**PROJECT PROFILE INDEX & SUMMARY** 

### Battleship Row Fleet Moorings, Pearl Harbor, Hawaii

pg. 2-3 Structural Repair - Ongoing work to stabilize/repair/interpret the structures; Historic Structure Report research & writing; above/below water condition assessment; 3D digital modeling

### Penitentiary Roof Access, Alcatraz Island, California

Building Structural Repair - Stair, landing, & structural beam repair for safe roof access; overhead concrete form & pump on sloped surface; enclosed work space; night work to minimize visitor disruption

#### Red Barn, Miwok Riding Stables, Golden Gate NRA, California pg. 6-7

Building Structural Repair, Seismic Stabilization - Wood structure lifted, straightened, & placed back down on new foundation; seismic stabilization; historic material preserved; new roof over historic framing

#### Wheeler Middle School, Wheeler Army Air Field, Waliawa, Hawaii pg. 8-9

Site Construction - Site lay-out & drainage design; site preparation; new concrete slab & slab/footings for bike rack/bench; military heavy equipment operator management

### Windy Gulch, Alcatraz Island, California

Site Feature Structural Repair/Reconstruction - Reopened to public after years of closure; new 300 lb. precast concrete railing panels, cast-in place hand-rail & posts with footings into historic stair; cliff-side work area/remote location; no disturbance to nesting birds

### Hawaii Theater Center, Honolulu, Hawaii

Building Structural & Aesthetic Repair - Ongoing project in connection with community organization, exterior & interior structural, finish, and plumbing repair

### Power House, Alcatraz Island, California

Building Structural Repair - Interior/exterior façade & interior beam/column repair; historic metal windows/doors integral to facade preserved; vertical & overhead form & pressure pumped concrete

### Battery Chamberlin, Golden Gate NRA, California

Structural Repair - Advanced glass fiber composite reinforcing appropriate for conditions/in compliance with historic preservation standards; vertical & overhead form & pressure pumped concrete, new drainage system, falling concrete safety hazard in open visitor area mitigated

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INCREASING READINESS FOR OUR VETERANS, OUR INFRASTRUCTURE, OUR NATIONAL PARKS



#### pg. 4-5

Increasing Readiness for Our Veterans, Our Infrastructure, Our National Parks



### **Project Profile: Battleship Row Fleet Moorings, Pearl Harbor**

project Structural Repair: Infrastructure
objectives Military-to-Civilian Career Training, Historic Preservation, Infrastructure Advancement
team Active Duty Military Service Members
completed Ongoing
owner National Park Service
location Pearl Harbor National Monument, Oahu, Hawaii



Battleship Row Fleet Moorings



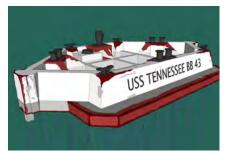
Underwater condition assessment



Assisting NPS on archaeology testing



Active duty military CPI team member



3D digital model documenting deterioration & battle damage



Pumping sand ballast out of mooring structure to allow inspection/repair



Exposed structure after sand removal



Concrete drilling to collect samples for chloride testing

- **Outcomes/Work Items:** Ongoing work to date includes Historic Structure Report writing & associated research, above & below water condition assessment, 3D digital modeling, assistance to NPS on archaeological testing, site specific safety plan, proposed repair project planning; theater building repairs
- **Special Considerations:** The historic Fleet Moorings and USS Arizona Memorial visually define Battleship Row, site of the Dec. 7, 1941 Pearl Harbor Attack; structures included in the Pearl Harbor National Memorial; CPI's program & partnerships engaging to help ensure Mooring structural durability; existing deteriorated conditions echo the effects of time, use, & environment on infrastructure throughout the U.S.

