HCAi
Department of Health Care Access and Information

Preapproved Fabricated Components & Systems Webinar

by

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1

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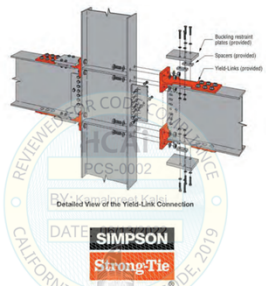
Definitions: Offsite Prefabrication & Preapproved Fabricated Components

- Components
- Manufactured
- Pre-Fabricated

OSHPD view of Offsite Prefabrication & Preapproved fabricated components

- **Components** are defined as parts of architectural, mechanical or mechanical system (ASCE 7). This may also be an assembly of components.
- **Offsite prefabrication** of components is assembly or fabrication of manufactured components that are normally assembled/fabricated on a construction site at the final installed location. Offsite prefabrication of components is approved under the project which it is installed.
- **Prefabricated** = **Preassembled.**
- **Manufactured Components:** Components that come from a manufacturing facility or factory and available from a catalogue. Not subject of this presentation.

Architect's View: Offsite Prefabrication & Preapproved Fabricated Components

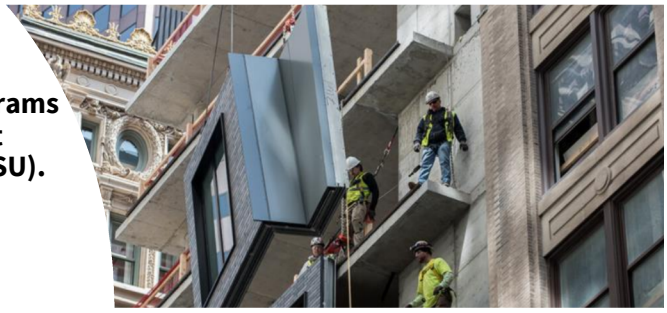


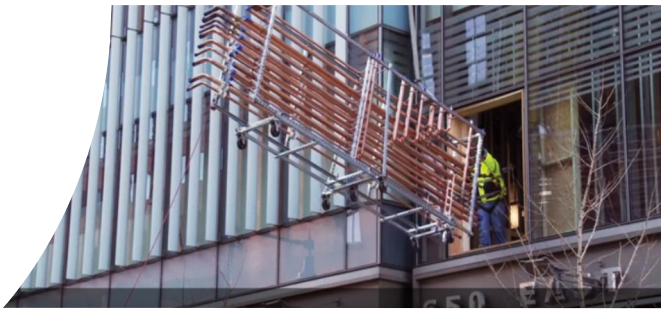
Contractor view: Offsite Prefabrication & Preapproved Fabricated Components

Background

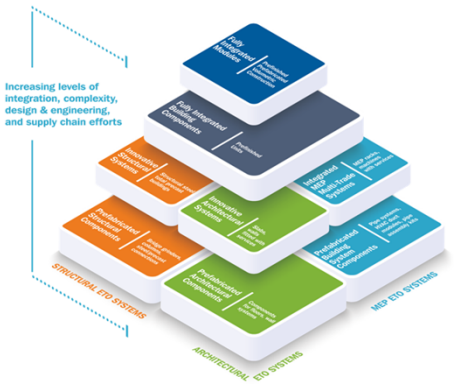
OSHPD has five distinct preapproval programs that operate under the Structural Support Unit (SSU) and Inspection Services Unit (ISU).

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





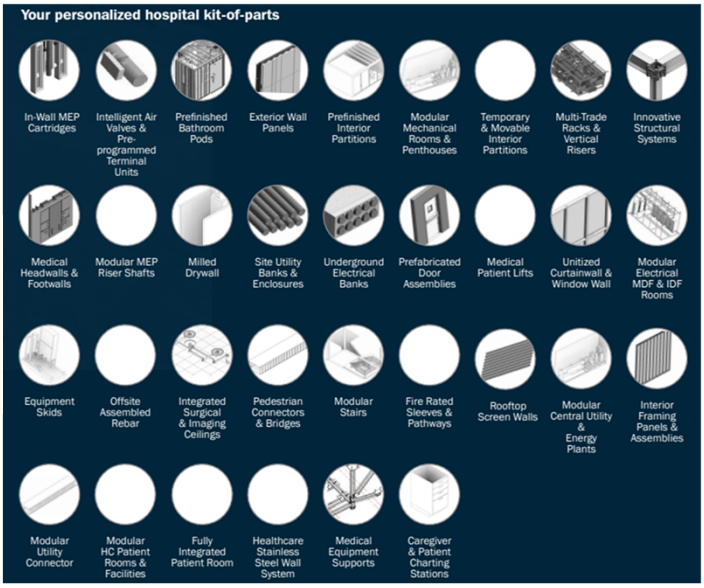
Prefabricated Components and Systems



OSHPD Preapproved Prefabricated Components and Systems (PCS)

OSHPD Preapproved Prefabricated Components and Systems (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	09/18/2023	v1.0	See Attachment
PCS-0005	FyfeFRP, LLC	Tyfo FRP Systems	In Review		
PCS-0006	Taylor Devices, Inc.	Taylor Damped Moment Frame	In Review		

Select Your Kit of Parts



Some Options: Preassembled or Prefabricated

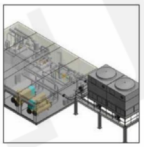
MODULAR MECHANICAL ROOMS & PENTHOUSES

MODULAR STAIRS




INTEGRATED SURGICAL & IMAGING CEILINGS

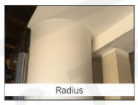

MODULAR CENTRAL UTILITY & ENERGY PLANTS

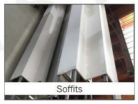


Some Options: Preassembled or Prefabricated

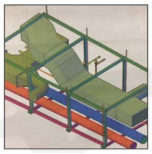
MILLED DRYWALL

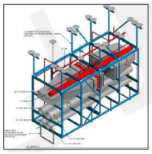




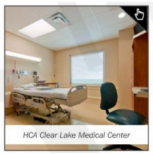


MULTI-TRADE RACKS & VERTICAL RISERS



MEDICAL HEADWALLS & FOOTWALLS



Distinctions

Offsite Prefabrication Location

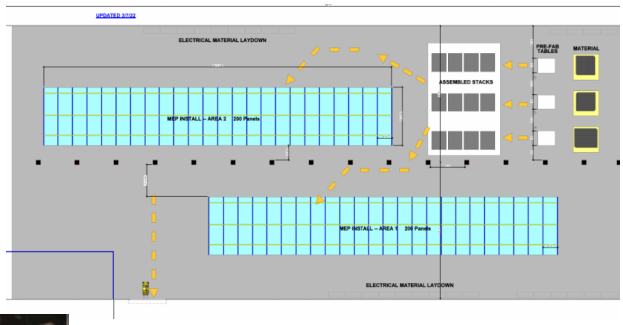
Adjacent to site

Out of state

Purpose

Project specific

Product specific – requiring preapproval (PCS)



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Purpose – Buildings as Products

OSHPD Preapproved Prefabricated Components and Systems (PCS)

