

Numat Technologies Headquarters

A Modern Solution in a Historic Space: Designing for Safety, Innovation, and Sustainability

Perkins&Will



**A Modern Solution in a Historic Space:
Designing for Safety, Innovation, and Sustainability**



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Learning Objectives

Understand the principles of adaptive reuse and how historic buildings can be repurposed for modern scientific research and manufacturing while preserving architectural and historical significance.

Analyze innovative solutions for chemical storage and safety within the constraints of a historic building, ensuring compliance with local safety codes and regulations.

Identify the importance of close collaboration between the design team, client, and contractors in addressing challenges and achieving project goals in complex, highly regulated environments.

Examine how spatial design can communicate a company's core values and showcase scientific innovations through curated tour paths and the concept of "science on display."



Agenda

01 — Project Vision

02 — Building on Innovation

03 — Code Constraints

04 — Space Planning



01 — Project Vision



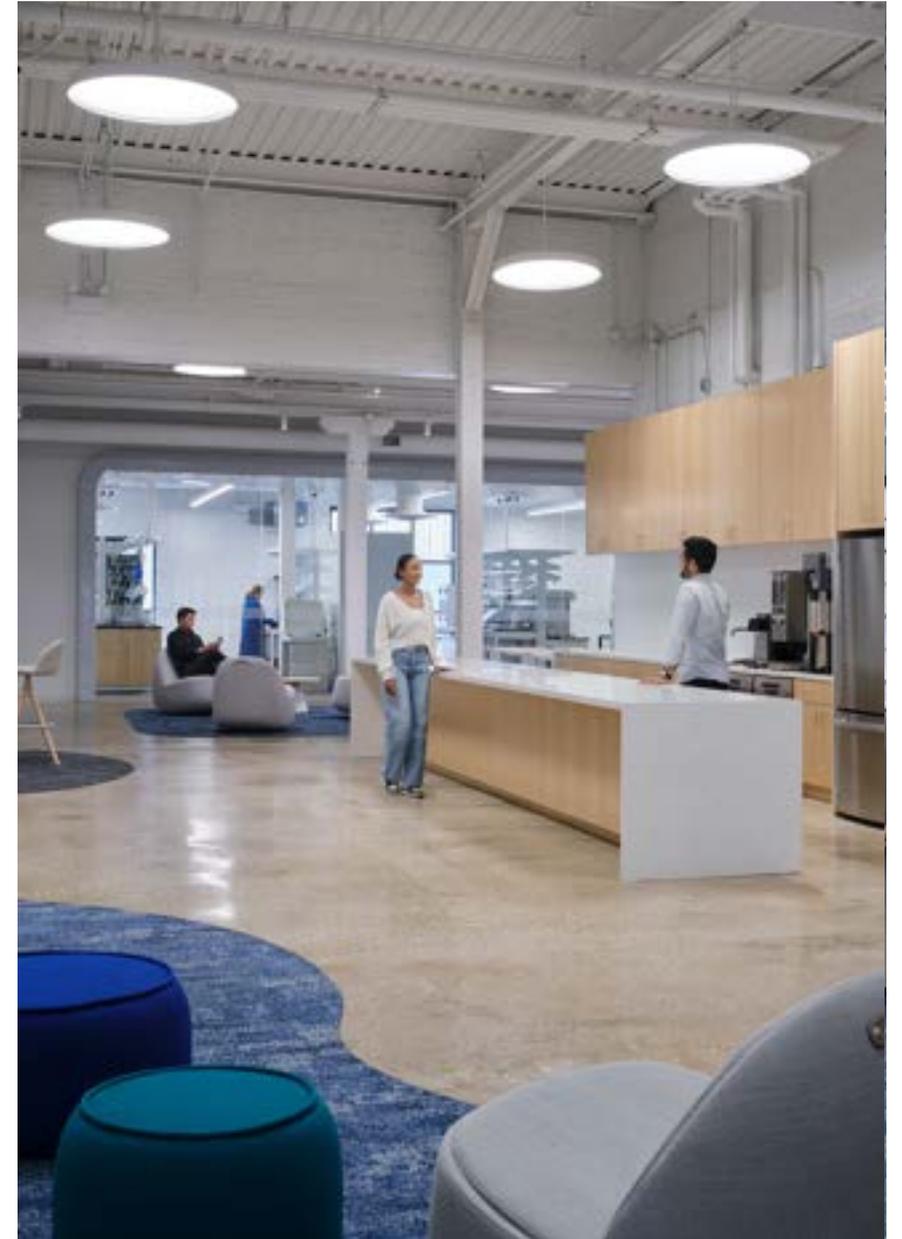
Project Vision

Our response honors the site's manufacturing legacy while positioning the project as **a force for good**, grounded in **sustainability and well-being**.

It's a **place for bold thinking**—where people are empowered to take risks, collaborate freely, and believe in the power of innovation. The design celebrates what's **unexpected, authentic, and consequential**.

