HCAi Department of Health Care Access and Information
2020 West El Camino Avenue, Suite 800
Sacramento, CA 95833
hcai.ca.gov

AMENDED

***** SPECIAL NOTICE *****

This meeting will be held in-person at the locations noted below, as well as by teleconference. Committee members and members of the public may fully participate from their own locations.

NOTICE OF PUBLIC MEETING

HOSPITAL BUILDING SAFETY BOARD
Offsite Fabrication/Preassembled Components Webinar Subcommittee of the Education and Outreach Committee

Date:
Tuesday, June 27, 2023
10:00 a.m. – 12:00 p.m.

Locations:
Department of Health Care Access and Information
2020 West El Camino Avenue, Suite 930
Sacramento, CA 95833

Department of Health Care Access and Information
355 South Grand Avenue, Suite 2000
Los Angeles, CA 90071

Teleconference Meeting Access:
HBSB Teams EO Committee

For more detailed instructions on attending or joining the meeting, see pages 3 and 4.

Subcommittee Members:
Cody Bartley, Chair; Scott Mackey, Vice-Chair; Kelly Martinez*

OSHPD Staff:
Hussain Bhatia; Mia Marvelli

HCAI Director:
Elizabeth Landsberg

*Consulting Member

1. **Call to Order and Welcome**
   Facilitator: Cody Bartley, Subcommittee Chair (or designee)

2. **Roll Call and Meeting Advisories/Expectations**
   Facilitator: Veronica Yuke, Acting Executive Director (or designee)

3. **Review progression of slide content for presentations**

   Facilitator: Cody Bartley, Subcommittee Chair (or designee)

   - Discussion and public input

HCAI PreApproved Fabricated Components & Systems

HCAI view of Offsite Prefabrication & Preapproved fabricated components

- Richard Tannahill or Chris Tokas

Architect view of Offsite Prefabrication & Preapproved fabricated components

- Scott Mackey

Contractor view of Offsite Prefabrication & Preapproved fabricated components

- Cody Bartley

Background

- HCAI Facilities Development Division has five distinct preapproval programs that operate under the Structural Support Unit (SSU) and Inspection Services Unit (ISU).

1. HCAI Preapproved Prefabricated Components and Systems (PCS)
2. HCAI Preapproval of Manufacturer's Certification (OPM)
3. HCAI Special Seismic Certification Preapproval (OSP)
4. HCAI Preapproved Agency (OPAA)
5. HCAI Preapproved Details (OPD)
6. HCAI Preapproval of Anchorage (OPA) *Discontinued

Definitions

- OPM - OSHPD Preapproval of Manufacturer's Certification (OPM) is a voluntary program for review and preapproval of seismic design of supports and attachments for nonstructural components to be used in health facilities construction in California.
- OSP - OSHPD Special Seismic Certification Preapproval (OSP) is a voluntary program for review and preapproval of Special Seismic Certifications to be used in health facilities construction in California.
- OPAA - OSHPD Preapproved Agency (OPAA) is a voluntary program for Structural Tests and Special Inspections agencies providing services to California's Health Facilities Construction. OPAA is issued on the basis of the Agency's accreditation or DSA-LEA approval in accordance with PIN 58.
- OPD - OSHPD Preapproved Details (OPD) are standard architectural and engineering details developed by HCAI OSHPD for use in California heath facilities construction, at the discretion of Registered Design Professionals (RDP).

Definitions

- Offsite Prefabrication
  - Location
    - Adjacent to site
    - Out of State
  - Purpose
    - Project Specific
    - Product Specific

PCS Types & Systems

PCS Types & Systems

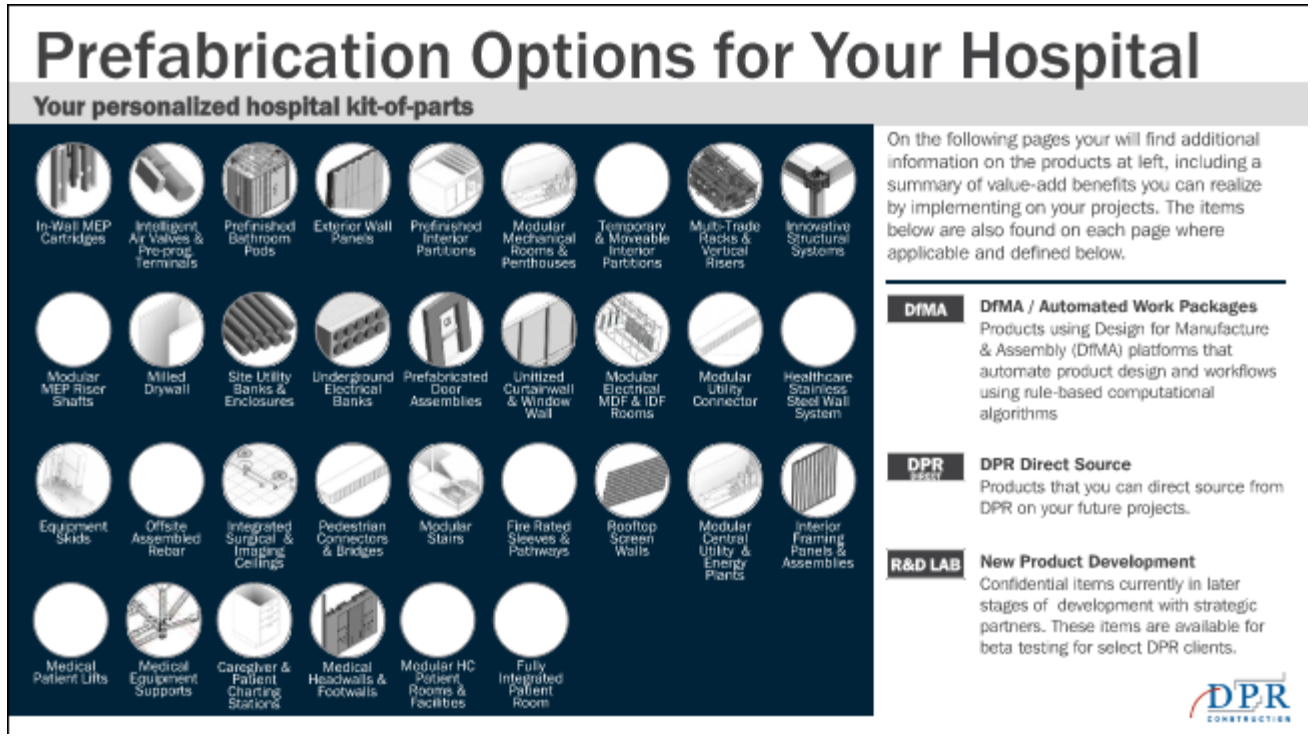
- Prefabricated Structural Components
- Prefabricated Architectural Components
- Prefabricated Building System Components
- Integrated MEP Multi-Trade Systems
- Fully Integrated Building Components
- Fully Integrated Modules

OSHPD Preapproved Prefabricated Components and Systems (PCS)

Show 10 entries Search:

PCS Number	Manufacturer	Product Name	Approval Date	Version Number	Comments
PCS-0002	Simpson Strong-Tie	Simpson Strong-Tie Yield Link Moment Connection	6/15/2022	v1.0	See Attachment
PCS-0003	SurePods	SurePods Preafabricated Bathroom Pods	3/21/2022	v1.0	See Attachment
PCS-0004	DuraFuse Frames, LLC	DuraFuse Frames	In Review		
PCS-0005	FyfeFRP, LLC	Tyfo FRP Systems	In Review		

- Prefabrication options



Prefabrication: Not always a compromise

#SURPRISINGLYPREFAB

BENEFITS TO YOU... PREDICTABLE. REPEATABLE. SCALABLE.