### PROJECT PROFILE details Battleship Row Fleet Moorings, Pearl Harbor



Fleet Mooring historic construction photo



used in pairs to secure battleships (CPI model)



Moorings historically Active duty military CPI team member



Safety first



**CPI Dive Team** 



CPI active duty military team with visiting military leadership on Fleet Mooring, USS Arizona memorial in background



Vertical core drilling for material material testing testing



Horizontal core drilling for



CPI team member nearing civilian transition greeting potential industry employer

### **CPI FOUNDATION PROJECT & TECHNICAL CAPABILITIES**

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- Self-perform concrete, wood, steel, & composite construction as design-build projects coordinated with owners; larger projects include self-performed work in addition to managing consultants & sub-contractors
- Repair, new construction, and historic preservation projects in urban, remote, wilderness, and marine areas include historic structures & site features; visitor & utility facilities; trails; water utility systems; projects that improve access, health, safety, & recreation, including ADA access; roads; bridges; tunnels; and parking lots
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## **Project Profile: Alcatraz Penitentiary Roof Access**

project Structural Building Repair
 objectives Military-to-Civilian Career Training, Historic Preservation, Increase Safe Access
 team Military Veterans, College Students
 completed Summer 2015
 owner National Park Service
 location Alcatraz Island, San Francisco, California



Before: extensive concrete deterioration & steel corrosion, unsafe conditions



After Below: all repairs completed from below to retain historic fabric above



After Above: stair treads & space above retain all historic fabric and character

- Outcomes: Repaired stairs, landing, & structural beams restoring safe access to sole roof entry point
- **Special Considerations:** Character-defining features maintained stair treads with their story-telling indentations from over a 100 years of foot travel were suspended in place with work completed from below; protected historic Native American wall markings on opposite wall; night work as necessary to minimize disruption of 5,000 daily visitors in adjacent spaces
- Work Items: Overhead concrete form & pump under pressure on sloped surface (commonly accepted in industry as among the most technically challenging repair methods); finish concrete to historic texture; build wood formwork & shoring; place steel reinforcing; manage enclosed space working conditions; ensure project site safety for team & NPS staff, and safety for visitors

### **CPI PROJECT PROFILE details** Alcatraz Penitentiary Roof Access



Beam formwork; new beams support repaired landing at top of stairs



Formwork & safety shoring



Historic concrete stair treads suspended in place while repairs completed from below



Team member



Concrete mixer; repairs completed at night to avoid visitor interruption



Concrete pump with hoses reaching up into confined space



Moving concreteloaded hose to next port during high-pressure pumping



CPI military veteran participant explaining project during visit from U.S. Army chain of command

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## **Project Profile: Red Barn**

project Structural Building Repair, Seismic Stabilization
objectives College Student Field Training, Historic Preservation, Owner Operational Need
team College Students & Community Volunteers
completed 2011-12
owner National Park Service
location Miwok Riding Stables, Golden Gate National Recreation Area, San Francisco, California



Before: Existing conditions, building rear



In Progress Top: New roof installation; Bottom: Splicing new wood members to historic



In Progress: Lifting entire structure to straighten, construct new foundation

After: Repairs complete, buiding rear

- **Outcomes:** Overall structure repaired, entire building lifted and placed back down on new foundation, seismic stabilization, new roof over historic framing
- **Special Considerations:** NPS goal to rehabilitate the structure for eventual use and mitigate immediate safety concerns due to location in active visitor area; CPI completed project and invited community participation during special open days; NPS staff joined the team for a "barn painting day" at project completion
- Work Items: Coordinated with local house moving company to lift entire structure; worked with structural engineer to straighten structure; preserved historic wood members when possible; added new concrete foundation; added new flooring; added interior shear strengthening, added new roof over historic framing to preserve historic appearance from inside; repaired/rebuilt barn doors

### **PROJECT PROFILE details** Red Barn



Top: Barn in lifted condition, placement of new concrete foundation: Bottom: foundation formwork



Foundation concrete placement



CPI & NPS team members



Pre-project: Historic partnering to train wood foundation rot



New foundation



Straightening the structural frame after barn lifted off foundation



Top: Existing preserved/new members



Completed roof interior, condition; Bottom: preserved historic framing & decking remain visible