We aim to **honor the competitive, inventive spirit** of the organization through agility, flexibility, and a culture of **open, informal collaboration**. Spaces are carefully balanced to support **focus, acoustic comfort, and connection**.

From the moment you arrive; even as you park, you feel the **energy of a unified culture**, where everyone belongs to **one group, one purpose**.

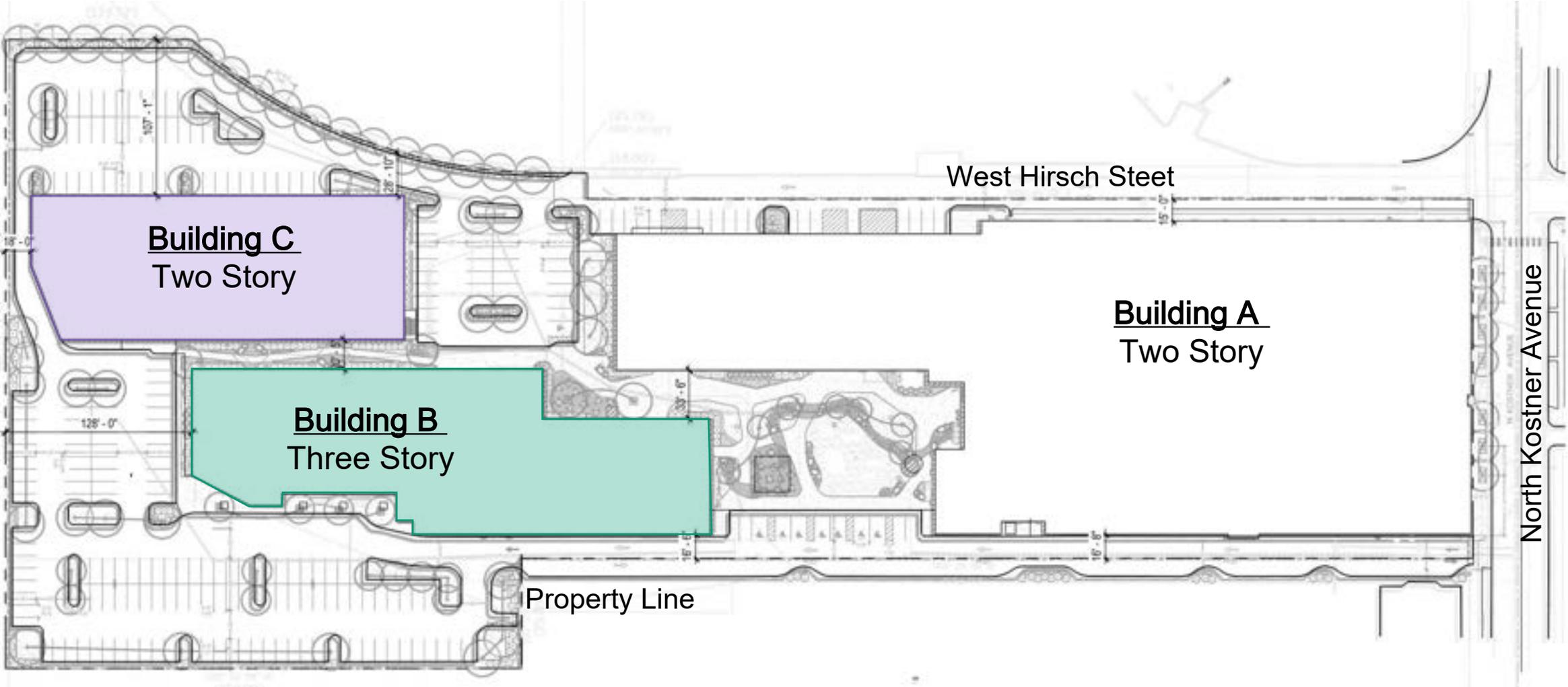


02 — Building on Innovation



Site Plan

The Terminal Redevelopment

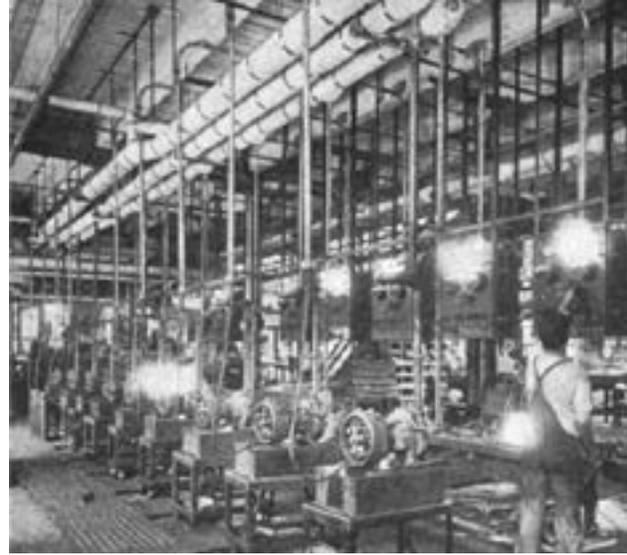


Home of the Pyle-National Company



↑
The Wrigley Building lit with floodlights
from the Pyle -National Company in 1933 for
the World's Fair.