COST CERTAINTY

As prefab experts, the DPR team can better control costs by avoiding component price fluctuations between the proposal and delivery phases. Our digital component libraries, proven prefabricated products, and engineered-to-order (ETO) systems' costs can inform the design early on, providing predictability through the design and engineering process.

IMPROVED QUALITY & ACCESS TO QUALIFIED EXPERTISE

With our self-perform team of experienced and qualified installers, we can not only ensure quality installation but can also provide helpful insight early on. Our teams evaluate how products will be assembled both in manufacturing settings and on-site to inform project designs. We leverage automation to streamline workflows and reduce waste. This allows us to continuously improve overall manufacturing processes.

SCHEDULE SAVINGS

With a collaborative approach to prefabrication, some project schedules have seen reductions of 50% compared to the traditional field-assembly approach. Early and high LOD modeling and the use of virtual design and construction and prefabrication enable more efficient on-site assembly.

SUSTAINABILITY

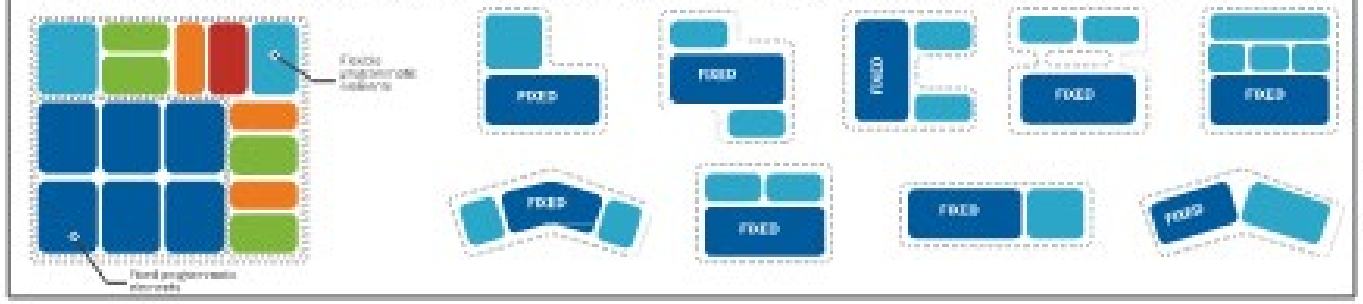
Traditional construction hauls off approximately 30% of material delivered to a site as waste or as a returned product. Our prefabrication approach is eco-friendly, with earlier planning and off-site work leading to fewer people and vehicles on-site as well as less waste, re-work, and material usage. This helps control how waste is handled on site to maximize recycling.

IMPROVED SAFETY

Prefabrication allows DPR to reduce the amount of labor on site, reducing risks due to congestion and moving portions of work to a controlled environment. In addition, it reduces the risk associated with scaffolding and activities performed above ground. Cranes can more lift items and crews inside the building to be placed.

STANDARDIZED VS. CUSTOMIZED

Can your end users have the best of both worlds? Repeatable design does not mean that every building has to look the same. Taking advantage of all the benefits of standardization doesn't mean you have to sacrifice flexibility and customization needed to support individual facility uniqueness and needs.



Beautiful, custom and prefabricated. Check out these projects which show what is possible with a prefabrication plan for your project.

DPR CONSTRUCTION

Purpose

- The HCAI Preapproved Prefabricated Components and Systems (PCS) program is created to provide a multi-discipline preapproval for prefabricated components and systems for healthcare construction projects. This will streamline the review process for components and systems as there will be multiple disciplines that are preapproved. PCS eliminates the need for manufacturers to find a healthcare construction project to get their systems reviewed, not only saving time from repetitive plan review, but also greatly reducing uncertainty of getting approval.

The WHY

Advantages of Off-Site Prefabrication & Modular Design

- Schedule
    - Speed to market
    - Market capture
    - Revenue capture
- Standardization & waste reduction
- Quality control
- Move trades off-site
    - Consistency
    - Safety
    - Collaboration
- Leverage continuous improvement principles