There are two main categories:

Multi discipline prefabricated components

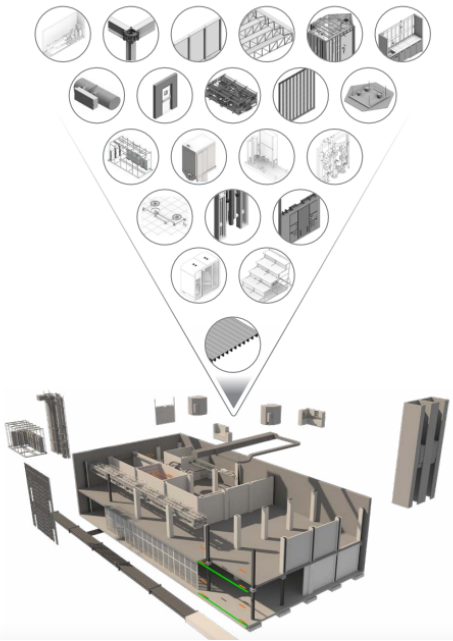
- Multi-discipline preapproval

  Ex: Bathrooms

Main structural lateral systems

- Structural only preapproval

  Ex: Simpson Yield Link, Durafuse



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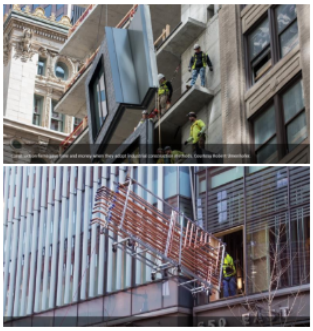
Goals of PCS

Goals

- Increase Productivity
- Reduce Time for both Review and Construction
- Reduce Cost
- Safety
- Quality



Limitations

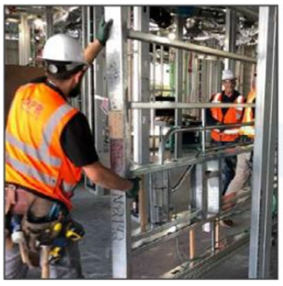
- Social Acceptance
- Expensive Overall Costs of Construction
- Lack of Skilled Labor
- Minimal Industry – Academia Collaboration
- Lack of Compliance and Regulatory Bodies

15

Why Off-Site Prefabrication?

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



16

Example Project:

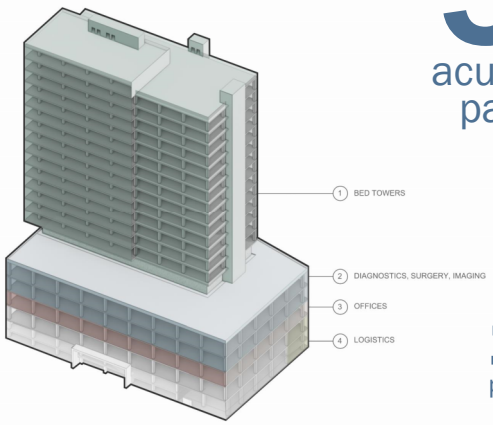
Advantages of Room Templates + Prefabrication

10,000+ employees

336 acuity-adjustable patient rooms

42 operating rooms

450+ toilet rooms



10,000 doors

1,600,000 square feet

16,000 pieces of equipment

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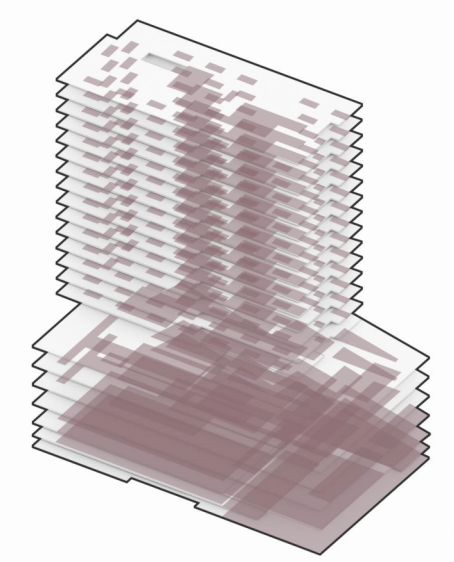
Example Project:

WHAT

Applying Room Templates for Off-Site Prefabrication + Modular Design

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



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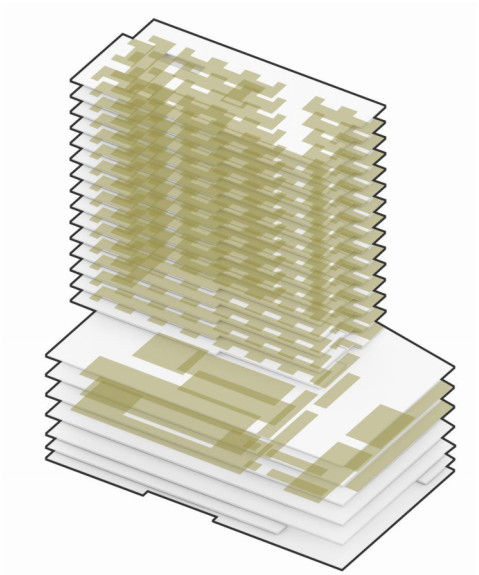

19

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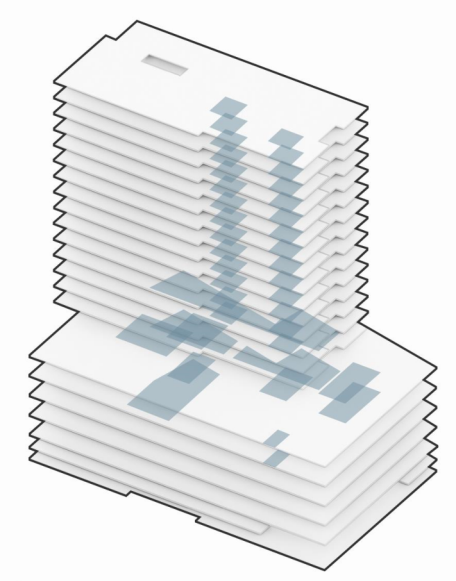

20

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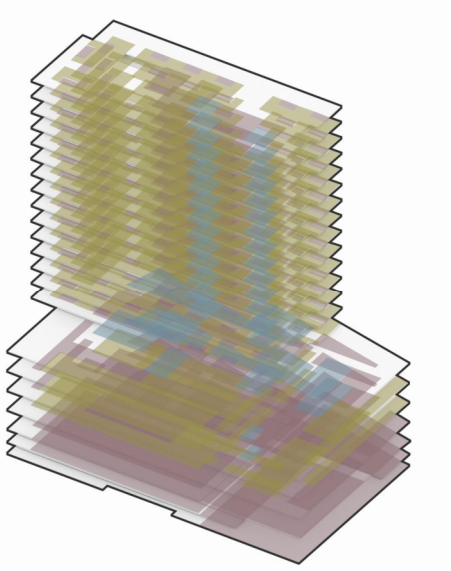