→
1352 N. Kostner, now named The Terminal



←
Testing the first electric locomotive headlights



PLANT OF THE PYLE-NATIONAL COMPANY, CHICAGO
DAVIDSON AND WEISS, ARCHITECTS

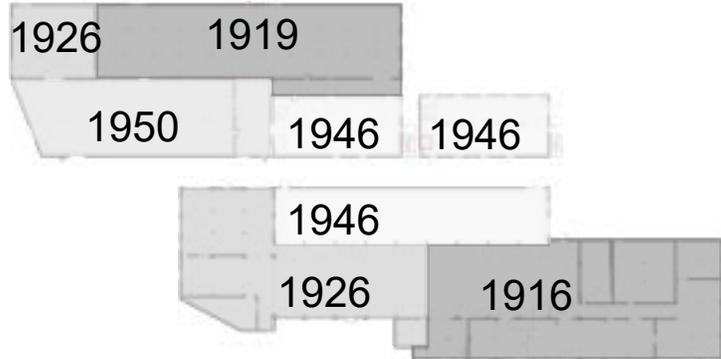
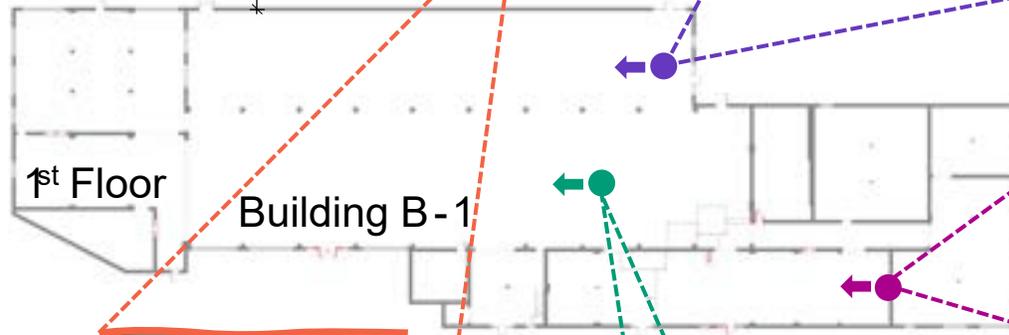
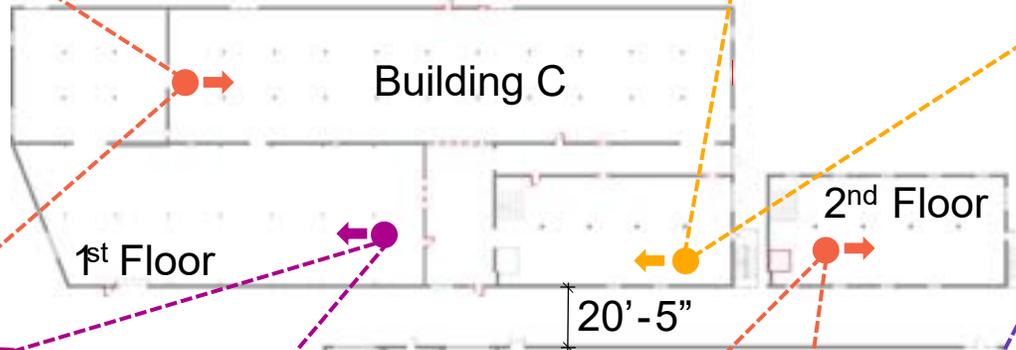


03 — Code Constraints

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Rehabbed Conditions



Code Limitations in Chicago

First Floor Highlights	International Code Council (2015)	Chicago Construction Code
Control Areas	(4) Allowed; 1-hr rating	(4) Allowed; 2-hr rating
Chemical Classifications	Refers to NFPA 30	As defined in multiple sources ; a few not defined at all.
Maximum Allowed Quantities (MAQs)	Standard; 480 -gals of Type 1 Flam Liquids	Limited ; 10-gals of Type 1 Flam Liquids
Exceed MAQs	Group -H Occupancy, designed as a <i>Flammable Liquid Storage Room</i> and Allowed to be a accessory use.*	Group -H Occupancy, designed as a <i>Flammable Liquid Vault</i> and prohibited to be a accessory use.
Required Separation Factory to Business	No Separation	1-hr

Group -H Highlights	International Code Council (2015)	Chicago Construction Code
Mixed Use Occupancy	Allowed	Prohibited
IIIB Construction Type	Allowed	Prohibited
IIB Construction Type	Allowed	Allowed

Existing to Renovated Conditions

Existing Conditions	Construction	Size	Occupancy	Features
Building B - 1	Type IIIB: Unprotected Combustible	35,021 GSF 3 Stories	S- 1: Moderate Hazard Storage	Unsprinklered
Building C		27,350 GSF 2 Stories		