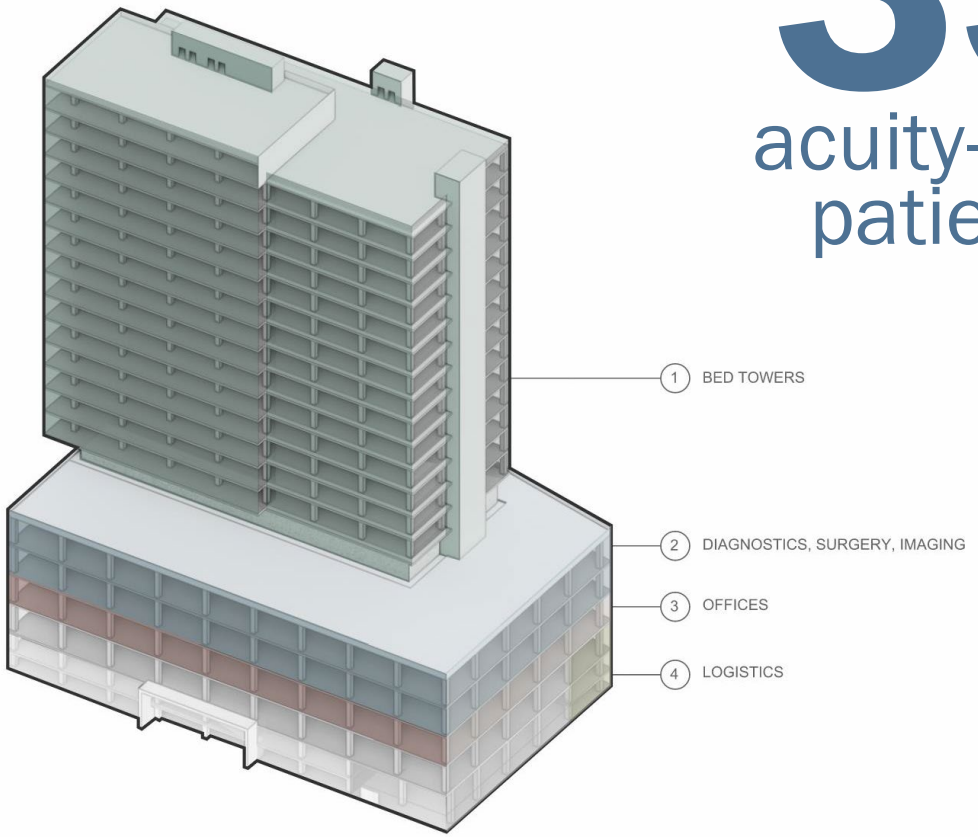
The WHAT

Example

10,000+
employees

336
acuity-adjustable patient rooms

42
operating rooms



450+
toilet rooms

16,000
pieces of equipment

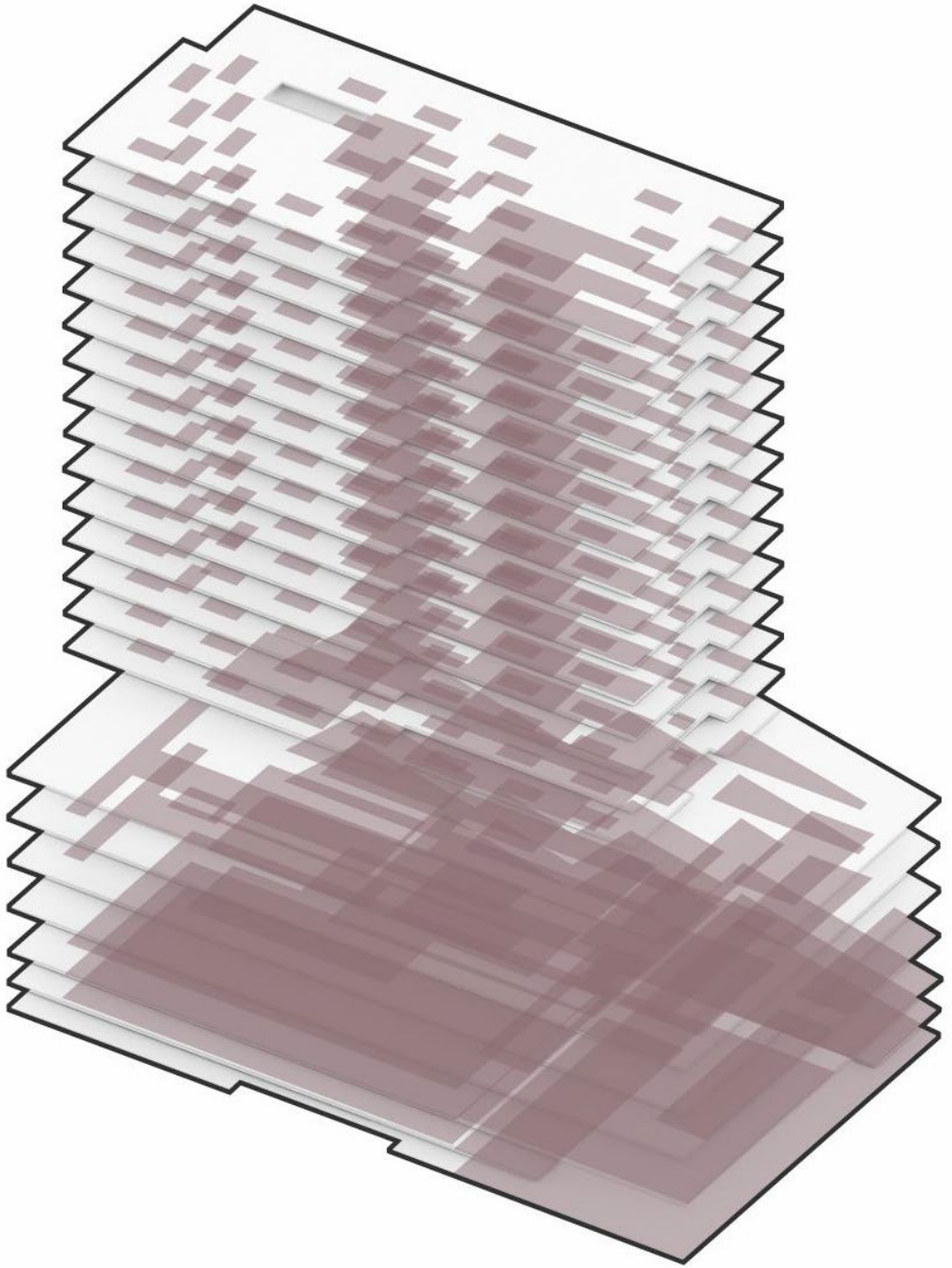
10,000
doors

1,600,000
square feet

The WHAT

Applying Room Templates for Off-Site Prefabrication & Modular Design

- Room templates which vary from components to fully volumetric
- Identify room templates & prefabricated components early in design
    - **Common rooms templates**
    - Department rooms templates
    - Specialty rooms templates



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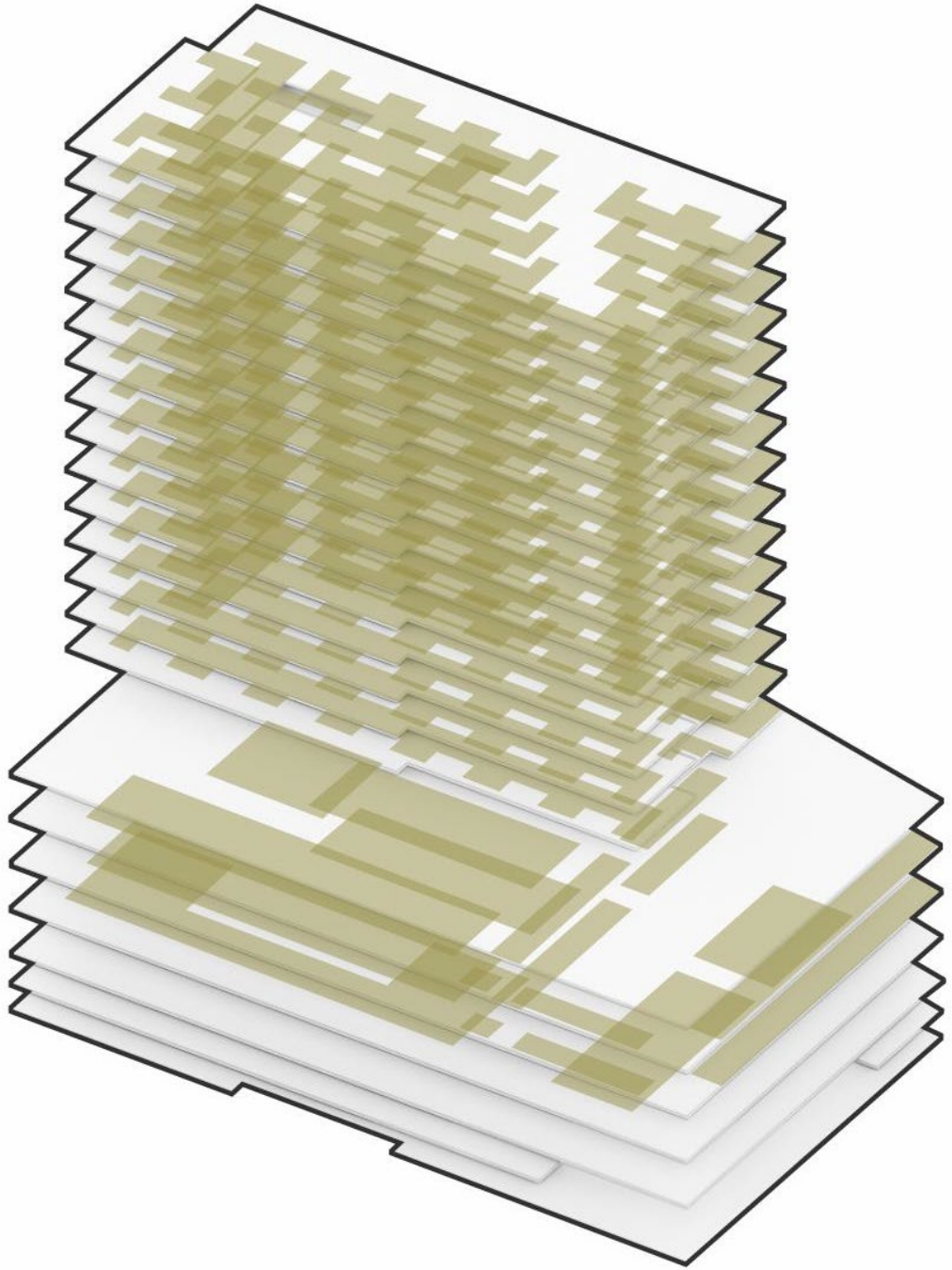

