallest Modular Building in the World
- 32 Floors, 322' tall
- 346,000 Gross Square Feet
- 363 Rental Units: 50% Affordable / 50% Market Rate
- 4,000 SF of ground floor retail
- 15,000 SF of Arena Storage
- Designed to achieve LEED Silver certification
- 146 Parking Spaces
- Amenities include:
 - 24-hour doorman, Fitness Center, Lounge, Game Room, Yoga/Dance Studio, Children's Play Room, Roof Terrace, Bike Storage, Washer & Dryers in every apartment

	Total	Market	Affordable
Studio	149	74	75
1BR	166	96	70
2BR	48	12	36
Total	363	182	181

Building 2: Design and Construction Team Overview

Owner Developer: Forest City Ratner Companies

Architect of Record: SHoP Architects

Structural and Mechanical Engineer: Arup

Construction Manager: Skanska

Modular Contractor: FC + Skanska Modular, LLC

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Building 2: Affordable Housing

- AY Affordable Housing Program created by FCRC & Mutual Housing Association of NY (MHANY)
- 50% of Units are Affordable = 181 Units
- Affordable rental units will be spread throughout the entire building
- Studios, 1BR and 2BR units; 20% of total affordable units will be 2BR
- Tenants will be selected through a City-administered lottery process
- Applications expected to be available in January 2014, 6 months prior to TCO
- 50% of affordable units set aside for residents of CB 2, 3, 6, & 8



2012 Income Eligibility by Household Size

	Band 1 30%-40% AMI		Band 2 40-50% AMI		Band 3 60-100% AMI		Band 4 100-140% AMI		Band 5 140-160% AMI	
	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>
1 Person Income Range	\$17,430	\$23,240	\$23,241	\$29,050	\$34,860	\$58,100	\$58,101	\$81,340	\$81,341	\$92,960
2 Persons Income Range	\$19,920	\$26,560	\$26,561	\$33,200	\$39,840	\$66,400	\$66,401	\$92,960	\$92,961	\$106,240
3 Persons Income Range	\$22,410	\$29,880	\$29,881	\$37,350	\$44,820	\$74,700	\$74,701	\$104,580	\$104,581	\$119,520
4 Persons Income Range	\$24,900	\$33,200	\$33,201	\$41,500	\$49,800	\$83,000	\$83,001	\$116,200	\$116,201	\$132,800
Number of Units (181 Total)	11		62		36		36		36	

- Incomes are pre-tax and are based on New York City Area Median Income ("AMI") which is set annually by the U.S. Dept. of Housing and Urban Development ("HUD").
- In 2012, AMI for New York City was \$83,000 for a family of 4

Building 2: Affordable Housing



		2012 Monthly Studio Rent	2012 Monthly 1BR Rent	2012 Monthly 2BR Rent
Low Income	Band 1	\$494	\$533	\$648
	Band 2	\$640	\$689	\$835
Moderate and Middle Income	Band 3	\$939	\$1,187	\$1,433
	Band 4	\$1,437	\$1,809	\$2,180
	Band 5	\$1,810	\$2,276	\$2,740

- Actual B2 Rents set by City and based on AMI at time of Housing Lottery
- All rental units subject to rent stabilization

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Affordable Housing

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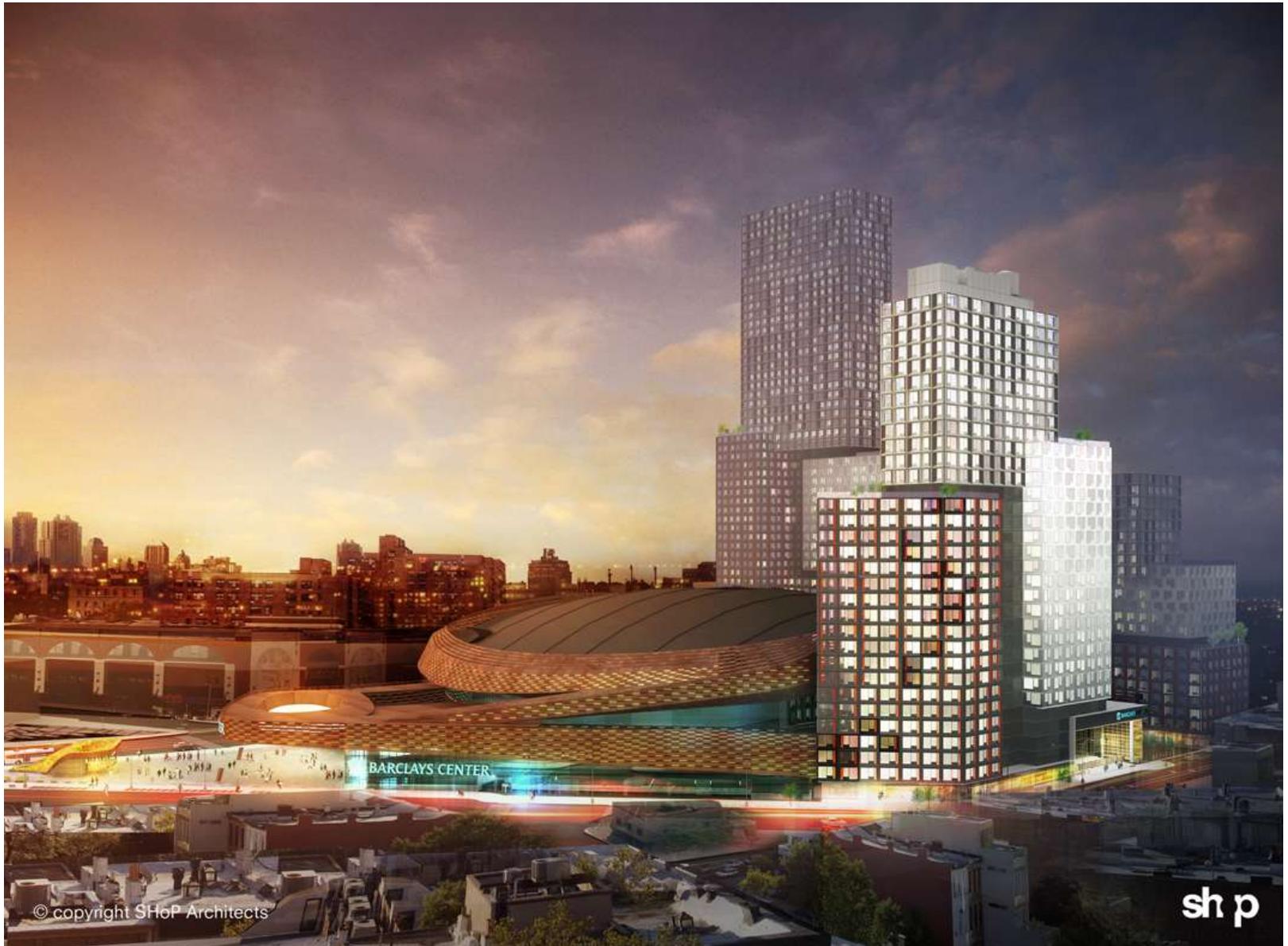
Construction Logistics

Modular Benefits

Building 2 Design: Architects



Building 2 Design: Architects



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Building 2 Design: Architects