As Renovated	Construction	Size	Occupancy	Features
Building B - 1	Type IIIB: Unprotected Combustible	30,321 GSF 1 Story + Mezzanine	B: Business; F- 1: Manufacturing	Sprinklered
Building B - 2 <i>(Created from B - 1)</i>	Type IIIB : Unprotected Non-Combustible	4,700 GSF 1 Story	H- 3: High Hazard	
Building C	Type IIIB: Unprotected Combustible	27,350 GSF 2 Stories	B: Business	

Maximum Allowed Quantities (MAQs)

Alignment of the Chicago Building Code (CBC) to the Chicago Fire Prevention Code (CFPC)

Flammable Liquids (Gals) ²	IA	IB or IC	Combined IA, IB, IC
When MAQ's are Exceeded			
CFPC	Flam. Liquid Storage Vault (FLSV)		
CBC	H-2 or H-3		
Storage System			
CFPC	10	10	10
CBC	120	480	480
Use-Closed Systems			
CFPC	Unlimited ¹	Unlimited ¹	Unlimited ¹
CBC	60	240	240
Use-Open Systems			
CFPC	Unlimited ¹	Unlimited ¹	Unlimited ¹
CBC	20	60	60

¹CFPC allows for *unlimited* One Day Supply; provided all materials are returned to the FLSV within 24-hours.

²First Floor, per control area, with increases taken.

Building C Strategy

CFPC: Provide a FLSV at ~~2~~-hr fire rating for a **399-gal** capacity of **1A**, & *unlimited* capacity of **IB** or **IC**.

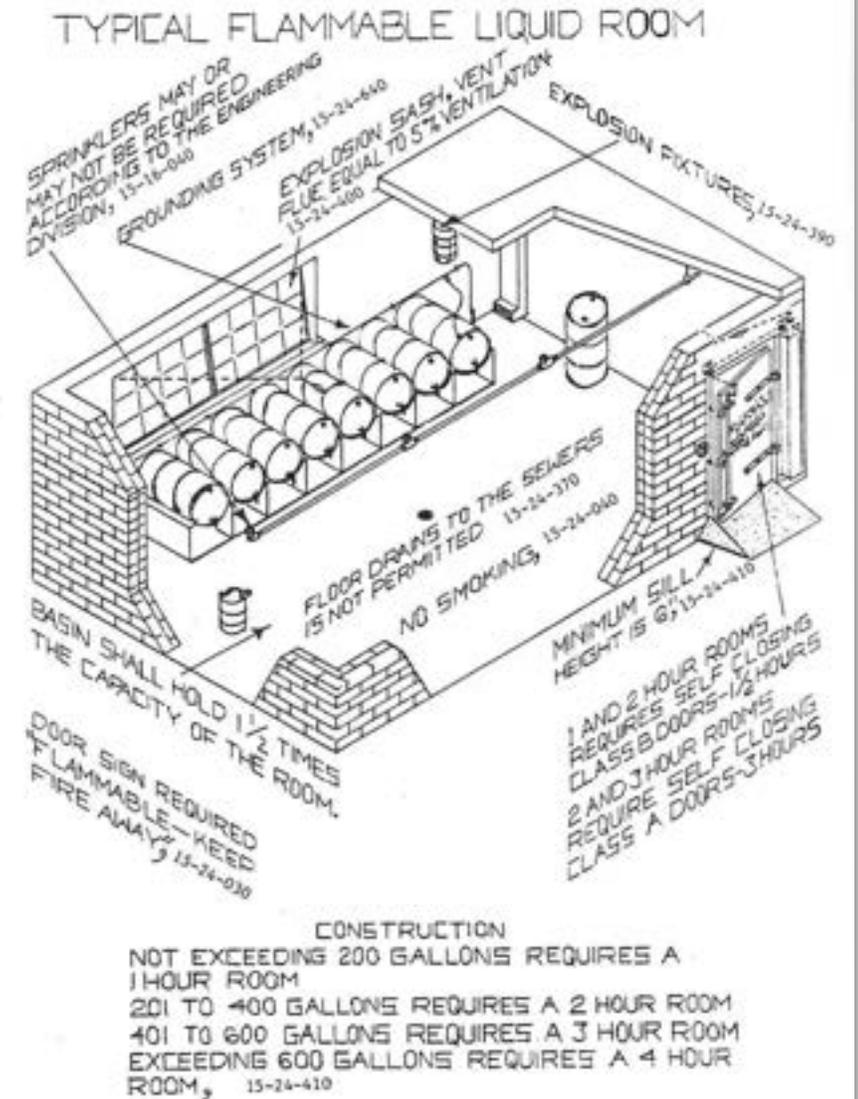
CBC: Overlay a **2-hr** control area onto the FLSV for a **480-gal** capacity of **IA**, **IB**, or **IC**.

Building B Strategy

CFPC: Provide a FLSV at a **4-hr** fire rating for an *unlimited* capacity of **IA**, **IB** or **IC**.