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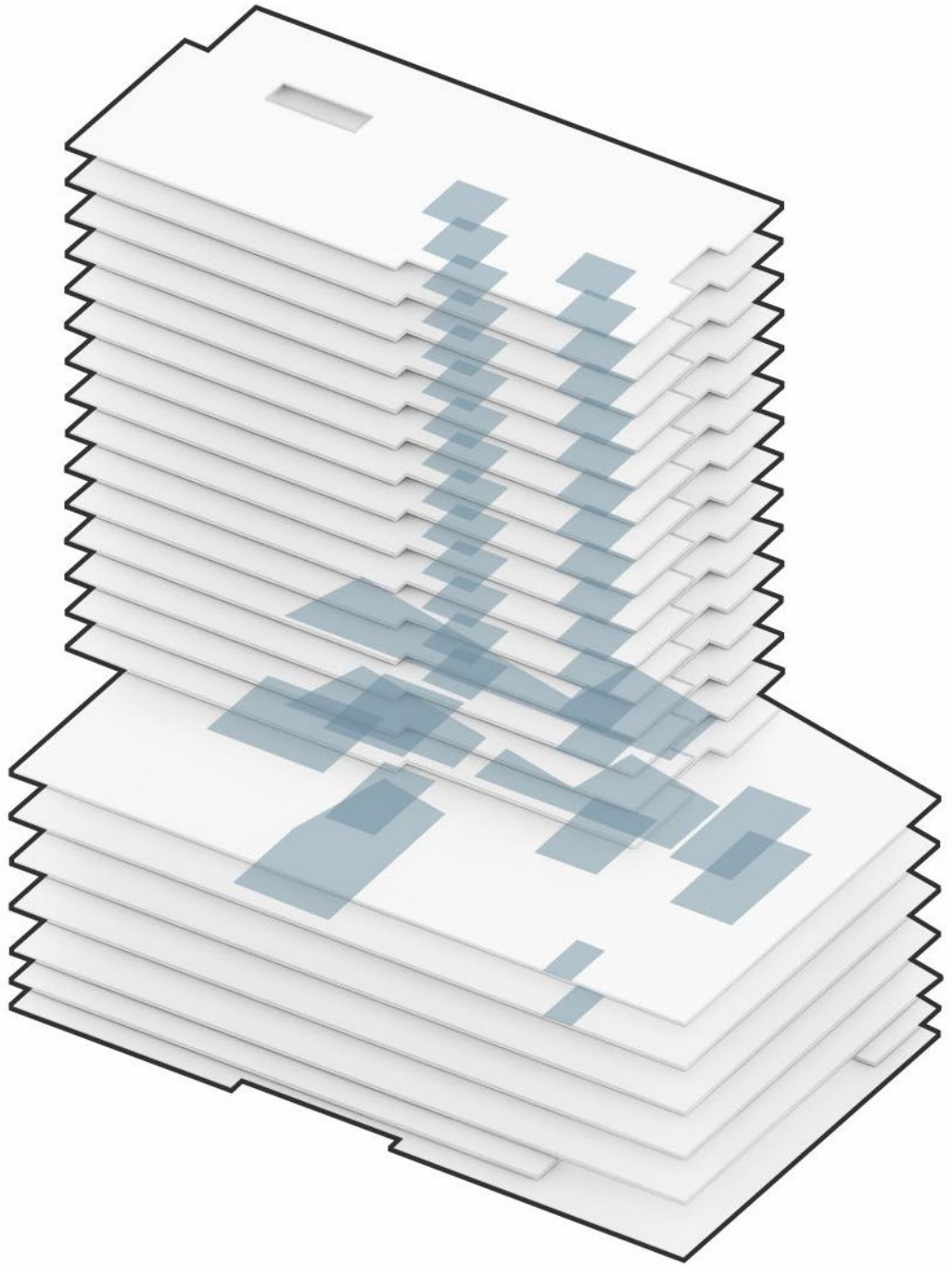