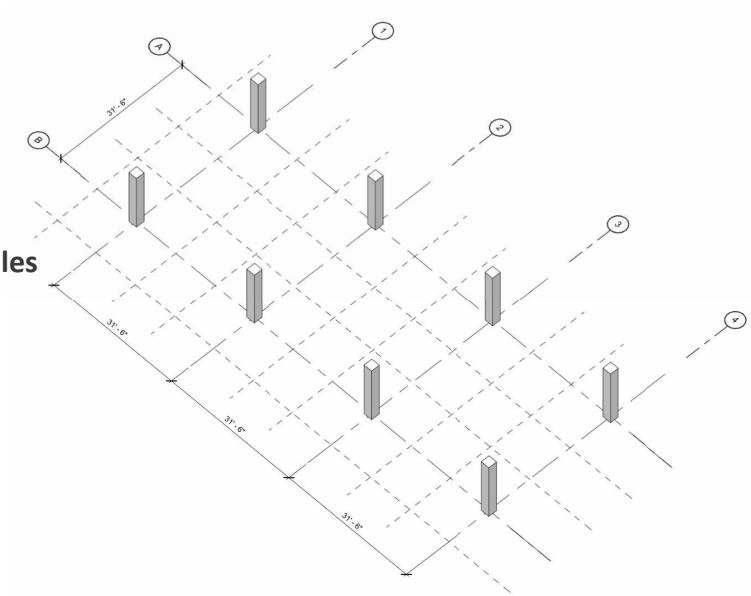
21

Example Project:

HOW

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



22

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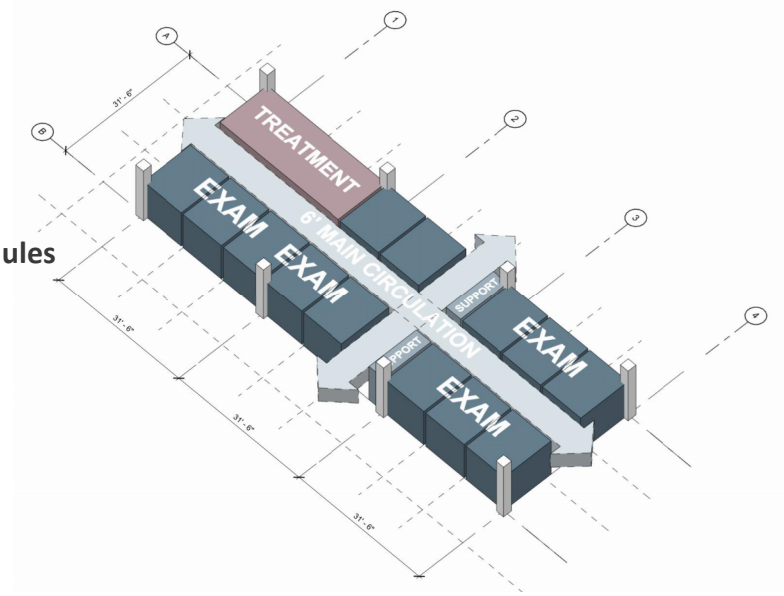

Example Project:

HOW

Modular Planning Approach

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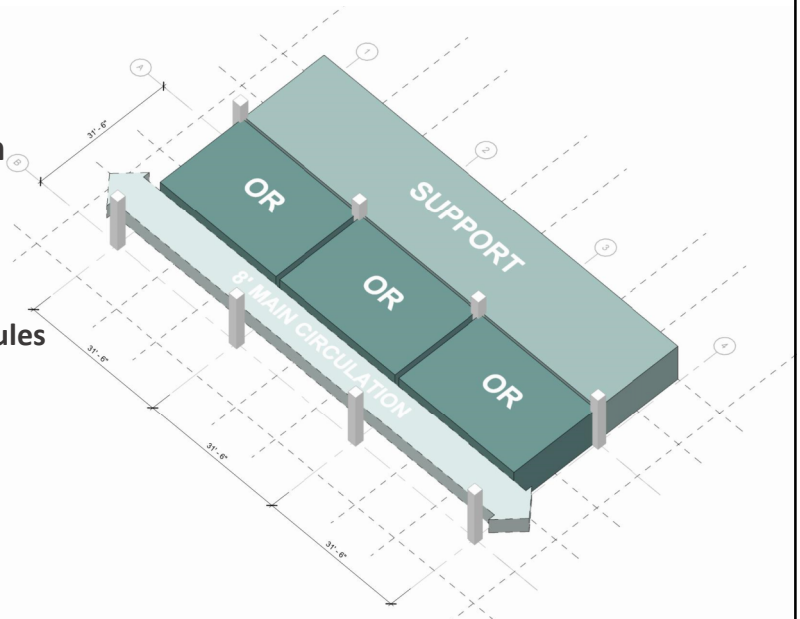

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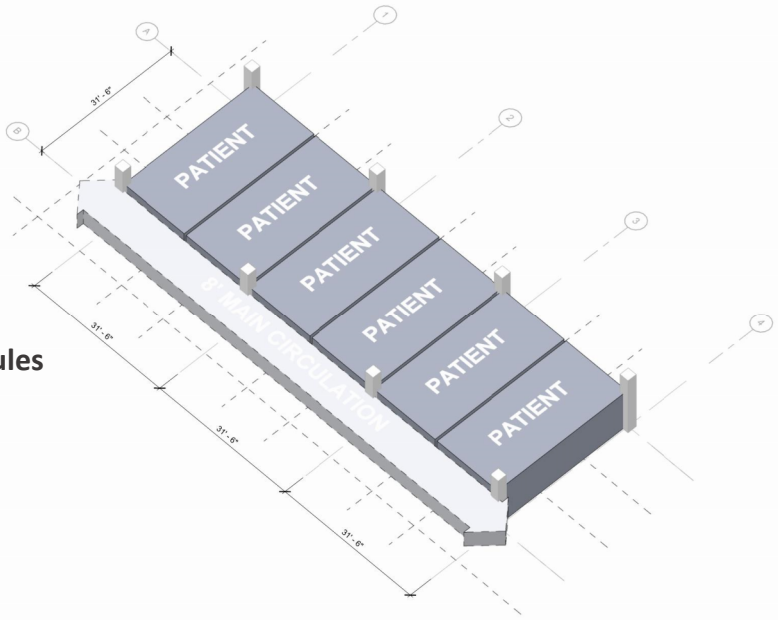
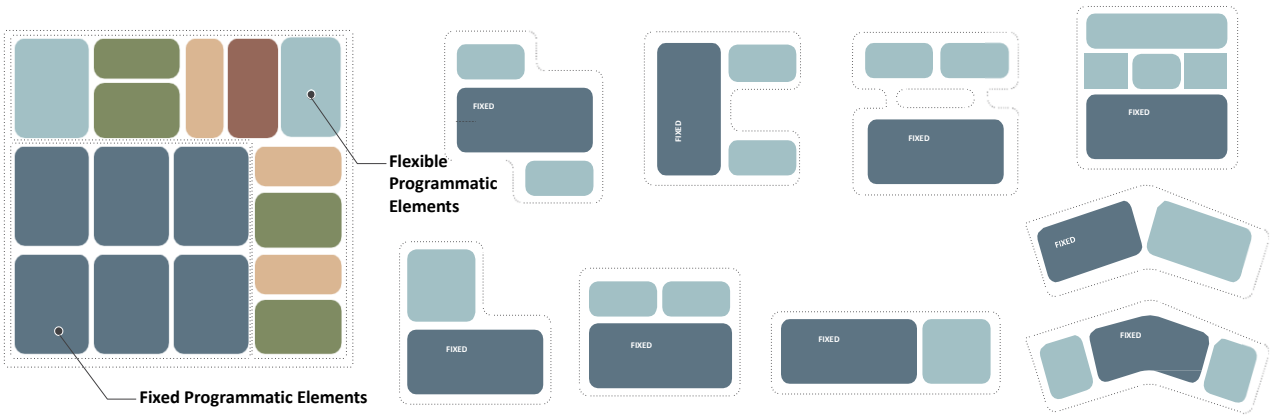


25

Example Project:

HOW Standardized vs. Custom



26

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.