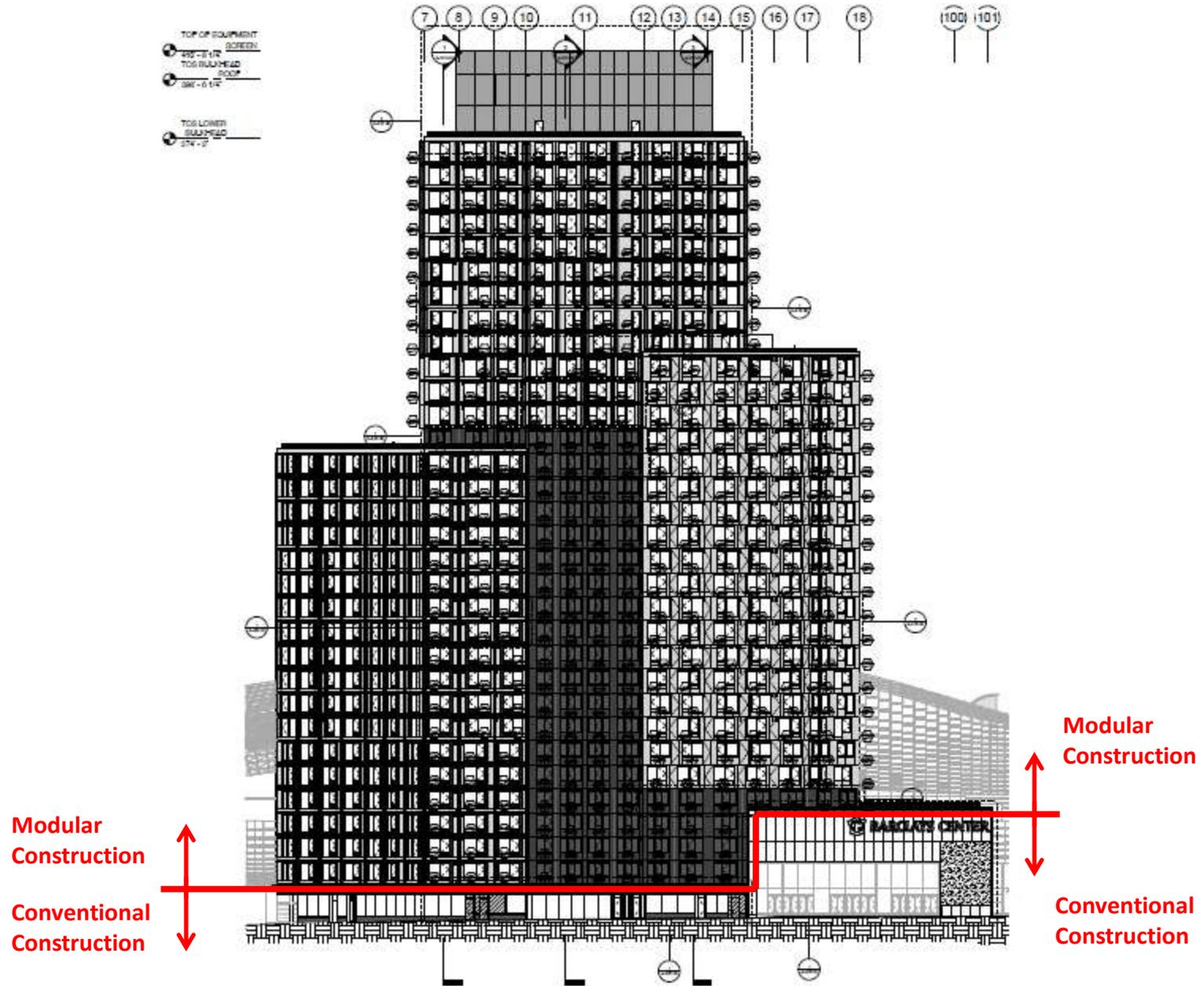
Building 2 Design: Architects



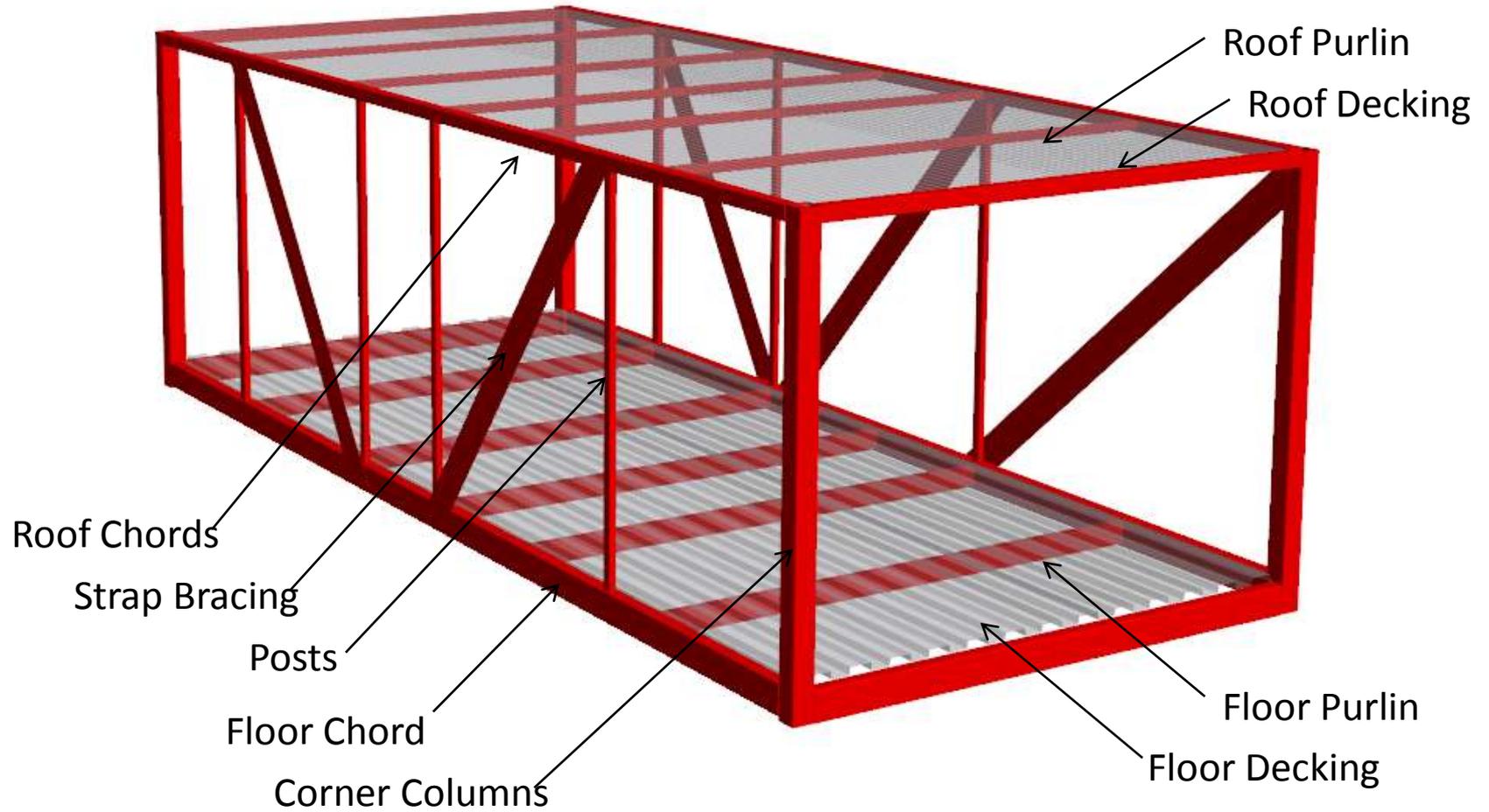
Modular Structural System Summary

- Modular system uses standard structural systems (braced frames, etc) designed to enable an innovative construction process
- Modular system is designed to the same code standards and performance requirements as a conventionally constructed building
- The B2 Structural System has been vetted through an independent structural peer review
- Wind loading and responses have been confirmed through wind tunnel testing