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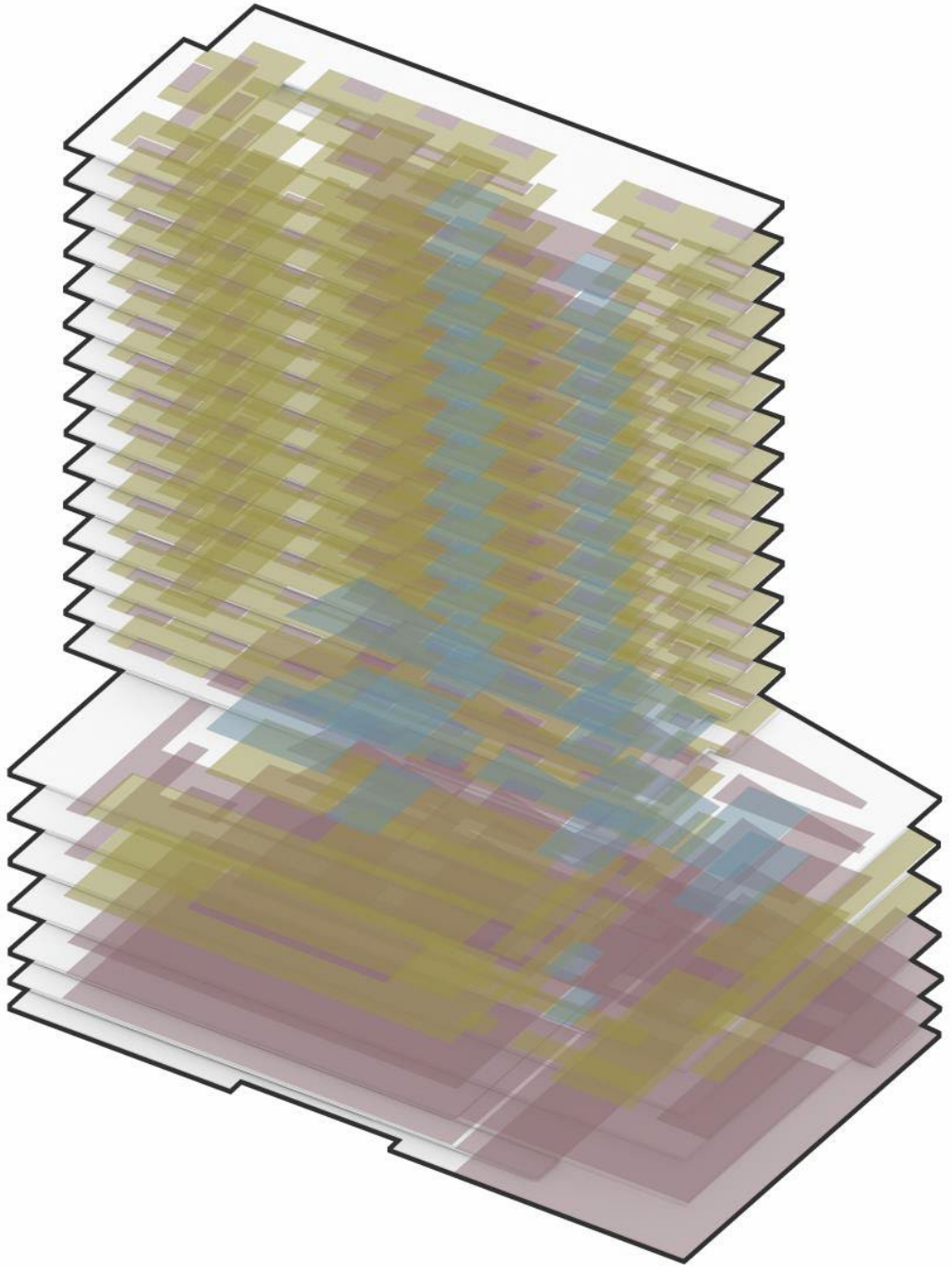
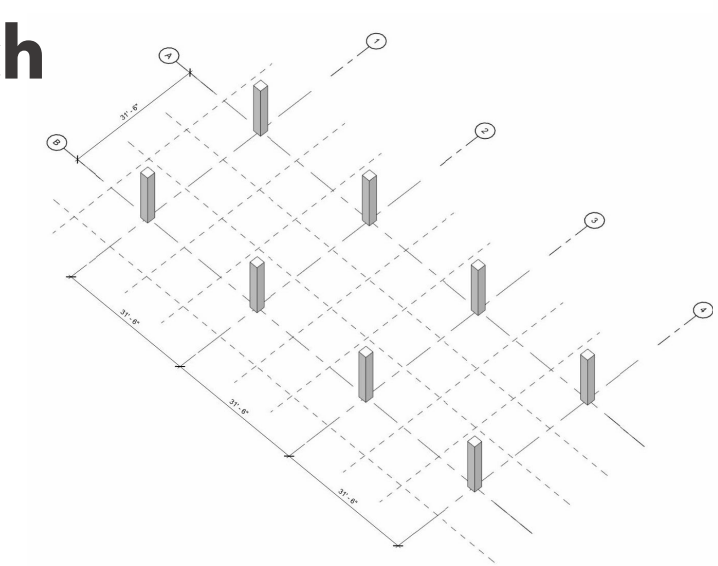
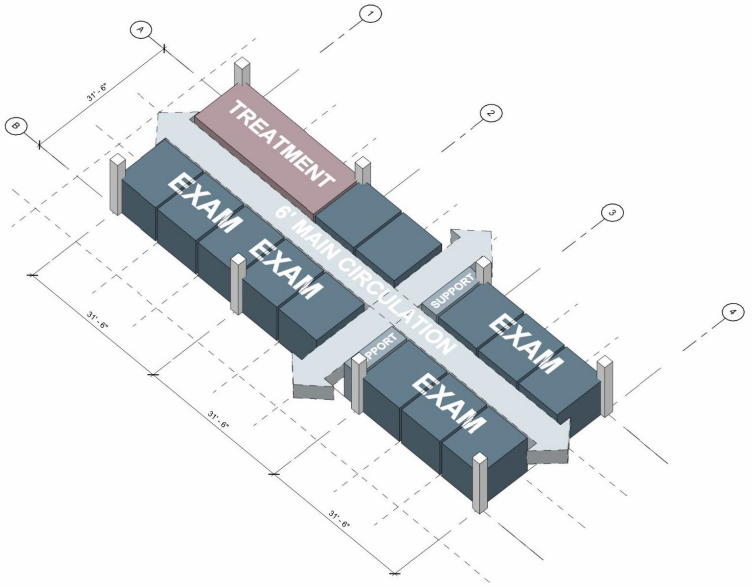


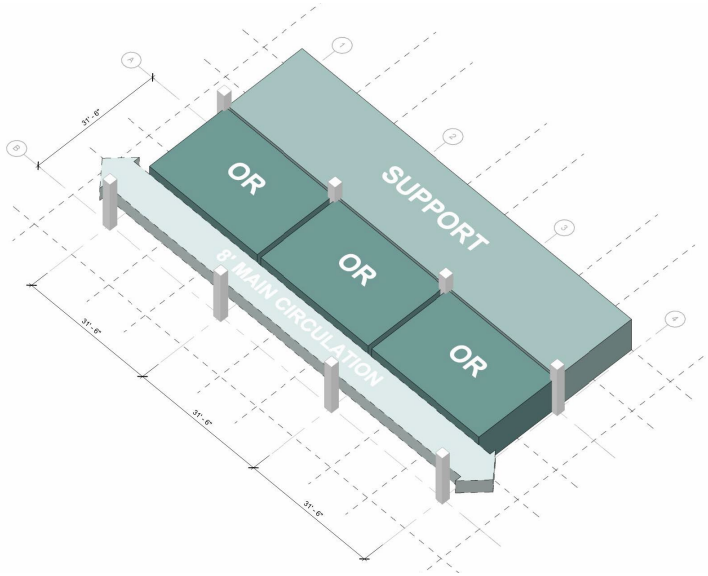
Modular Planning Approach

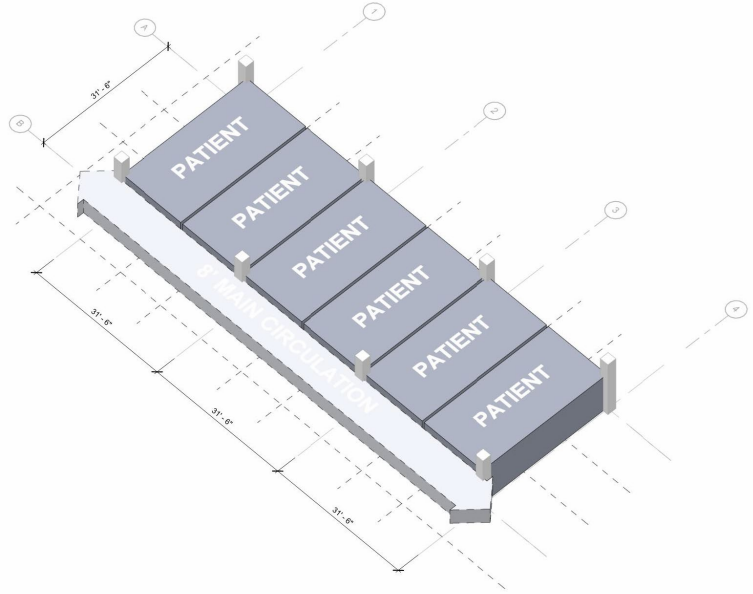
Leveraging the Universal Grid & Modular Planning Principles

- The Universal Grid allows for interchangeable planning modules
- Modules such as
    - 3 exam rooms
    - 3 offices
    - 2 ORs
    - 2 patient rooms