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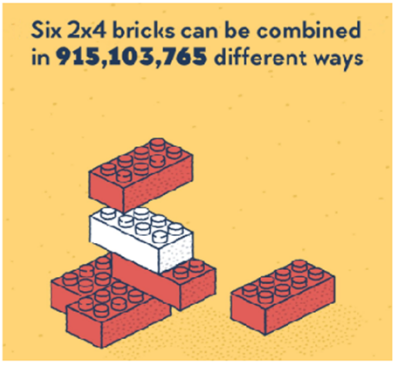
Design For Manufacture and Assembly

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...

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Timing to Integrate PCS into Design

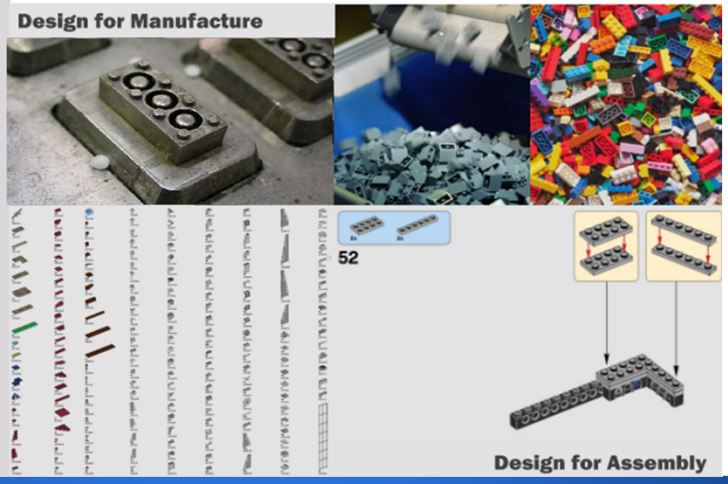
Design for Manufacturing and Assembly (DFMA) is a two-step approach to design.

- **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.

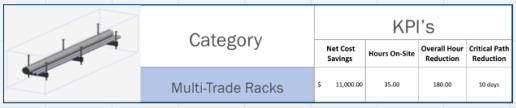
DfMA

Design engagement is key.



Timing to Integrate PCS into Design

Prefabrication?



Setting the Target			Design to Budget		Tracking Actuals
Pre-Work	Pursuit	SD	DD	CD	Construction

Preassembled Units
Fire and Life Safety Considerations

Fire and life safety topics include :

- Many variables exist due to specific site requirements, including construction type, location of unit within the building, allowable materials, fire alarm and sprinkler requirements, etc.
- Please contact OSHPD for any questions and guidance.

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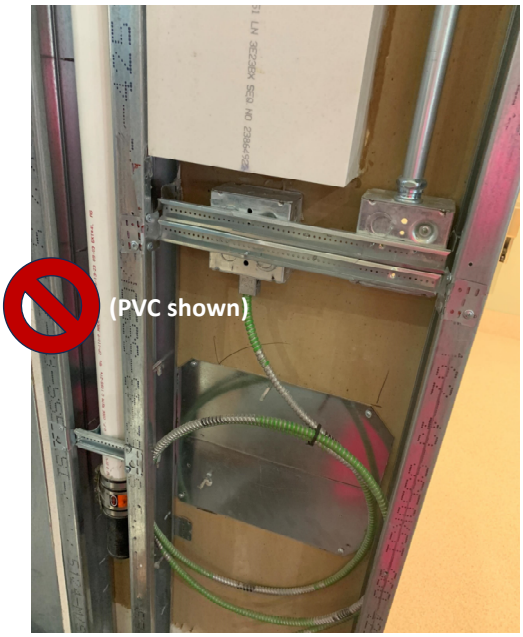
Materials

- Provide materials permitted for the construction type of the building the unit is to be installed in per CBC 6, CBC 7 and applicable code sections
- Provide interior finish material requirements per CBC 8
- If any plastics are used, please comply with CBC 26 and other applicable code sections
- Verify piping type is that permitted per CBC, CMC, CPC



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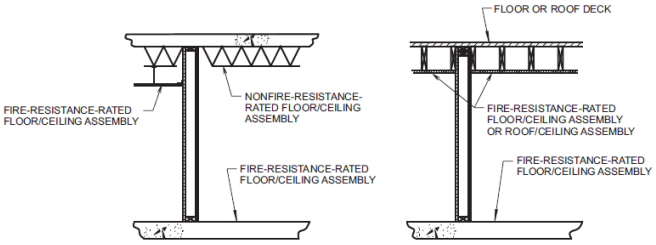
Protection of Fire Resistance Rated Assemblies

- Provide continuity of rated assemblies adjacent to the unit, per CBC 7
- Determine if unit will be installed after rated assemblies are constructed
- If rated assemblies will be constructed prior to installation of the unit consider and plan how the unit will be placed in the space (As an example, the unit will not fit through the door when walls are constructed. Will the unit be in the construction space prior to construction of rated assemblies?)



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Protection of Fire Resistance Rated Assemblies

- Provide details indicating how penetrations from the units, through to the fire resistive rated assemblies will be provided, per CBC 7.
- Provide continuity of the floor/ceiling assembly below at depressions cut into floor assemblies, CBC 711
- Consider timing of cored openings for piping for floor drains and alignment of drains

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Exiting

Provide code compliant location of the units regarding all requirements for means of egress, including but limited to; travel distance, intervening room requirements, door type, and hardware: free egress, anti-ligature, power, delayed egress, etc. location in relation to suites and corridors, and all other applicable code requirements, per CBC 10.

Fire Alarm

Provide details for fire alarm coverage.

Show location(s) of perforated opening.

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Sprinklers

Provide details for sprinkler protection per CBC / CFC 903 and NFPA 13.

Provide dimensions of the concealed spaces beneath the raised floor, and above the ceiling of the unit and the fire resistance rated floor / ceiling, roof / ceiling assembly above, per CFC 903.2.6, and NFPA 13-8.5.

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Other Considerations

- Shipping and delivery
- Preplan route and watch overpass height limitations

AVOID THESE SITUATIONS!