CBC: H-2 occupancy overlaid, allowing for an *unlimited* capacity of **IA**, **IB** or **IC**. Additional H-2 space for manufacturing processes.

Flam. Liquid Storage Vaults



04 — Space Planning

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“ Our previous facility was spread out across multiple floors, making collaboration difficult and creating inefficiencies in material and equipment flow. The new facility was intentionally designed to improve these challenges by centralizing teams in a way that fosters informal discussions and better problem -solving.”

Co-Create



Developer, General Contractor (Design -Build),
Client Leadership Team, Engineers, Interior
Designs & Architects

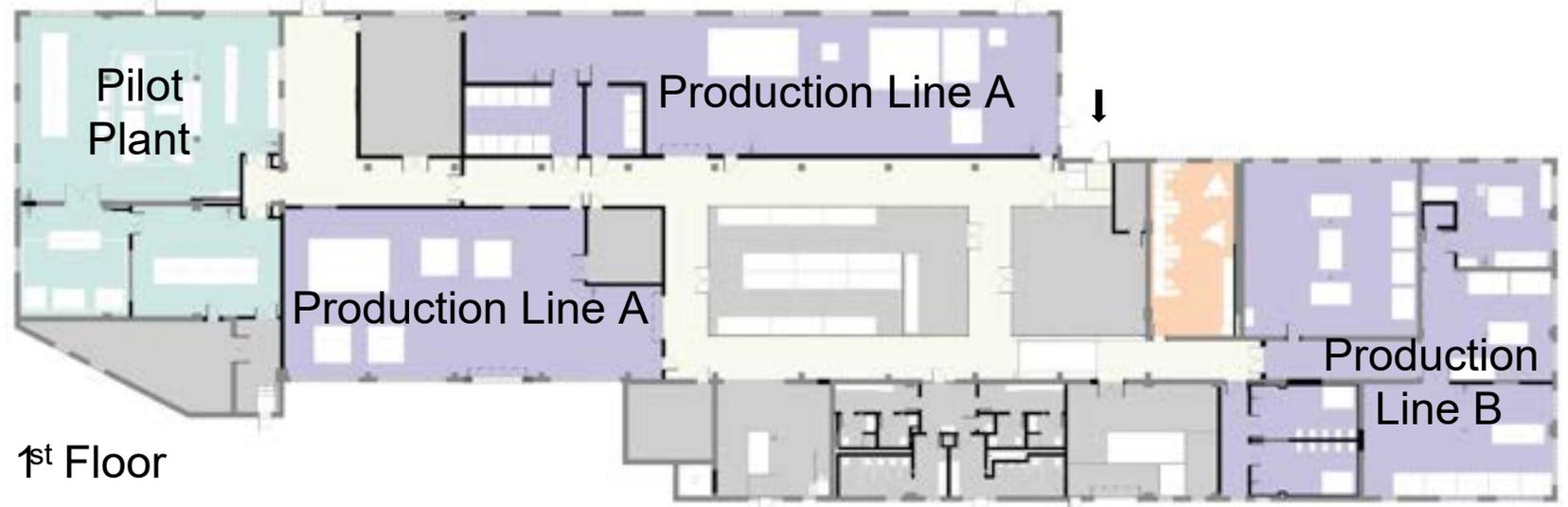


Program Planning

56,570 USF

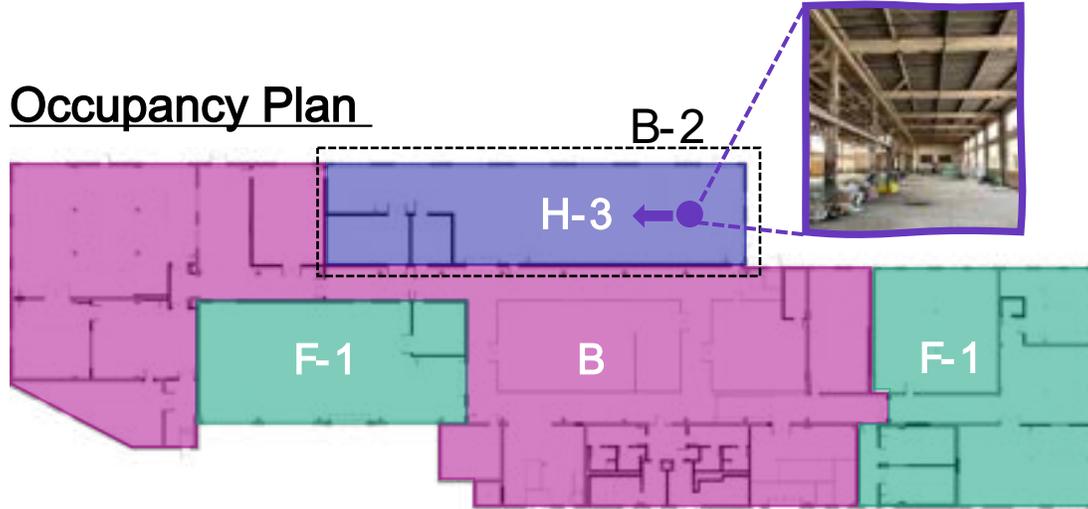
Grand Totals

13,000	23%	Research
12,700	22%	Manufacturing
10,800	19%	Support
4,800	14%	Office
4,800	8%	Community
7,500	13%	Circulation