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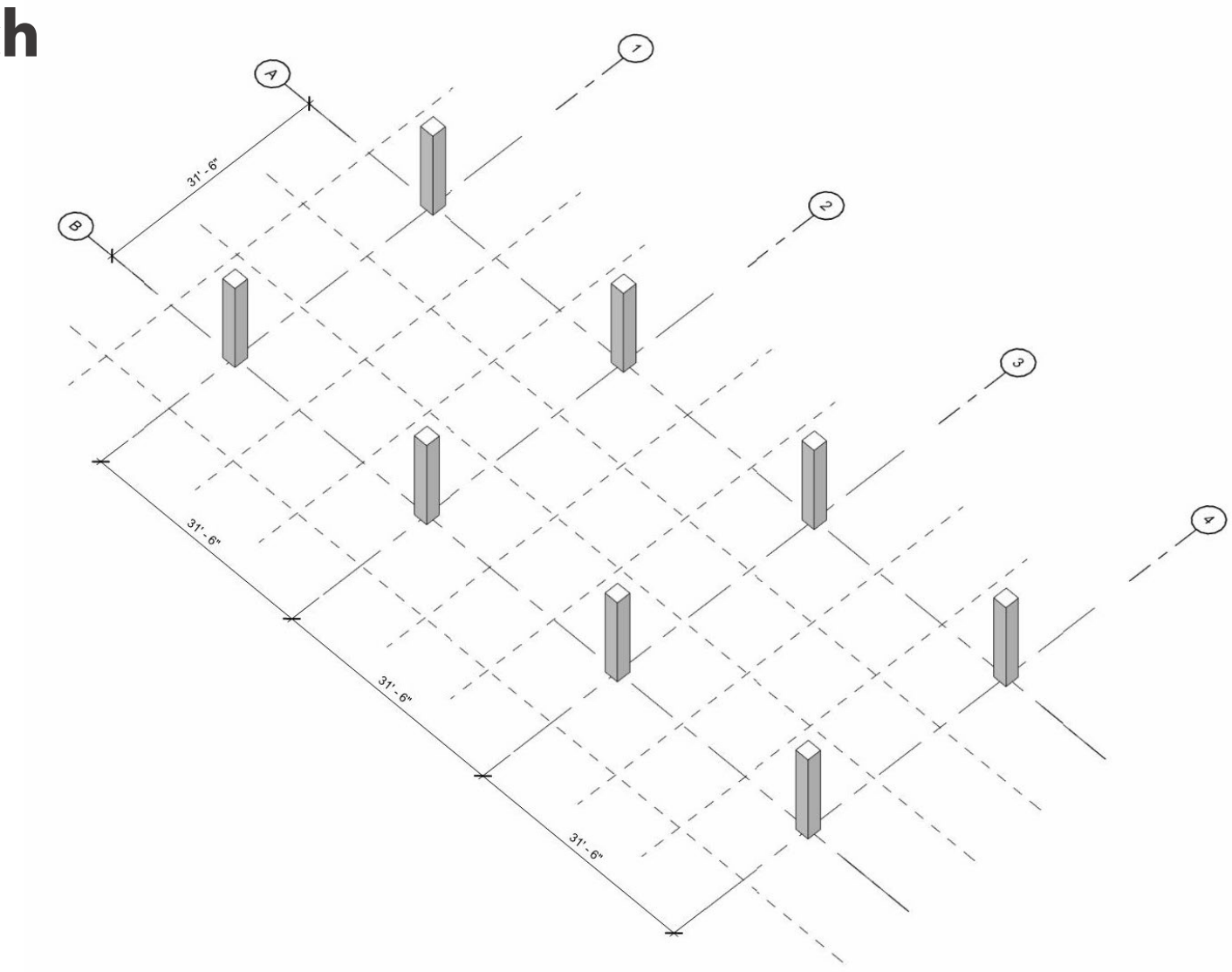

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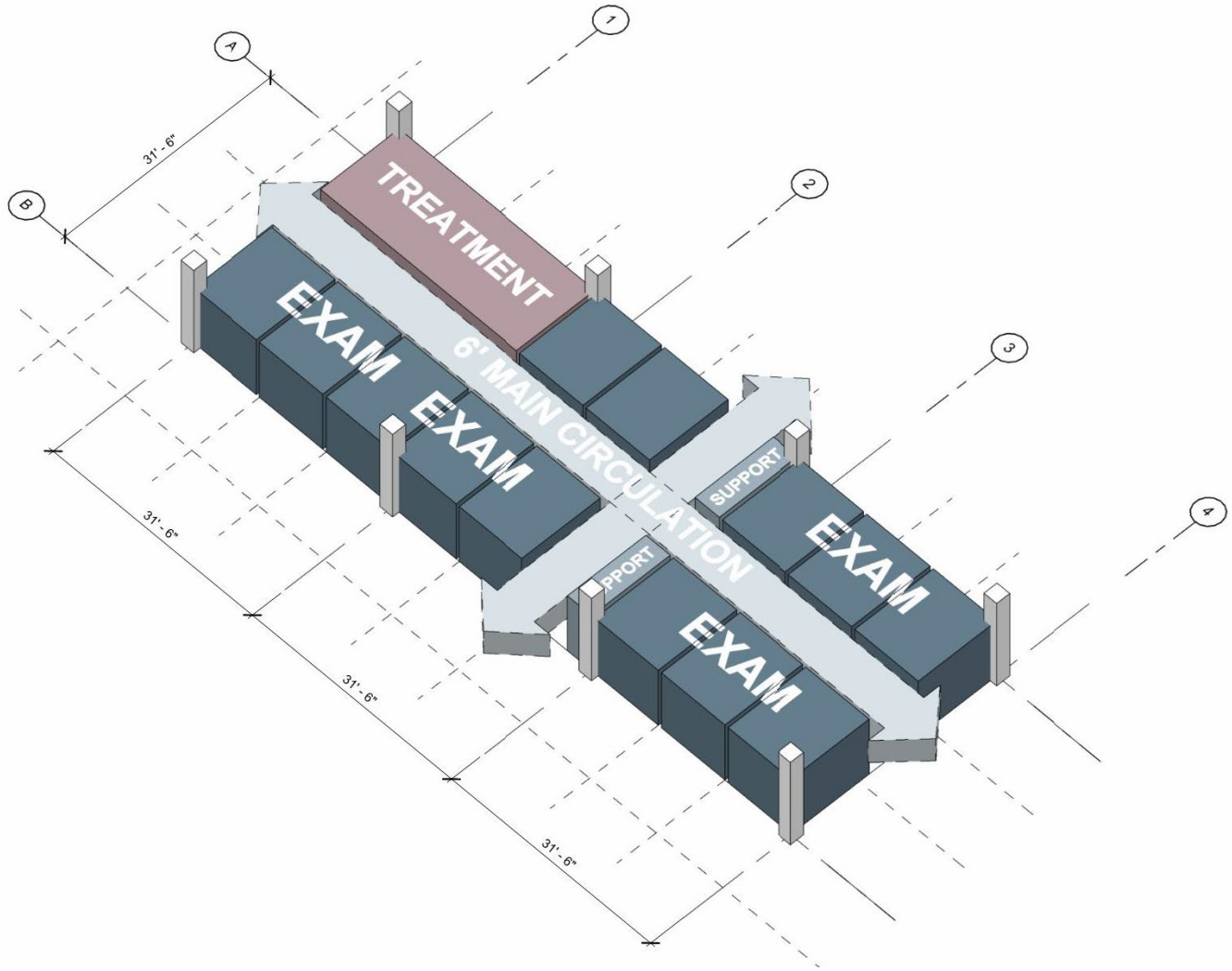