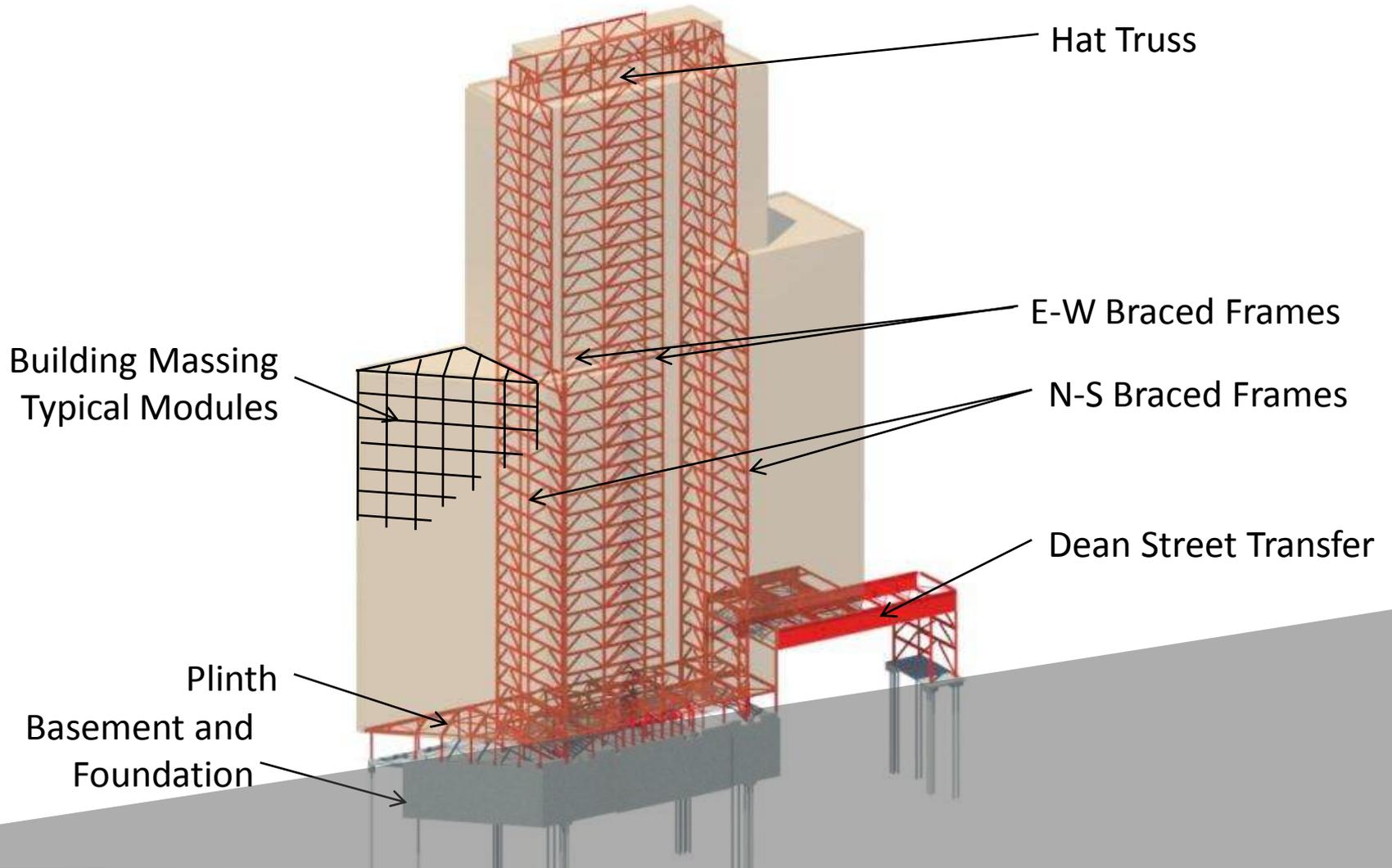
Building 2 Design: Engineers



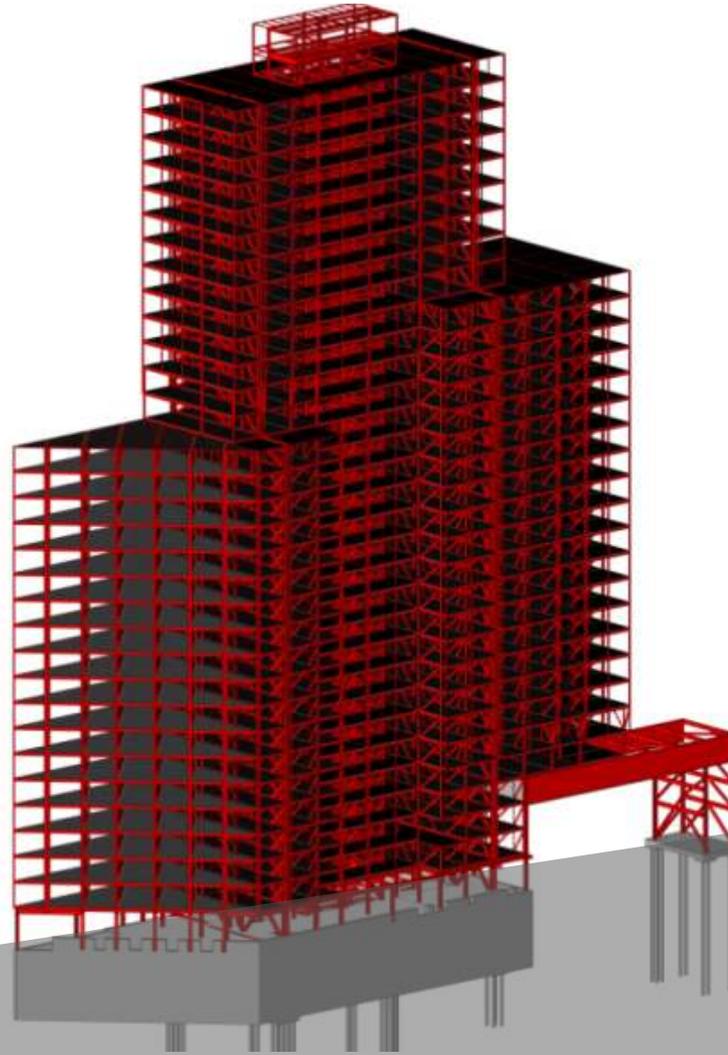
Typical Module Framing



Structural Scheme



Structural Scheme



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Building 2: Modular Today



MOHO, MANCHESTER, UK, SHEDKM, 2005

IN EUROPE



EDUCATION BUILDING, AMSTERDAM, NL, HVDN, 2009



ATLANTIC CENTER, BROOKLYN, NY, 2002

IN NEW YORK



EDGEMERE, QUEENS, NY, 2006

Building 2: Modular Construction

- Modular construction is a process by which full sections of a building are built in a fabrication facility and then delivered to a project site where modules are erected and building systems are connected.
- Construction work is thus split between:

Fabrication Facility



On-Site



Building 2: Modular Construction Phases

On-Site Phase 1

Excavation/Foundation/Plinth Construction

Fabrication Facility

Module Fabrication

On-Site Phase 2

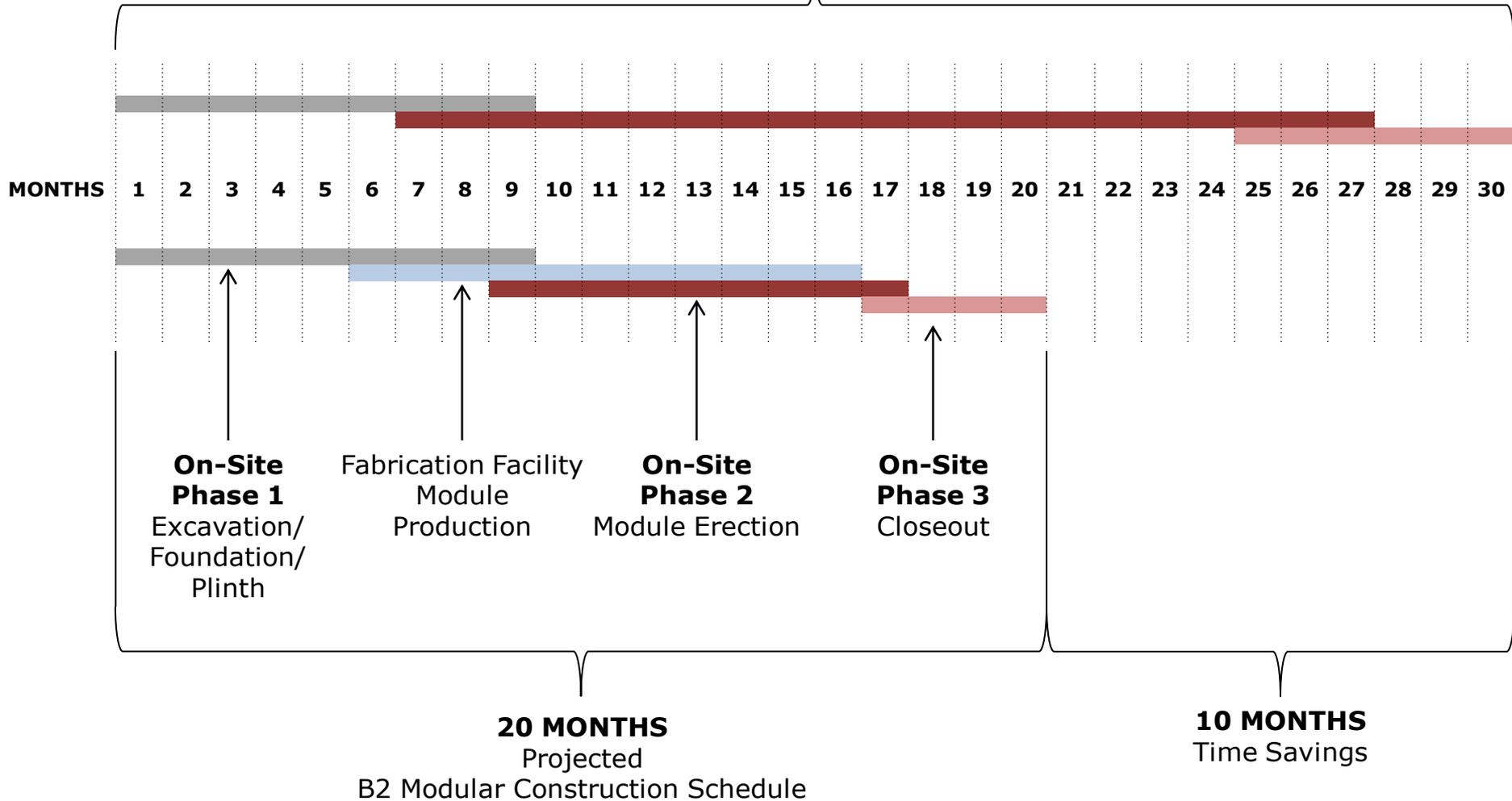
Module Erection

On-Site Phase 3

Closeout

Building 2: Modular Construction Schedule

30 MONTHS
2006 FEIS Projected
B2 Conventional Construction Schedule



Overview

Affordable Housing

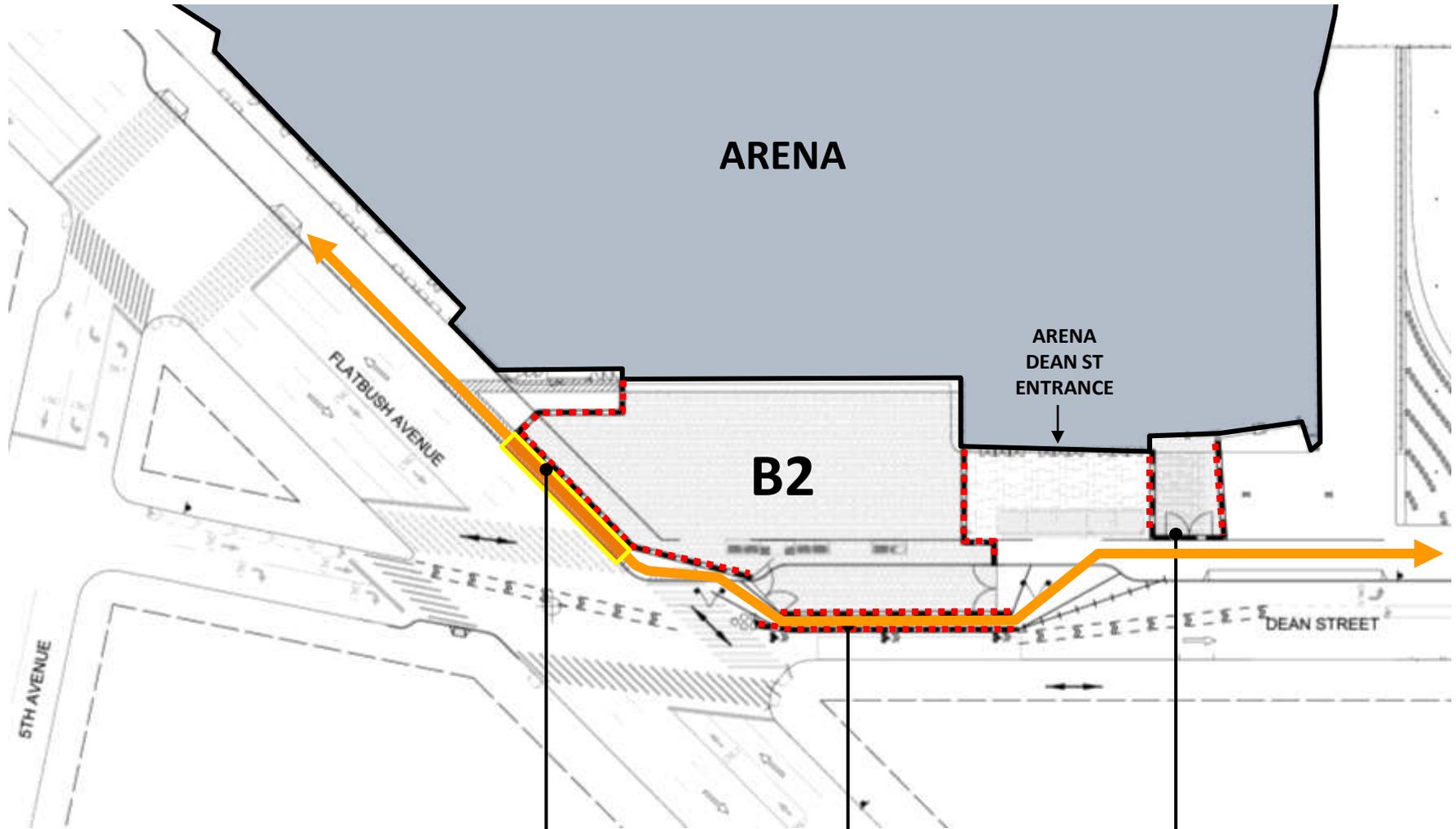
Design

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Building 2 On-Site Phase 1: Maintenance & Protection of Traffic