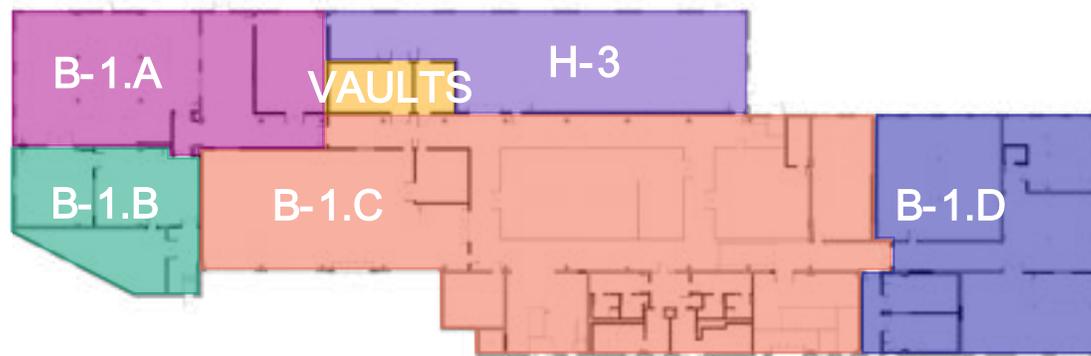


Space Planning – Buildings B -1 & B-2

Occupancy Plan



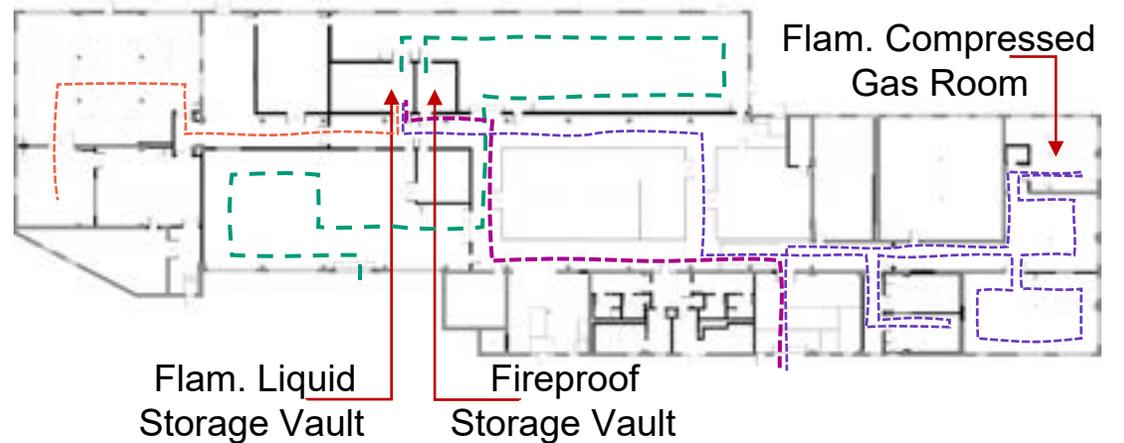
Control Area Plan



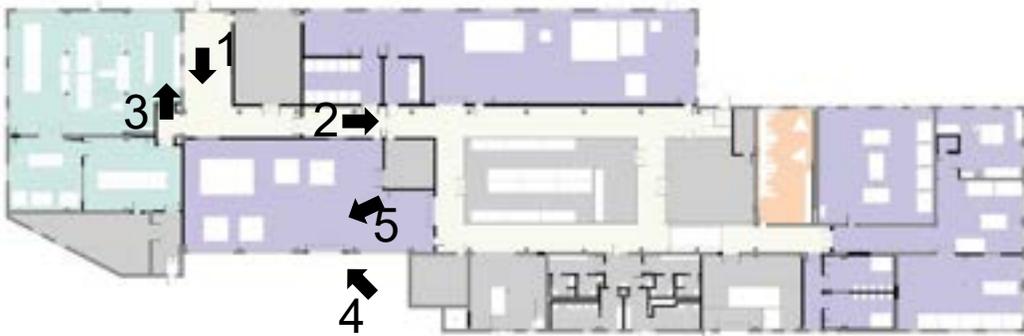
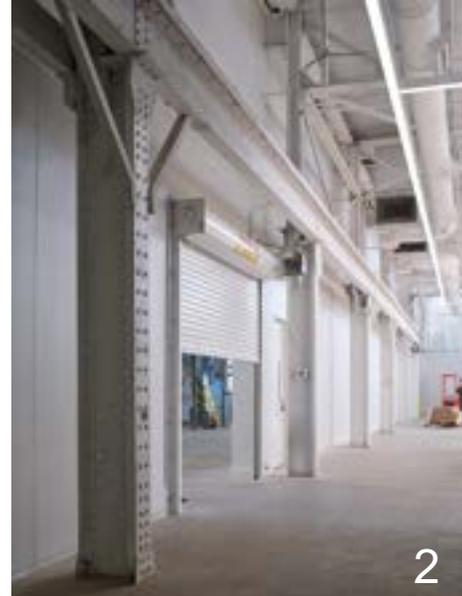
Rated Walls