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PCS Application Submittal Requirements

PCS Application Submittal

Completed application.

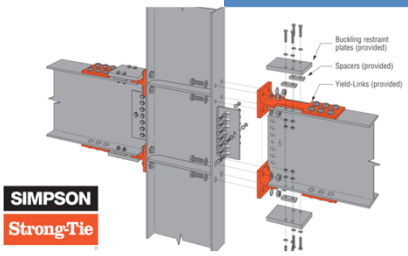
Application filing fee of $250.00 .

Project billing will be done hourly, with the level of complexity determining the extent of review required.

Supporting documents, test reports, drawings, product catalog, and calculations for review, and PCS to be approved.

Provided document shall include multi-discipline criteria.

Supporting document should be submitted by email or FTP site.



SIMPSON Strong-Tie

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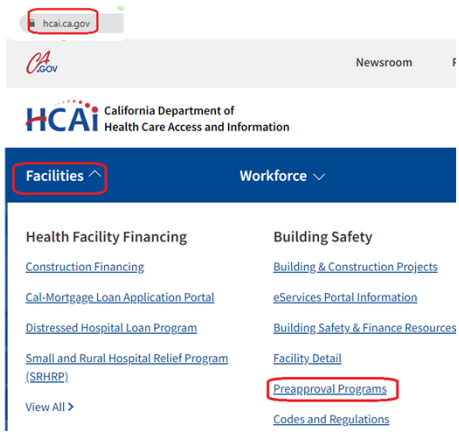

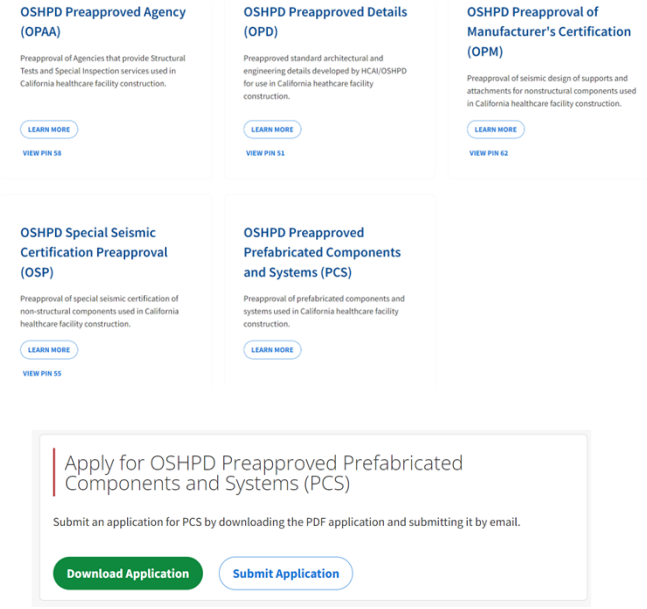

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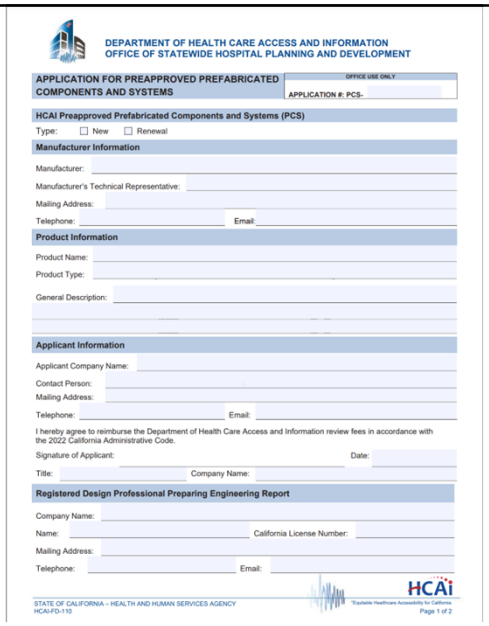
DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR PREAPPROVED PREFABRICATED COMPONENTS AND SYSTEMS

OFFICE USE ONLY
APPLICATION #: PCS-

HCAI Preapproved Prefabricated Components and Systems (PCS)

Type: ☐ New ☐ Renewal

Manufacturer Information

Manufacturer:
Manufacturer's Technical Representative:
Mailing Address:
Telephone: Email:

Product Information

Product Name:
Product Type:
General Description:

Applicant Information

Applicant Company Name:
Contact Person:
Mailing Address:
Telephone: Email:

I hereby agree to reimburse the Department of Health Care Access and Information review fees in accordance with the 2022 California Administrative Code.

Signature of Applicant: Date:
Title: Company Name:

Registered Design Professional Preparing Engineering Report

Company Name:
Name: California License Number:
Mailing Address:
Telephone: Email:

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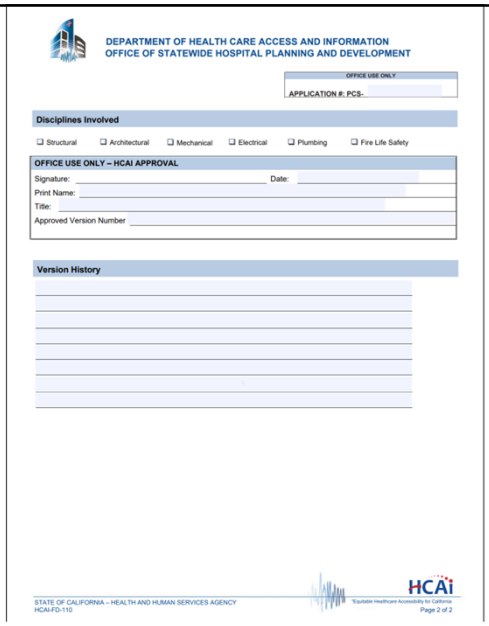
STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
HCAI-FD-110
Page 1 of 2


DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

OFFICE USE ONLY
APPLICATION #: PCS-

Disciplines Involved

☐ Structural ☐ Architectural ☐ Mechanical ☐ Electrical ☐ Plumbing ☐ Fire Life Safety

OFFICE USE ONLY – HCAI APPROVAL

Signature: Date:
Print Name:
Title:
Approved Version Number

Version History

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HCAI-FD-110
Page 2 of 2

40

OSHPD Preapproved Prefabricated Components and Systems (PCS)

OSHPD Preapproved Prefabricated Components and Systems (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 Attach
PCS-0004	DuraFuse Frames, LLC	DuraFuse Frames	09/18/2023	v1.0	See Attach
PCS-0005	FyfeFRP, LLC	Tyfo FRP Systems	In Review		
PCS-0006	Taylor Devices, Inc.	Taylor Damped Moment Frame	In Review		

41 HCAI Department of Health Care Access and Information

PCS Approval Process

PCS Application Submittal

OSHPD PCS multi-discipline Review

- Structural
- Architectural
- MEP
- Fire and life safety

Potential Coordination meeting between design professional and manufacturer/Consultant

Consultant Review of the comments and response to comments

OSHPD PCS multi-discipline Review of comment response

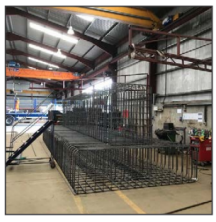
Final Approval by OSHPD

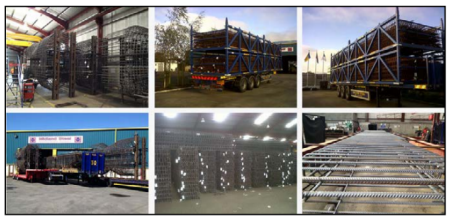
42 HCAI Department of Health Care Access and Information

What Should Documents Show?