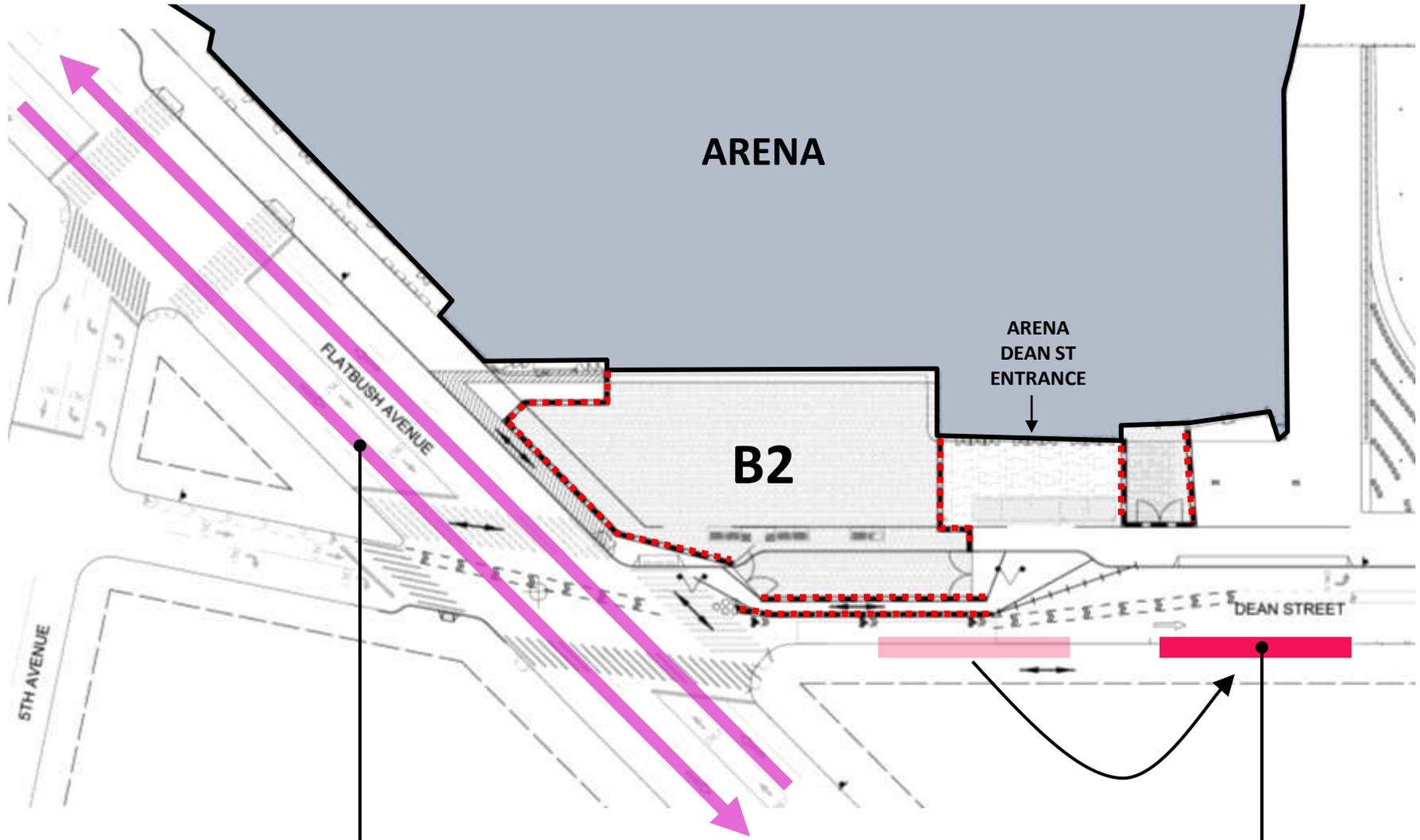
6' Wide Covered Sidewalk

5' Wide Pedestrian Walkway

8' High Fence (typical)