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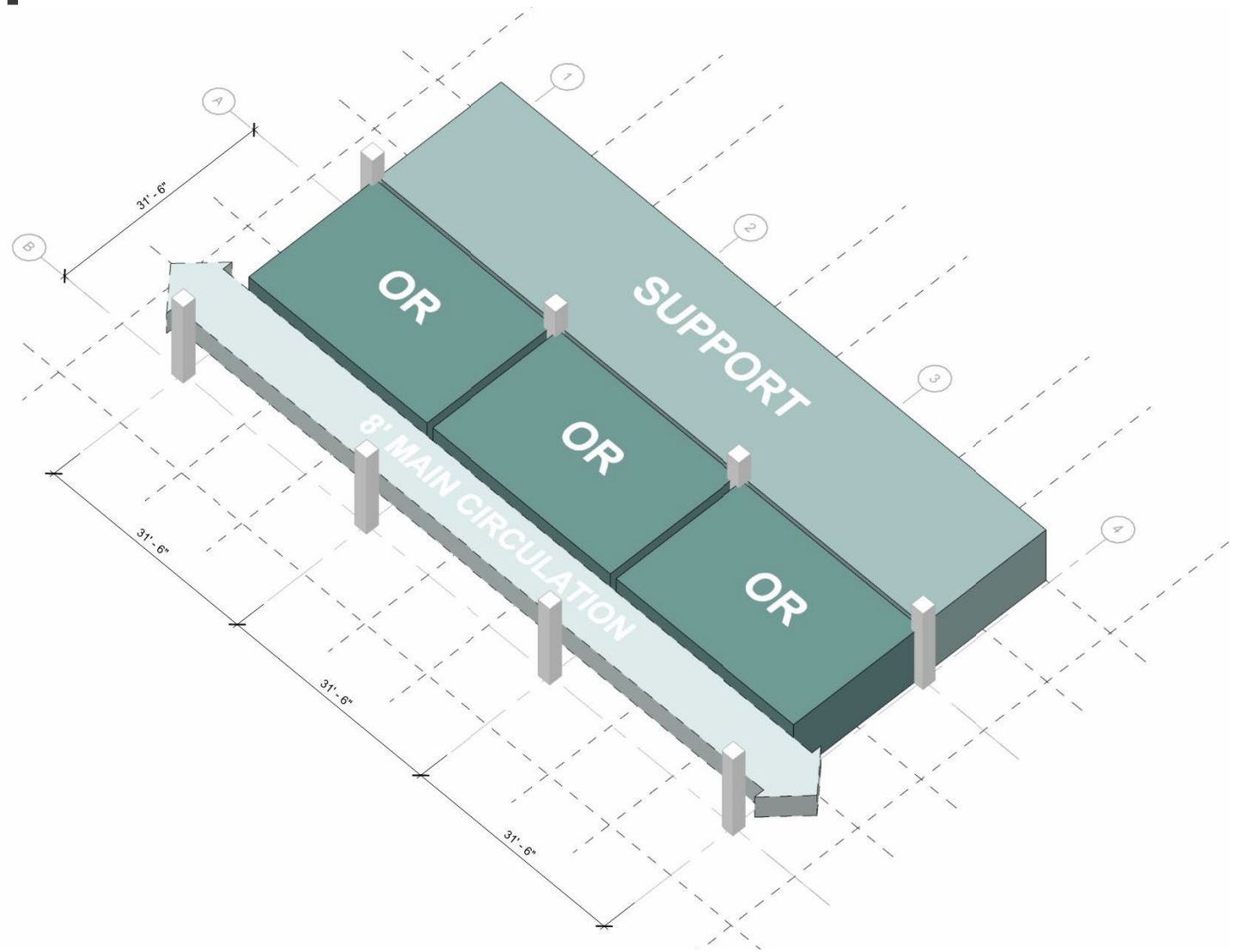

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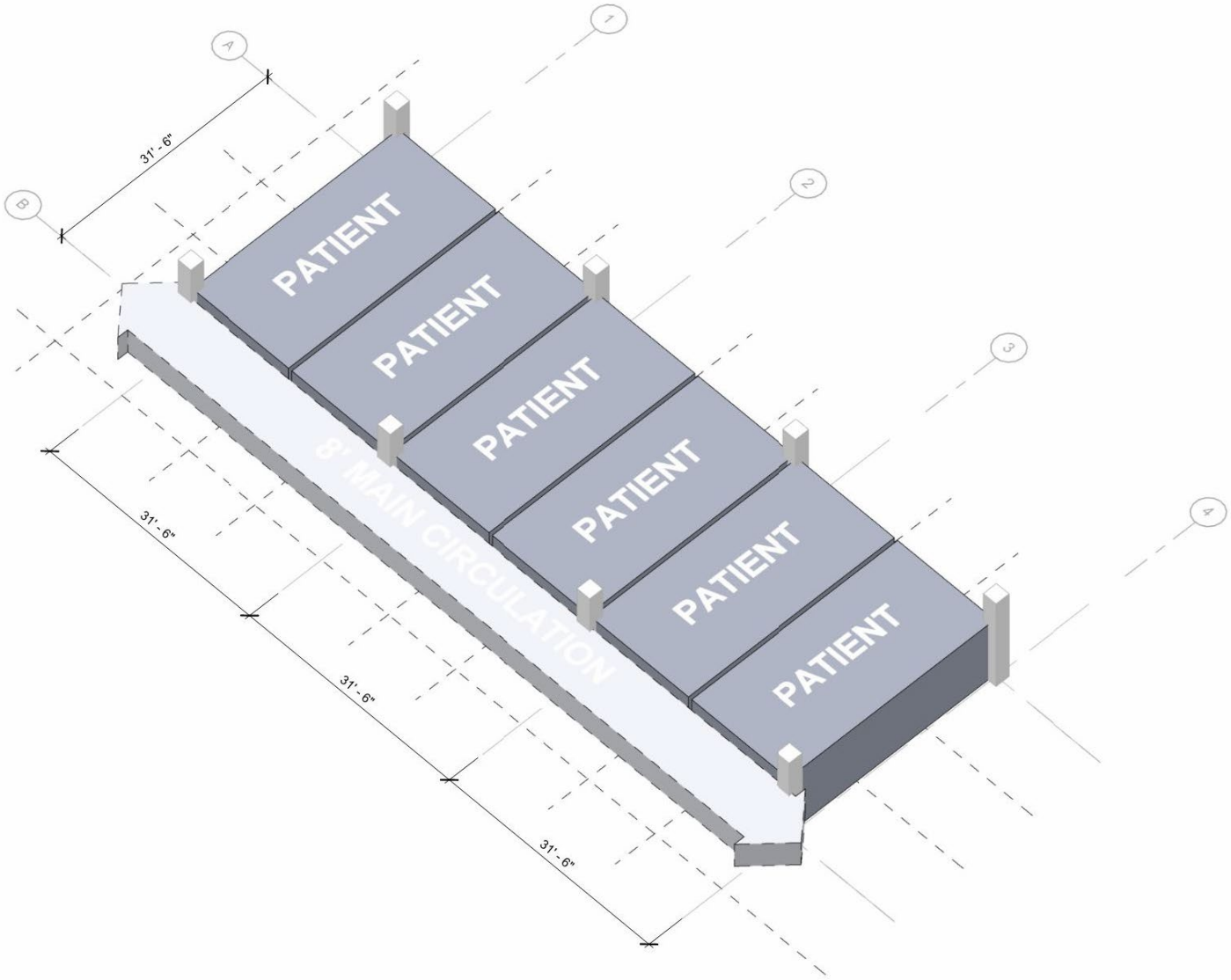