- California Building Standards Code
- Table of contents
- Clear and easily understandable
- Testing data where applicable
- Testing Inspection Observation (TIO)
- General notes
- Common case better than complex
- Coordinate between disciplines

Offsite Project Specific Prefabrication





Who Inspects Off-Site Prefabrication?

Think through inspections that would need to be done onsite, the same components needs to be inspected for compliance offsite.

Inspections will be done at the point of fabrication including material identification.

Product needs to be inspected when it arrives onsite and verification that damage did not occur during shipping.

Product needs to be inspected once installed onsite .

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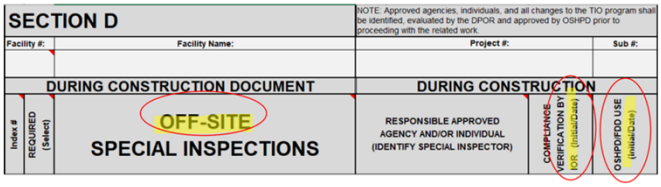
Inspection / Off-Site

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



SECTION D		NOTE: Approved agencies, individuals, and all changes to the TIO program shall be identified, evaluated by the DPOR and approved by OSHPD prior to proceeding with the related work		
Facility #:	Facility Name:		Project #:	Sub #:
		DURING CONSTRUCTION DOCUMENT	DURING CONSTRUCTION	
Index #	REQUIRED (Select)	OFF-SITE SPECIAL INSPECTIONS	RESPONSIBLE APPROVED AGENCY AND/OR INDIVIDUAL (IDENTIFY SPECIAL INSPECTOR)	COMPLIANCE VERIFICATION BY DPOR (Initial/Date)	OSHPD/FDD USE (Initial/Date)

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

46 HCAI Department of Health Care Access and Information

Off-Site Inspections at Prefabrication Site

- All trades: Coordinate with IOR to identify all materials to be used.
- IOR, Contractor, and responsible 3rd parties to execute TIO process for all framing, mechanical, electrical, and plumbing elements that can be inspected independent of and prior to connection to on-site utilities.
- Contractor to cap applicable elements (such as medical gas piping) in prefab-assembly as appropriate for transportation to the construction site.
- IOR to provide inspections during Prefabrication process. IOR and AOR to schedule OSHPD Field Staff visit to the prefabrication site as needed to review TIO milestone progress.
- IOR to complete final inspection prior to acceptance for job site delivery. Populate final tracking and related paperwork for delivery.
- IOR to verify with Contractor the prefabricated components delivered to the site are in conformance with the identification system and tracking paperwork established at the prefabrication site.

47 HCAI Department of Health Care Access and Information

On-Site Inspections

- IOR to verify with Contractor the prefabricated components delivered to the site are in conformance with the identification system and tracking paperwork established at the prefabrication site. IOR to verify components are checked for damage due to transportation.
- Once prefabricated components are moved into place, they can connect to building utilities and complete all remaining TIO processes, with IOR inspection and OSHPD Field Staff observation at the appropriate milestones.

48 HCAI Department of Health Care Access and Information

Weatherization

If the intent is to install completed prefab-assembly inside of the building prior to the building being “weathered-in” :

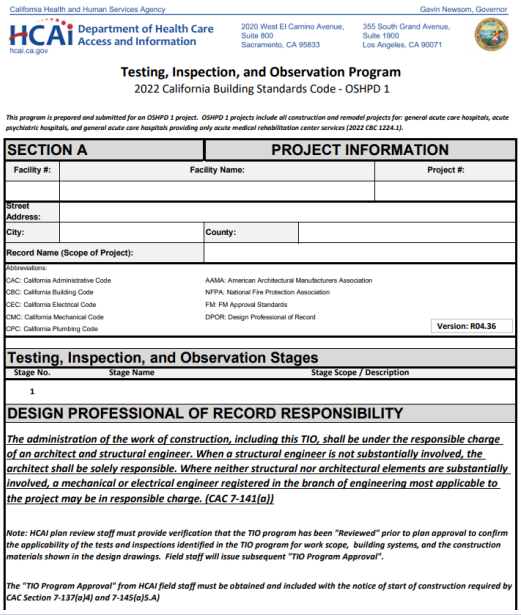
- In accordance with CAC, CBC, and OSHPD CAN 2-2508.21, Construction Documents will clearly delineate the material, location, and extents of weather protection so that the prefab-assembly are protected until the building roof and enclosure are completed.
- An Alternate Method of Compliance (AMC) shall be submitted for these conditions as required by OSHPD.

Change Management

- Any changes to the panel construction shall be documented through revisions to the Contract Documents.
- Revisions will be submitted to OSHPD following conventional Non-Material Alteration (NMA) and Amended Construction Document (ACD) processes. Approved revisions shall be issued to the construction team, both off-site and on-site, for project records.

TIO Program

- Project teams need to use a **custom TIO (available on request)** as starting point and think through what inspections will need to be done offsite.
- Same inspections need to be done offsite that would have been done onsite.
- Inspections needs to be done when delivered to site to verify that damage did not occur during transportation.
- Inspections need to be done at final point of install to verify compliance with details.



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Testing, Inspection, and Observation Program

2022 California Building Standards Code - OSHPD 1

This program is prepared and submitted for an OSHPD 1 project. OSHPD 1 projects include all construction and remodel projects for: general acute care hospitals, acute psychiatric hospitals, and general acute care hospitals providing only acute medical rehabilitation center services (2022 CBC 1224.1).

SECTION A	PROJECT INFORMATION	
Facility #:	Facility Name:	Project #:
Street Address:		
City:	County:	
Record Name (Scope of Project):		

Abbreviations:

CAC: California Administrative Code
CBC: California Building Code
CEC: California Electrical Code
CMC: California Mechanical Code
CPC: California Plumbing Code
AAMA: American Architectural Manufacturers Association
NFPA: National Fire Protection Association
FM: FM Approval Standards
DPOR: Design Professional of Record

Version: R04.36

Testing, Inspection, and Observation Stages

Stage No.	Stage Name	Stage Scope / Description
1		

DESIGN PROFESSIONAL OF RECORD RESPONSIBILITY

The administration of the work of construction, including this TIO, shall be under the responsible charge of an architect and structural engineer. When a structural engineer is not substantially involved, the architect shall be solely responsible. Where neither structural nor architectural elements are substantially involved, a mechanical or electrical engineer registered in the branch of engineering most applicable to the project may be in responsible charge. (CAC 7-141(a))

Note: HCAI plan review staff must provide verification that the TIO program has been "Reviewed" prior to plan approval to confirm the applicability of the tests and inspections identified in the TIO program for work scope, building systems, and the construction materials shown in the design drawings. Field staff will issue subsequent "TIO Program Approval".