9 Mo

Building 2 On-Site Phase 1: Maintenance & Protection of Traffic

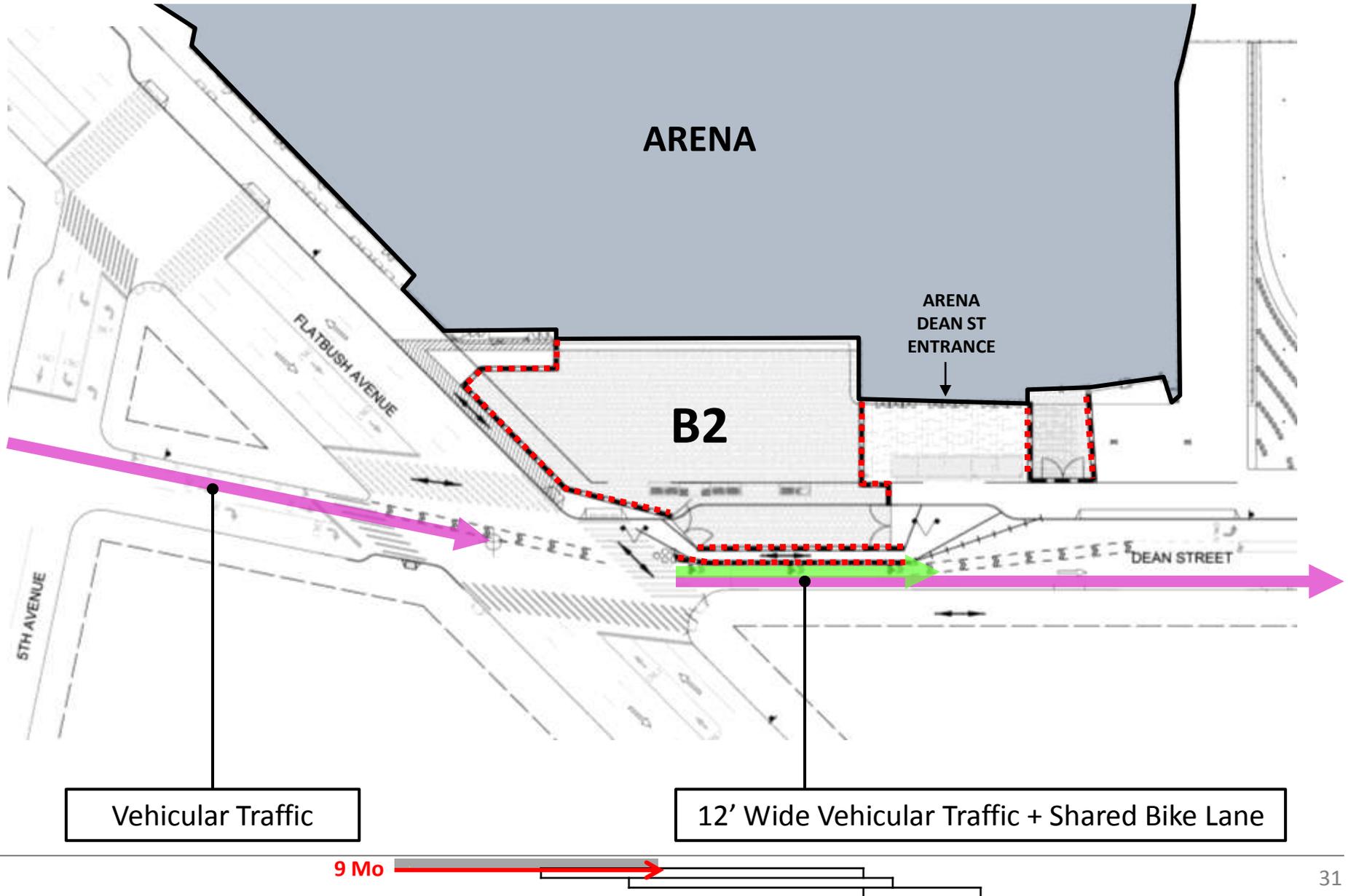


Flatbush Ave Traffic Unchanged

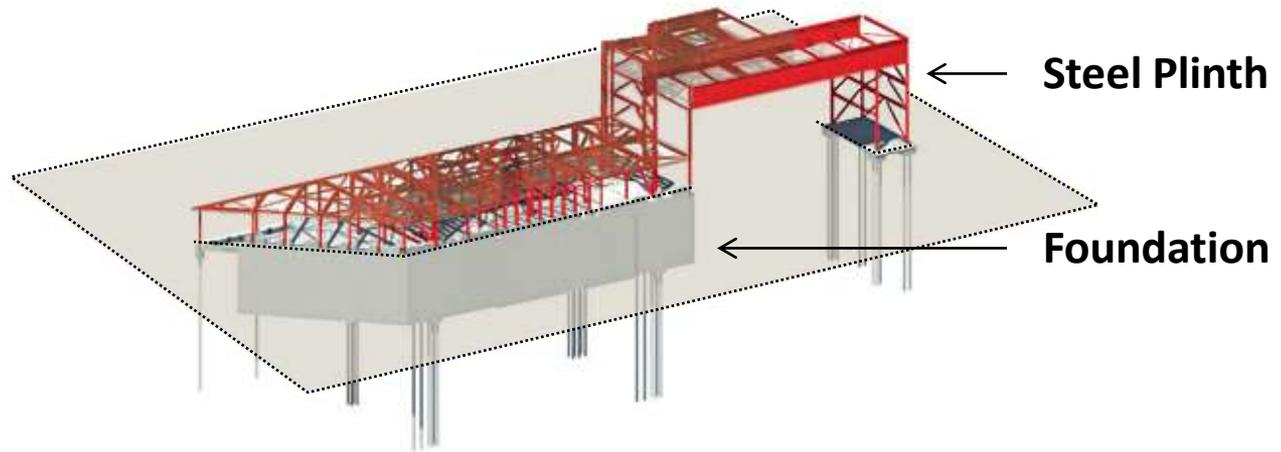
B65 Temporarily Relocated Bus Stop



Building 2 On-Site Phase 1: Maintenance & Protection of Traffic



Building 2 On-Site Phase 1: Excavation/Foundation/Plinth



9 Mo



Fabrication Facility Scope of Work:



Carpentry



Mechanical



Electrical



Plumbing



Finishes

Building 2 Off-Site: Fabrication Facility



Step 1 – Structural Steel



Step 2 – Pod Assembly



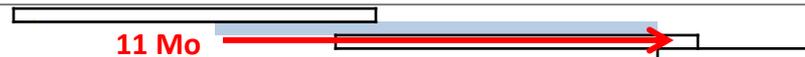
Step 3 – Framing/MEP



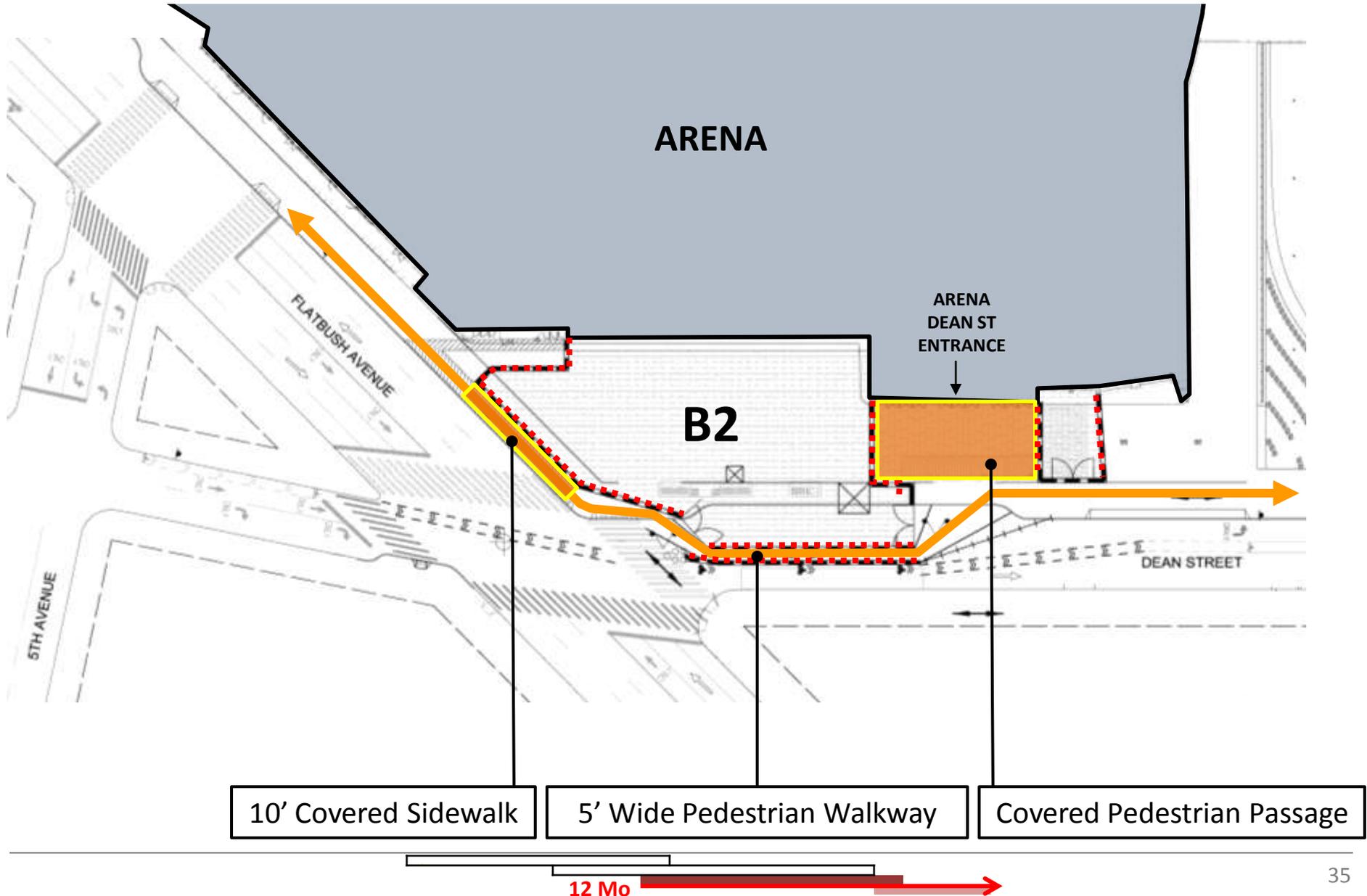
Step 4 – Gypsum/Kitchen



Step 5 – Finishes/Facade



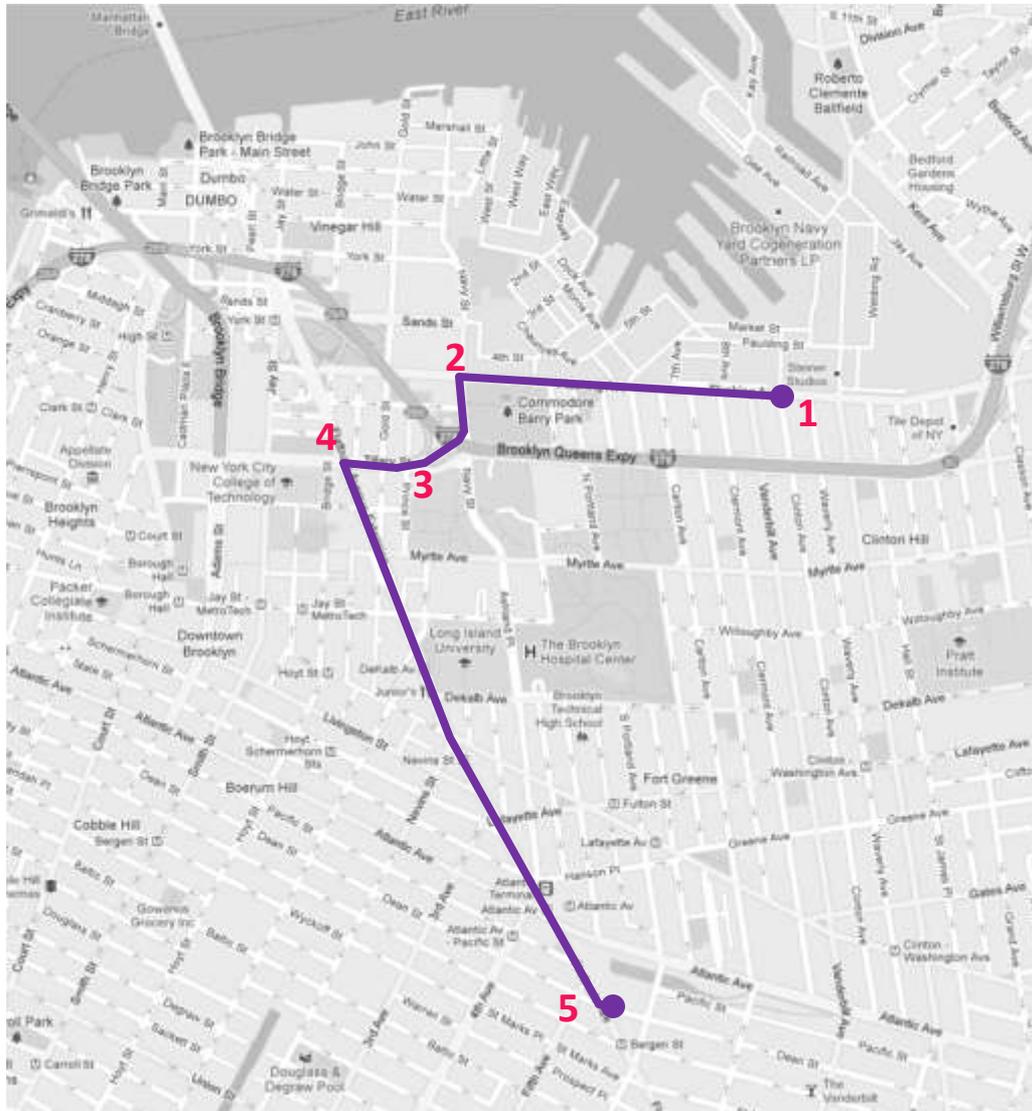
Building 2 On-Site Phase 2 & 3: Maintenance & Protection of Traffic





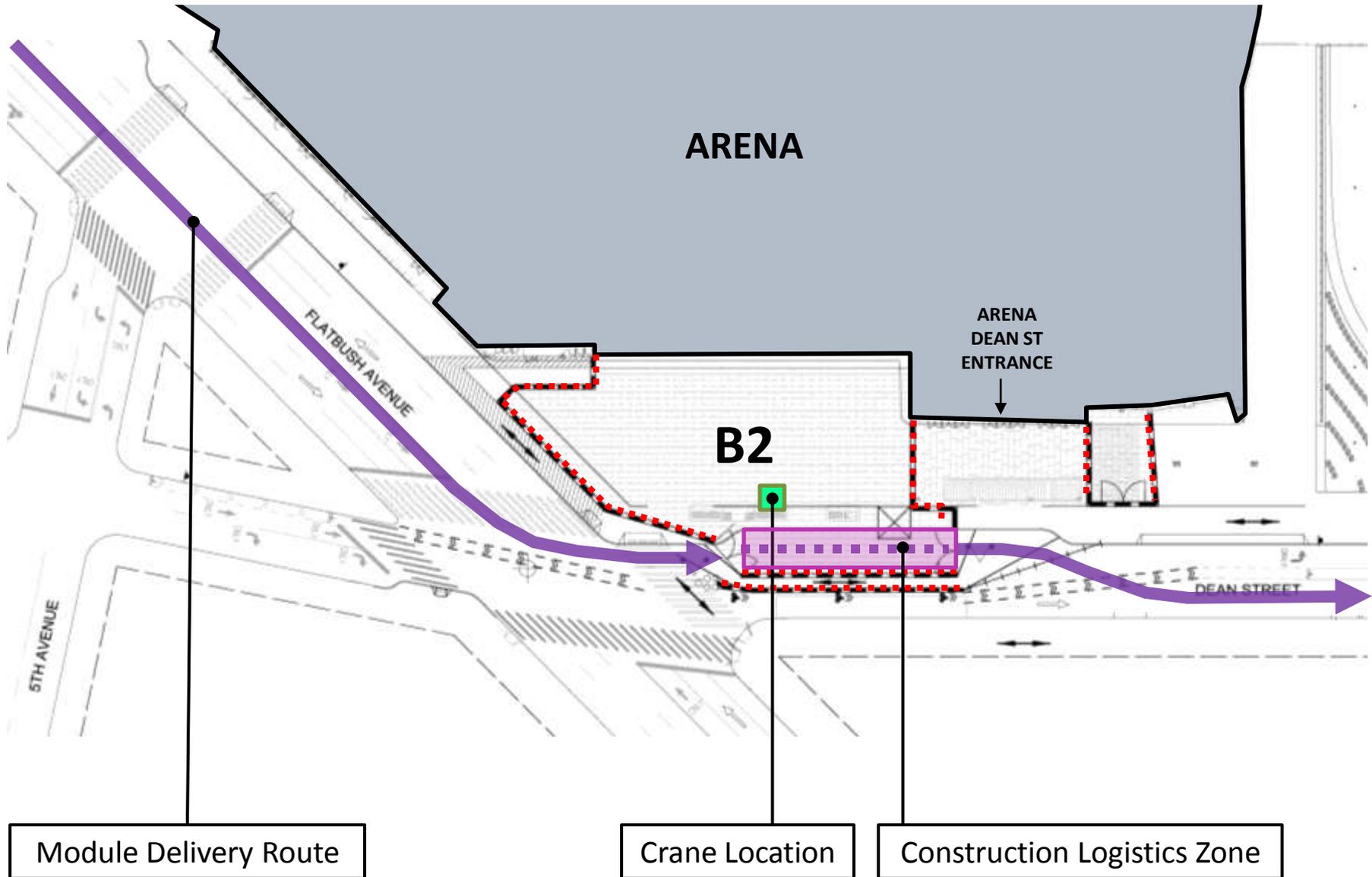
- All delivery trucks will remain on NYCDOT approved truck routes.
- All modular trucks will be licensed by NYCDOT and will be accompanied by a certified escort vehicle.
- Flagmen will be present for all deliveries
- 8-12 modules will be delivered per day between rush hours.
- 1 module will be delivered at night and stored on site overnight.