Process Flows

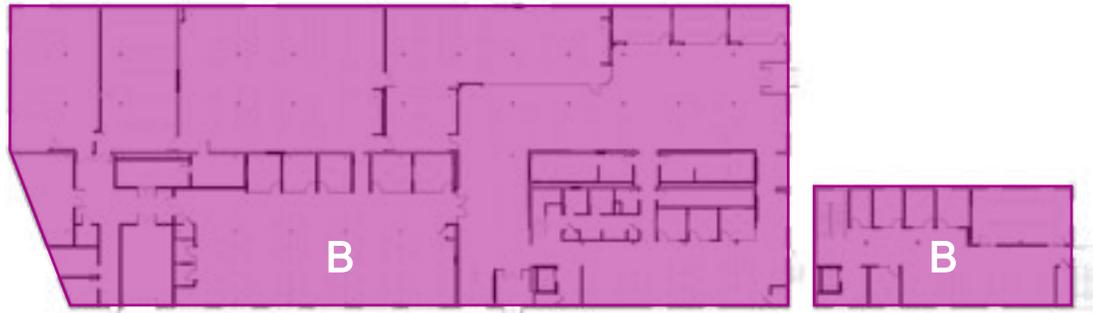


Manufacturing & Pilot



Space Planning – Building C

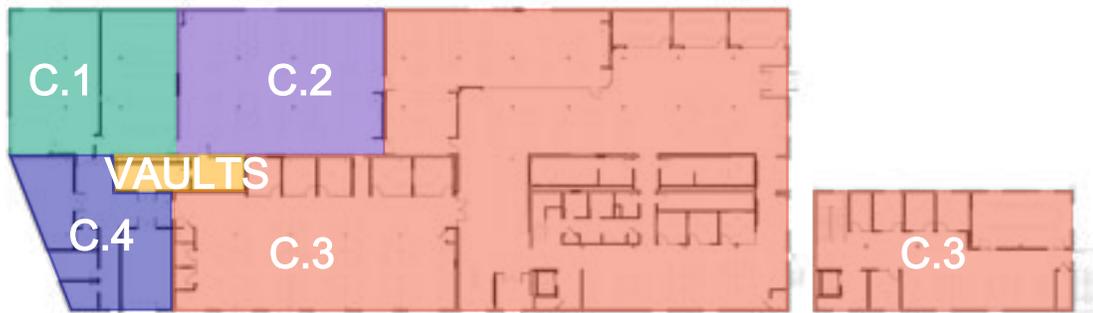
Occupancy Plan



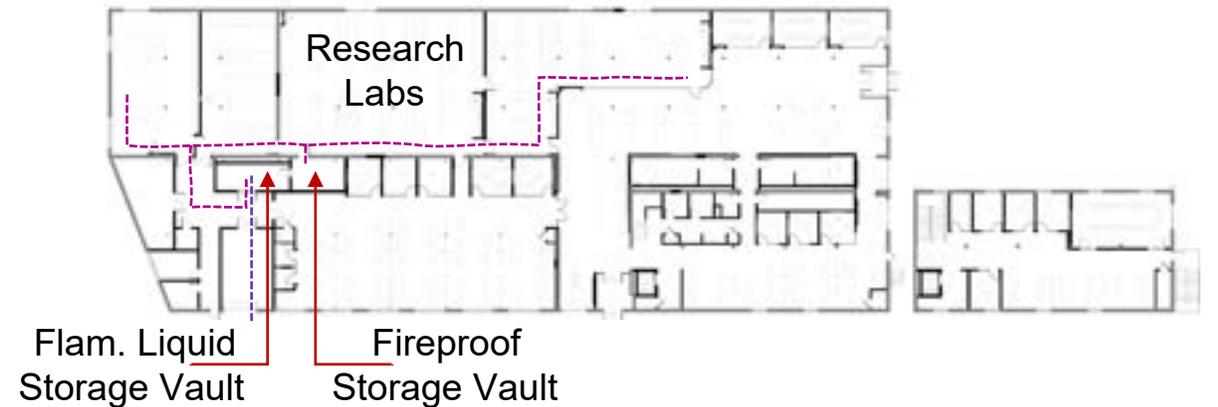
Rated Walls



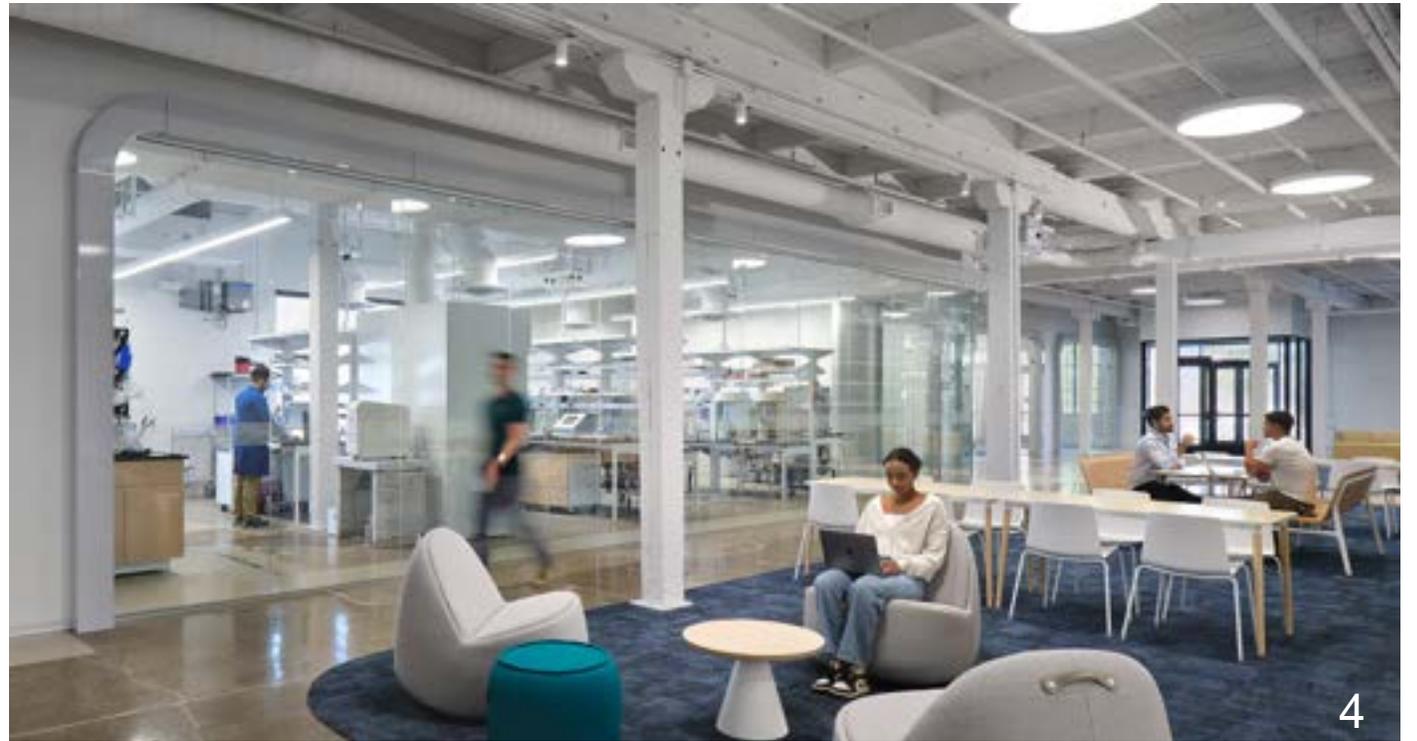