Painting repaired barn with NPS staff



Celebrating achievement & hard day of work

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## **Project Profile: Wheeler Middle School**

project New Construction: Improved Access
objectives Military-to-Civilian Career Training, Operational Need
team Active Duty Military Service Members
completed Spring 2017
owner U.S. Army
location Wheeler Army Air Field, Wahiawa, Hawaii



Before: Red clay dirt/mud at entrance



In Progress: Site preparation



In Progress: Placing concrete



After: Completed project

- **Outcomes:** New sidewalk, new bike rack slab & racks, bench footings & installation
- **Special Considerations:** School located on military base; collaborated with teacher/parent association for projects identified as priorities, responded to student request for "buddy bench" footings and installation as a place for kids to meet new friends
- Work Items: Develop project plan; develop site lay-out & drainage design, manage military heavy equipment operator; coordinate with local concrete ready-mixed producer to deliver concrete; compact soil & base; place concrete & finish; build wood formwork & shoring; place steel reinforcing; ensure project site safety for team, school staff, and visitors

### PROJECT PROFILE details Wheeler Middle School



Pre-project formwork and ready-mix concrete training



Top & Bottom: Managing heavy equipment work



Preparing subgrade



Placing pipe to be embedded in concrete



Building custom formwork



Reinforcing steel placement



Measuring & cutting reinforcing



Project planning: site surveying



"Buddy bench" installed



Bike racks installed

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## **Project Profile: Windy Gulch, Alcatraz Island**

project Site Feature Repair
 objectives Military-to-Civilian Career Training, Historic Preservation, Visitor Access to Closed Area
 team Military Veterans, Active Duty Military Service Members
 completed Fall 2017
 owner National Park Service
 location Alcatraz Island, Golden Gate National Recreation Area, San Francisco, California



Before: Deteriorated conditions, no visitor access



In Progress: Precast concrete panels built offsite, moved & temporarily held in place while team built concrete posts & hand rail in place (Golden Gate Bridge in background)



After: Area now accessible for visitors

- **Outcomes:** New precast concrete railing panels, new concrete cast-in place hand-rail and posts with footings into historic stair, new railing system below stair, historic stair treads repaired, reopened to public after many years of closure
- **Special Considerations:** Difficult logistical and safety challenges working next to cliff and transporting materials, equipment, generators, and precast panels weighing nearly 300 pounds to the remote site while ensuring no disturbance to nesting birds
- Work Items: Research historic configuration, assess existing conditions, develop site specific safety plan, selective demolition, build formwork and safety barriers, install reinforcing, install wire mesh for life safety in railing panel openings

### PROJECT PROFILE details Windy Gulch, Alcatraz Island



Visit and on-site instruction from industry executive



CPI constructed safety railing in place during project



Removing formwork from completed precast panel



Transporting 300-pound precast concrete panel up hill



Work site with difficult project access from below



Completed stair railing from cliff side



Constructing walkway at base of stairs



Installing welded wire mesh for visitor safety



Completed project open to the public

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## **Project Profile: Hawaii Theater Center**

project Structural Building Repair
 objectives Military-to-Civilian Career Training, Historic Preservation, Community Service
 team Active Duty Military Service Members
 completed Spring 2019
 owner Hawaii Theater Center
 location Honolulu, Hawaii



In Progress: work at exterior of building with CPI team and public safety barriers in place



In Progress: column and soffit repairs





Before (top): structural crack; In progress (bottom): building up repair material to match profile





Before (top): cracks at door surround; After (bottom)

- **Outcomes:** Exterior & interior structural and aesthetic repairs with historically appropriate finishes
- **Special Considerations:** Connecting with community organization for historic preservation as part of CPI's Pearl Harbor National Memorial partnership
- Work Items: Plan and manage multiple simultaneous projects, repair plumbing in damage zone; interior wall; mix on-site & hand-place concrete, finish concrete to historic texture; build wood formwork & shoring; place steel reinforcing; manage safe work in enclosed space; ensure project site safety and accessibility for team, building staff, and visitors