Goals of PCS

Industrialized Methods of Construction

Goals and Limitations

Goals

- Increase labor productivity
- Substitute labor-intensive processes with machines
- Fast-track the rate of construction
- Commission new projects more quickly
- Reduce Costs
- Improve overall quality and sustainability
- Make customization affordable

https://damassets.autodesk.net/content/dam/autodesk/www/pdfs/autodesk-industrialized-construction-report.pdf

https://www.bdcnetwork.com/blog/epic-rise-industrialized-construction

https://www.projectfrog.com/post/shifting-from-traditional-construction-to-industrialized-construction-ic

https://redshift.autodesk.com/industrialized-construction/

Limitations

- Social Acceptance
- Expensive Overall Costs of Construction
- Lack of Skilled Labor
- Minimal Industry – Academia Collaboration
- Lack of Compliance and Regulatory Bodies

DPR CONSTRUCTION

Timing to Integrate PCS into Design

Design for Manufacturing and Assembly (DFMA) is a two-step approach to design.

- **Design for Manufacture** fine-tunes components or parts of a design to make them easier to fabricate, optimizing efficiency and effectiveness.
  e.g. the technical plastics and injection molds for manufacture
- **Design for Assembly** focuses on the simplicity and speed of assembly, benefitting from removing the detail required for manufacture and showing only what is needed for assembly
  e.g. the LEGO assembly instructions we all know

This supports consistency and predictability in execution, maximizing offsite fabrication and simplifying field assembly.

Design For Manufacture and Assembly

A new approach to design

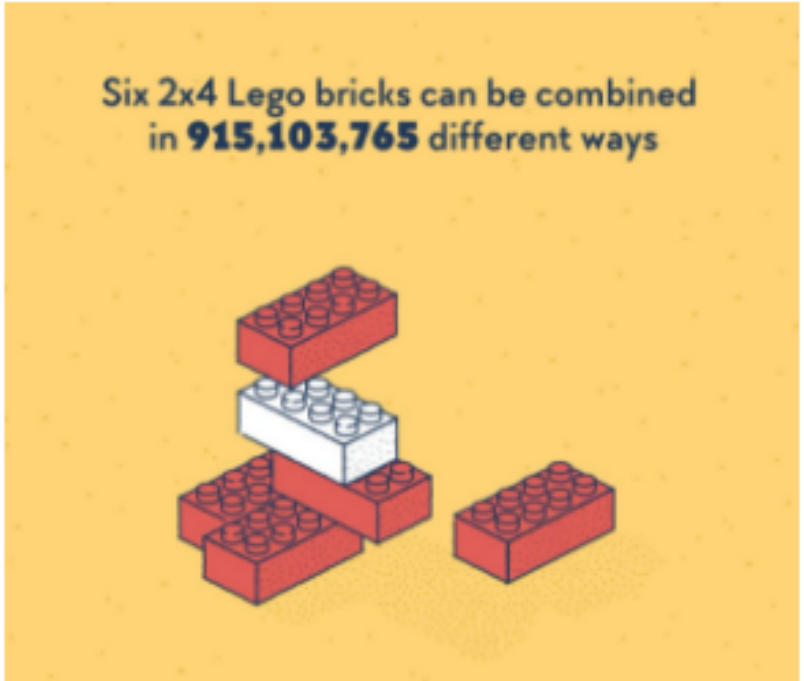
- DfMA is a design methodology that focuses on prioritizing both the ***ease of manufacture*** for the product's parts and the ***simplified assembly*** of those parts into the final product.
- Manufacturers go through an arduous New Product Introduction (NPI) and stabilization stage that involves ***high volume repetition and fine tuning***.
- The best manufacturers produce products based on the ***optimum methods***, tooling, equipment, manpower, materials, and factory environments available to them.
- They strive to ***standardize and reduce the complexity*** and number of parts within a component or system to efficiently produce their products.

DPR CONSTRUCTION

Design For Manufacture and Assembly

A new approach to design

- The AEC industry has historically focused on the uniqueness of each project instead of the common factors.
- A focus on the commonalities enables projects to hone and refine repeated elements improving performance and predictability in delivery.
- This in turn frees time and capacity to address unique and more complex conditions.



The focus on repeated elements does NOT constrain creativity...

DPR CONSTRUCTION

The HOW

Identify Prefabrication Opportunities Early in Design

- From Prefab Webinar, get higher res images

PPCS Approval Process

- Ali Sumer

PPCS Application Submittal Requirements

- Ali Sumer

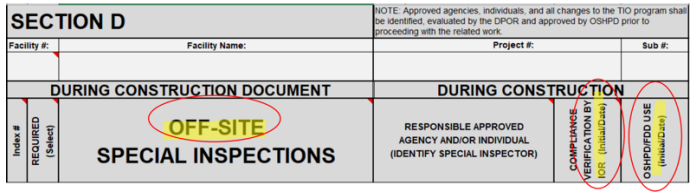
Offsite project Specific Prefabrication

- Cody Bartley
- Options How go about,
  - Seen out of state, out of country
    - Inspection and observation of floor
    - How transport
    - What inspect when arrives on site
    - What inspection needed when installing in final position

Inspection/Off-site

Off-site fabrication of structural parts CBC 1704A.2.5 “Where fabrication of structural, loadbearing or lateral load-resisting members or assemblies is being conducted on the premises of a fabricator’s shop, special inspections of the fabricated items shall be performed during fabrication.”

The DPOR consult with the contractor and prior to commencement of related fabrication/construction and, shall identify all special inspections to be performed off-site.



Changes to the TIO Form
Tab D
Off-site Special Inspections (new)

General areas of special inspection:

Concrete	Nonstructural Components, Supports and Attachments
Masonry	Mechanical Special Inspections
Steel	Plumbing Special Inspections
Wood	Fire Protection Special Inspections
Other Structural Materials	Other Special Inspections
Alternative Systems	

Note: the project may contain additional special inspections other than those listed above

Who Inspects Off-Site Prefabrication

- Joe LaBrie

Examples of PCS on HCAI Projects

Sutter Santa Rosa

- Chris Tokas or Carl Scheuerman
  - Exterior Skin

SASC

- Cody Bartley
  - SurePods
  - Exterior Skin
  - Prefabricated Walls

Kaiser Roseville

- Hussain Bhatia

Kaiser San Marcos

- Cody Bartley and Chris Tokas
  - Fabricated close to site
  - Headwalls
  - Plumbing Fittings
  - Exterior System

4. **Run-through of presentation**
   Facilitator: Cody Bartley, Subcommittee Chair (or designee)
   - Discussion and public input

5. Evaluation and comments

Facilitator: Cody Bartley, Subcommittee Chair (or designee)

- Feedback and discussion on message points and content
- Discussion and public input

6. **Comments from the Public/Committee Members on issues not on this agenda**

   Facilitator: Cody Bartley, Subcommittee Chair (or designee)
   The Committee will receive comments from the Public/Committee Members. Matters raised at this time may be taken under consideration for placement on a subsequent agenda.

Future Education and Outreach Committee meetings:

- June 27, 2023
- July 12, 2023