The "TIO Program Approval" from HCAI field staff must be obtained and included with the notice of start of construction required by CAC Section 7-137(a)4 and 7-145(a)5.A)

Example TIO

Appropriate milestones should be added for each stage.

Add as many stages as needed for your project (50 Max)

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Testing, Inspection, and Observation Program

2022 California Building Standards Code - OSHPD 1

This program is prepared and submitted for an OSHPD 1 project. OSHPD 1 projects include all construction and remodel projects for: general acute care hospitals, acute psychiatric hospitals, and general acute care hospitals providing only acute medical rehabilitation center services (2022 CBC 1224.1).

SECTION A	PROJECT INFORMATION	
Facility #:	Facility Name:	Project #:
		Offsite Prefab MedSurg Headwall
Street Address:		
City:	County:	
Record Name (Scope of Project):		

Abbreviations:

CAC: California Administrative Code
CBC: California Building Code
CEC: California Electrical Code
CMC: California Mechanical Code
CPC: California Plumbing Code
AAMA: American Architectural Manufacturers Association
NFPA: National Fire Protection Association
FM: FM Approval Standards
DPOR: Design Professional of Record

Version: R04.38

Testing, Inspection, and Observation Stages

Stage No.	Stage Name	Stage Scope / Description
1	Off Site Prefabrication	Med Surge Patient Headwalls
2	On Site Installation	Med Surge Patient Headwalls

DESIGN PROFESSIONAL OF RECORD RESPONSIBILITY

The administration of the work of construction, including this TIO, shall be under the responsible charge of an architect and structural engineer. When a structural engineer is not substantially involved, the architect shall be solely responsible. Where neither structural nor architectural elements are substantially involved, a mechanical or electrical engineer registered in the branch of engineering most applicable to the project may

Example TIO - Tests

Testing, Inspection, and Observation Program
2022 California Building Standards Code - OSHPD 1

SECTION B

NOTE: Approved agencies, individuals, and all changes to the TIO program shall be identified, evaluated by the DPOR and approved by HCAI prior to proceeding with the related work.

Facility #: | Facility Name: | Project #: Offsite Prefab MedSurg Headwall

Stage 1: Off Site Prefabrication

OFF-SITE TESTS

Index #	Stage 1 Required (Select with "X")		Samples of Test & Inspection Reports Included	OPAA No. and Expiration Date	Responsible Approved Agency And/Or Individual (Identify Individual)	Compliance Verification by IOR (Initial/Date)	HCAI/FDD Use (Initial/Date)
ELECTRICAL TESTS							
B-E14	X	**Hospital Grade Receptacles** 2018 NFPA 99 6.3.3.2.5					
B-E15	X	**Nurse Call System** CEC 517.123					
PLUMBING TESTS							
B-P2	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.10.11.11 Qualification of brazing procedures and brazing					
B-P3	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.2.1 thru 5.1.12.2.7 Installer performed tests					
B-P4	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.2.6.7 & 5.1.12.2.7.6 Witness of 24-hour standing pressure test					
B-P5	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.3.1.1 thru 5.1.12.3.1.5 System inspection prior to concealment/cover					
B-P6	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.3.2.1 Inspection					

Testing, Inspection, and Observation Program
2022 California Building Standards Code - OSHPD 1

SECTION B

NOTE: Approved agencies, individuals, and all changes to the TIO program shall be identified, evaluated by the DPOR and approved by HCAI prior to proceeding with the related work.

Facility #: | Facility Name: | Project #: Offsite Prefab MedSurg Headwall

Stage 2: On Site Installation

ON-SITE TESTS

Index #	Stage 2 Required (Select with "X")		Samples of Test & Inspection Reports Included	OPAA No. and Expiration Date	Responsible Approved Agency And/Or Individual (Identify Individual)	Compliance Verification by IOR (Initial/Date)	HCAI/FDD Use (Initial/Date)
STRUCTURAL TESTS							
Concrete							
B-C13	X	**Post-installed anchors** CBC 1910A.5 Installation verification test (includes adhesive, shot pins and mechanical anchors)					
ELECTRICAL TESTS							
B-E1	X	**Ground Fault Protection of Equipment** CEC 230.95(C) & 517.17(D)					
B-E5	X	**Hospital Grade Receptacles** 2018 NFPA 99 6.3.3.2.5					
B-E14	X	**Nurse Call System** CEC 517.123					
PLUMBING TESTS							
B-P2	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.10.11.11 Qualification of brazing procedures and brazing					
B-P5	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.3.1.1 thru 5.1.12.3.1.5 System inspection prior to concealment/cover					
B-P6	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.3.2.1 Inspection					
B-P7	X	**Medical Gas and Vacuum** NFPA 99-2021 § 5.1.12.4 System verification					

Example TIO - Inspections

Testing, Inspection, and Observation Program
2022 California Building Standards Code - OSHPD 1

SECTION D

NOTE: Approved agencies, individuals, and all changes to the TIO program shall be identified, evaluated by the DPOR and approved by HCAI prior to proceeding with the related work.

Facility #: | Facility Name: | Project #: Offsite Prefab MedSurg Headwall

Stage 1: Off Site Prefabrication

OFF-SITE SPECIAL INSPECTIONS

Index #	Stage 1 Required (Select with "X")		Samples of Test & Inspection Reports Included	OPAA No. and Expiration Date	Responsible Approved Agency And/Or Individual (Identify Special Inspector)	Compliance Verification by IOR (Initial/Date)	HCAI/FDD Use (Initial/Date)
STRUCTURAL SPECIAL INSPECTIONS							
Steel							
D-S8	X	**Steel** CBC 1705A.2, 1705A.12.2, & 1705A.13.3 Cold-formed steel light frame construction					
FIRE PROTECTION AND LIFE SAFETY SYSTEMS SPECIAL INSPECTIONS							
D-FP3	X	**Penetration Firestops** CBC 1705A.18.1 Penetration firestop systems that are tested and listed					
OTHER SPECIAL INSPECTIONS							
D-OT3	X	**Prefab Unit loading for Transportation**					

Transportation related inspections

Testing, Inspection, and Observation Program
2022 California Building Standards Code - OSHPD 1

SECTION C

NOTE: Approved agencies, individuals, and all changes to the TIO program shall be identified, evaluated by the DPOR and approved by HCAI prior to proceeding with the related work.