### **PROJECT PROFILE details** Hawaii Theater Center





Assessing conditions. planning repairs



Partial depth slab repair: concrete removal; reinforcing hand placed placement



Partial depth slab repair concrete



Deteriorated concrete removal at soffit



Soffit repair



Prep for next CPI project, US Marine Memorial, Pearl Harbor Visitor Center



CPI active duty military team discussing project with clients



Team field trip to learn about high-rise building construction



The team



Repaired door surrounds at back of theater

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## **Project Profile: Power House, Alcatraz Island**

Project Structural Building Repair
 objectives Military-to-Civilian & Student Career Training, Historic Preservation, Increase Safe Access
 team Military Veterans, College Students
 completed Summer 2013
 owner National Park Service
 location Alcatraz Island, Golden Gate National Recreation Area, San Francisco, California



Before: Power House



Top: Exterior front façade in progress; Bottom: Exterior front façade repairs completed, prior to painting



Before: Interior column



In Progress: Interior column with custom fromwork for pumped concrete



After: Interior column with preserved historic material, prior to painting

- Outcomes: Repaired interior & exterior front façade, repaired interior beam & columns
- **Special Considerations:** Historic metal windows/doors originally placed integrally with façade concrete repair project included their removal/storage during selective demolition then replacement in original configuration with repair concrete material; temporary interior wood wall constructed to protect solar array batteries
- Work Items: Vertical and overhead concrete form & pump under pressure (commonly accepted in industry as among the most technically challenging repair methods); finish concrete to historic texture; build wood formwork & shoring; place steel reinforcing; preserve historic metal windows/doors; ensure project site safety & accessibility for team & NPS staff, and safety for visitors

### PROJECT PROFILE details Power House, Alcatraz Island



Interior façade existing conditions



Interior façade beam formwork



Volunteer structural engineer training team on proper placement of steel reinforcing



Scaffolding constructed by team at facade



Team member grinding surface of repairs to achieve historic texture; safety first



Historic window/deteriorated concrete



Historic window removed during construction



Deteriorated concrete removed, reinforcing steel cleaned/new steel installed



Historic window and doors reinstalled integrally with façade concrete

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## **Project Profile: Battery Chamberlin**

project Structural Building Repair
objectives Military-to-Civilian Career Training, Advanced Technology for Historic Preservation
team Active Duty Military Service Members
completed Fall 2018 & Spring 2019
owner National Park Service
location Golden Gate National Recreation Area, San Francisco, California



Before: Deteriorated condition, visitor safety compromised



After: Repairs complete



In Progress: Advanced technology glass fiber composite reinforcing for increased durability



In Progress: concrete placed via pressure pumping

- Outcomes: Repaired concrete, new drainage system
- **Special Considerations:** Water intrusion due to non-functioning drainage system and vegetation area above caused embedded steel corrosion and concrete deterioration; loss of historic fabric and falling concrete safety hazard in open visitor area; utilized advanced glass fiber composite reinforcing appropriate for conditions and in compliance with historic preservation standards in concrete repair
- Work Items: Research historic configuration, assess existing conditions, develop site specific safety plan, selective demolition, erect scaffolding & safety barriers, build formwork, install glass fiber composite reinforcing, mix/place concrete by hand in isolated areas & place concrete with pressure pumping for overall repairs; paint structure to match historic

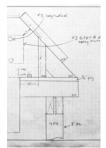
### PROJECT PROFILE details Battery Chamberlin



carbonation

testing

Condition assessment; drawing plans



Formwork drawing by military spouse team member



Composite bars & drainage pipe prior to being embedded in concrete



Work site; Golden Gate Bridge in background



Condition assessment revealed pipe installed, non-functioning drainage pipe

New drainage

later embedded in concrete



Ready mix concrete truck arrives at dawn, ahead of high visitor traffic



Concrete from ready mix truck delivered through pump and hoses; all hands on deck to manage hoses heavy with concrete



**CPI** team member interviewed by press during project

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