Building 2 On-Site Phase 2: Module Delivery Route



- 1.** Exit right out of BNY onto Flushing Avenue.
- 2.** Turn left onto Navy Street.
- 3.** Turn right onto Tillary Street.
- 4.** Turn left onto Flatbush Avenue.
- 5.** NYCDOT will permit left turn from Flatbush Avenue onto Dean Street.

Building 2 On-Site Phase 2: Module Delivery Route



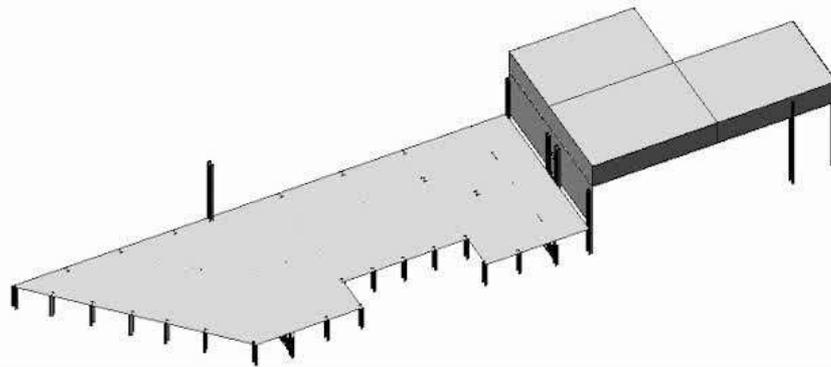
12 Mo



- Modules will be picked directly from the truck and placed onto the building by a crane within the construction fence and set by a team of workers.
- Modules will be bolted together and mateline work will be undertaken to complete the connections of pre-installed building system components within each module.



Building 2 On-Site Phase 2: Module Construction Sequence



Building 2: Upon Completion

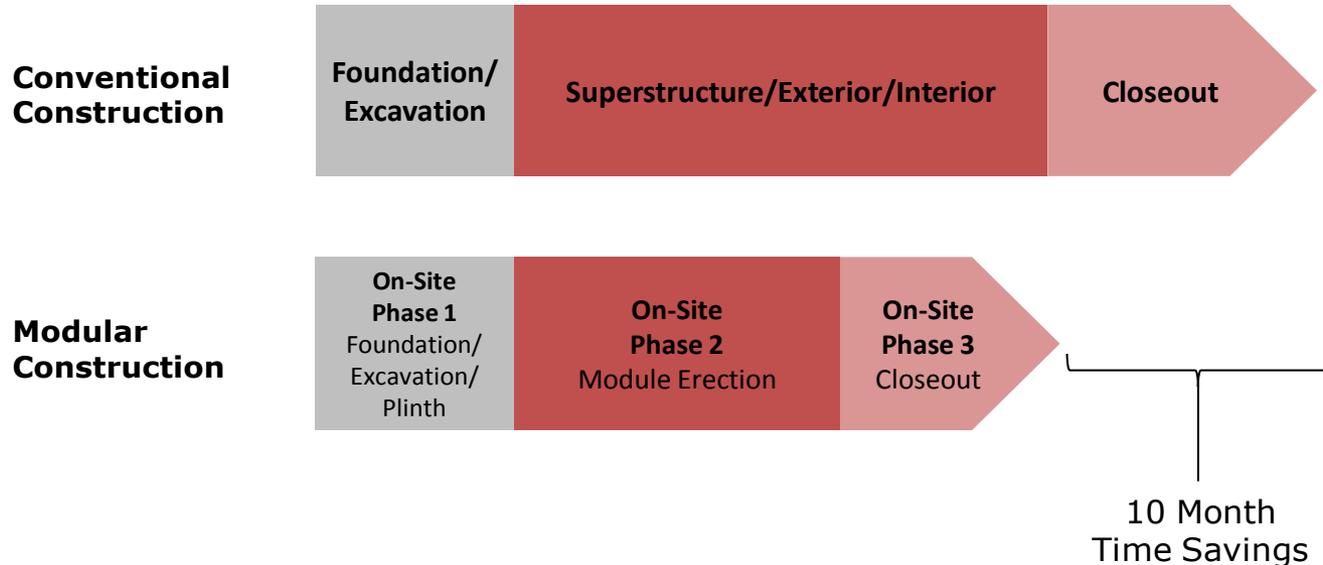


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Building 2: Benefits of Modular Construction

Reduced On-Site Construction = Reduced Neighborhood Impact

- Phase 1 = Consistent with Conventional Construction
- Phase 2 & 3 = Off-Site Apartment Fabrication Results in:
 - 1) Fewer On-Site Deliveries
 - 2) Reduced On-Site Activity
 - 3) Reduced On-Site Duration



Building 2: Benefits of Modular Construction

Safer Work Conditions

- Fabrication of components and assemblies takes place indoors on the Fabrication Facility floor.
- Not outdoors, at height, in potentially inclement weather.

Modular



Conventional



Building 2: Benefits of Modular Construction

Less Construction Waste

- Detailed production drawings result in accurate quantity take-offs
- This ensures no more material than required is ordered and wasted.

Modular



Conventional



Building 2: Jobs Overview



- Modular construction will require approximately the same number of man hours as conventional construction
- Fabrication Facility Jobs will be full-time (40hrs/week)
- Hiring to be done in partnership with the job training center at the Brooklyn Navy Yard

Building 2: Jobs Overview



- Preference give to union apprentice programs like NEW, Construction Skills, and Helmets to Hardhats
- Preference for residents of Community Boards 2, 3, 6, & 8 and NYCHA residents
- Workforce CBA hiring goals include 35% minority workers and 10% for female workers

Building 2: Update November 2012

B2:

- ✓ ESD Design Guideline Approval
 - ✓ HDC Bond Authorization Hearing Completed
 - ✓ HPD Apartment Design Review In Process
 - ✓ 100% CDs Completed
 - ✓ DOB Full Building Approval
 - ✓ Financing Commitment in Place
-

NYC Modular Fabrication Facility:

- ✓ Completed Lease at Brooklyn Navy Yard
 - ✓ Collective Bargaining Agreement with Union Labor
 - ✓ Executed Partnership agreement with Skanska
 - ✓ Completed Prototype and Stacking
-

December 18th Groundbreaking!

Q & A



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BARCLAYS CENTER

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