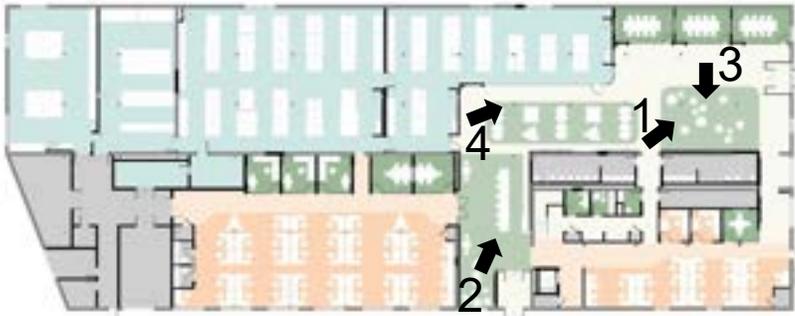
Control Area Plan



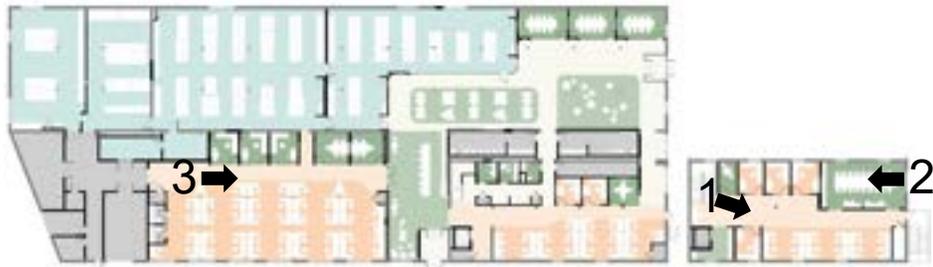
Process Flows



Community Hub



Open Office



Research



Construction Photos



Construction Photos



Construction Photos



Questions