Facility #: | Facility Name: | Project #: Offsite Prefab MedSurg Headwall

Stage 2: On Site Installation

ON-SITE SPECIAL INSPECTIONS

Index #	Stage 2 Required (Select with "X")		Samples of Test & Inspection Reports Included	OPAA No. and Expiration Date	Responsible Approved Agency And/Or Individual (Identify Special Inspector)	Compliance Verification by IOR (Initial/Date)	HCAI/FDD Use (Initial/Date)
STRUCTURAL SPECIAL INSPECTIONS							
Concrete							
C-C5	X	**Concrete** CBC 1705A.3 CIP & post-installed anchors					
Steel							
C-S8	X	**Steel** CBC 1705A.2, 1705A.12.2, & 1705A.13.3 Cold-formed steel light frame construction					
Nonstructural components, supports and attachments							
C-AR	X	**Architectural components** CBC 1705A.13.5 & 1705A.17 Cladding, nonbearing walls, and veneer					
FIRE PROTECTION AND LIFE SAFETY SYSTEM SPECIAL INSPECTIONS							
C-FP5	X	**Penetration Firestops** CBC 1705A.18.1 Penetration firestop systems that are tested and listed					
C-FP4	X	**Fire-Resistant Joint Systems** CBC 1705A.18.2 Fire-resistant joint systems that are tested and listed					
OTHER SPECIAL INSPECTIONS							
C-OT5	X	**Prefab Unit QC before off-load**					

Example TIO - Milestones

Testing, Inspection, and Observation Program

2022 California Building Standards Code - OSHPD 1

SECTION F		CONSTRUCTION VERIFICATION										
Facility #:	Facility Name:										Project #:	
											Offsite Prefab MedSurg Headwall	
VERIFIED CONSTRUCTION INSPECTION AND OBSERVATION REPORTING												
REFERENCE NUMBER	PROJECT STAGE(S), MILESTONE, OR INTERVAL (Clearly indicate which Stage(s) apply to which Milestone/Interval)	VERIFIED COMPLIANCE REPORT REQUIRED AS INDICATED (Form HCAI-OSH-123) (See "PERSONAL KNOWLEDGE" as defined in California Administrative Code, Section 7-151)										HCAI/FD USE
		GEOR	AOR	SEOR	MEOR	EEOR	CONT	IOR	SP INSP	TEST LAB		
	Clear all plan review Outstanding Items List (OIL) Items											
	Offsite Prefab Headwall - First prod unit		X					X	X			
	Prefab Headwall - First prod unit installation		X	X	X	X		X	X			
	Offsite Prefab Headwall - All prod unit complete							X	X			
	Prefab Headwall - All prod unit Installed		X	X	X	X		X	X			

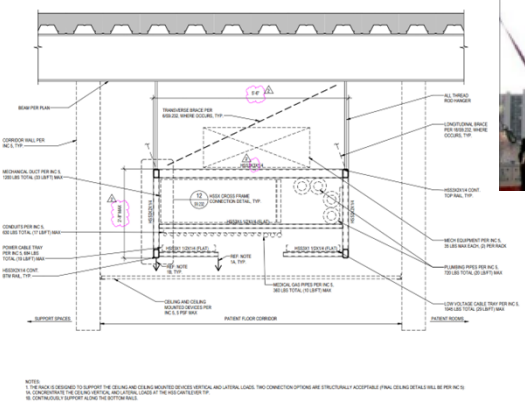
Discuss with RCO/CO on your project

55

OSHPD PCS Project Examples

56

Proposed Offsite Fabricated Overhead Corridor Utility Frame*



*Still in Review

57 HCAI Department of Health Care Access and Information

OSHPD 3 Project Components in Sacramento

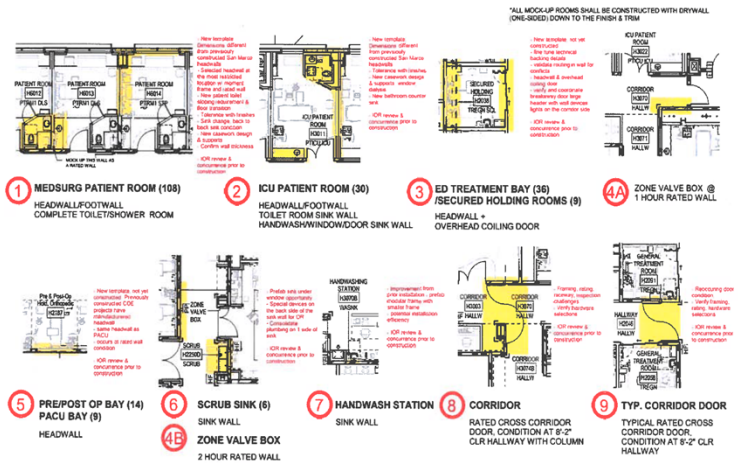
- Prefabricated Bathroom Pods
- Exterior Skin
- Prefabricated Walls
- Integrated Ceilings
- Stainless Steel Gasketed Operating Room Wall System
- In Wall MEP Cartridges

58 HCAI Department of Health Care Access and Information

OSHPD 1 Project in San Jose

- Preassembled modular chiller plant
- Onsite constraints, need for future flexibility
- Fabricated in Kingstown, Ontario, Canada
- Remaining chiller plant construction was completed in 20 working days

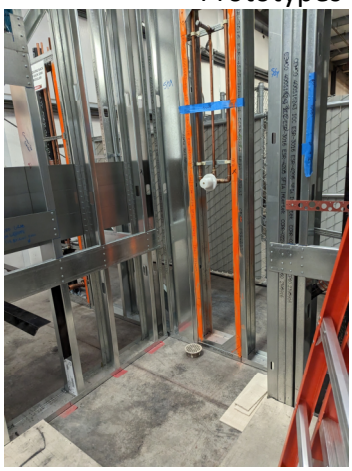
OSHPD 1 Project in Roseville



- Prototypes/mock-up created in a warehouse in Loomis.
- Design team has made many improvements in prototypes to make fabrication and fit-up easier at site.
- Prototypes will be included in the design documents (still in review). TIO will detail inspections performed at fabrication site vs. those performed at the building site.
- Actual fabrication will be in a warehouse in Roseville.

OSHPD 1 Project in Roseville

Prototypes = areas marked in orange are the prefab-assemblies



ICU Room Shower

Zone Valve Box

Handwash Stations

OSHPD 1 Project in Roseville

Prototypes = areas marked in orange are the prefab-assemblies

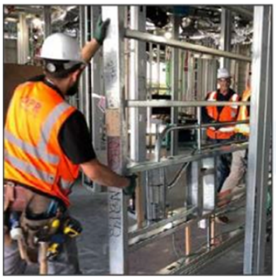
Head Wall

Foot Wall Units

Spindle Assembly

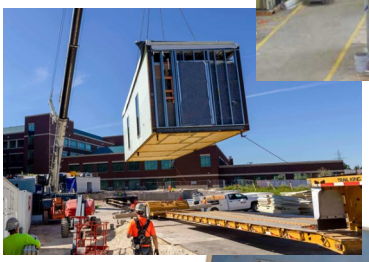
In Summary

- Prefabrication enhances quality, speed and safety in delivery
- Preassembly allows for continuous workflow during construction
- Determine volume, scope and scale of components early on
- Compare cost benefit between offsite and onsite assembly
- Secure approval from owner, design team, and OSHPD prior to committing to process



The Ask

- Work with design teams early to evaluate opportunities for prefabrication.
- Encourage manufacturers to pursue Preapproved Prefabricated Components and System Approval (PCS).
- Talk to OSHPD early on to get feedback on cost efficient ways of getting approval.



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QUESTIONS?

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