Emergency entrance and staff elevator tower.

Naval Regional Medical Center

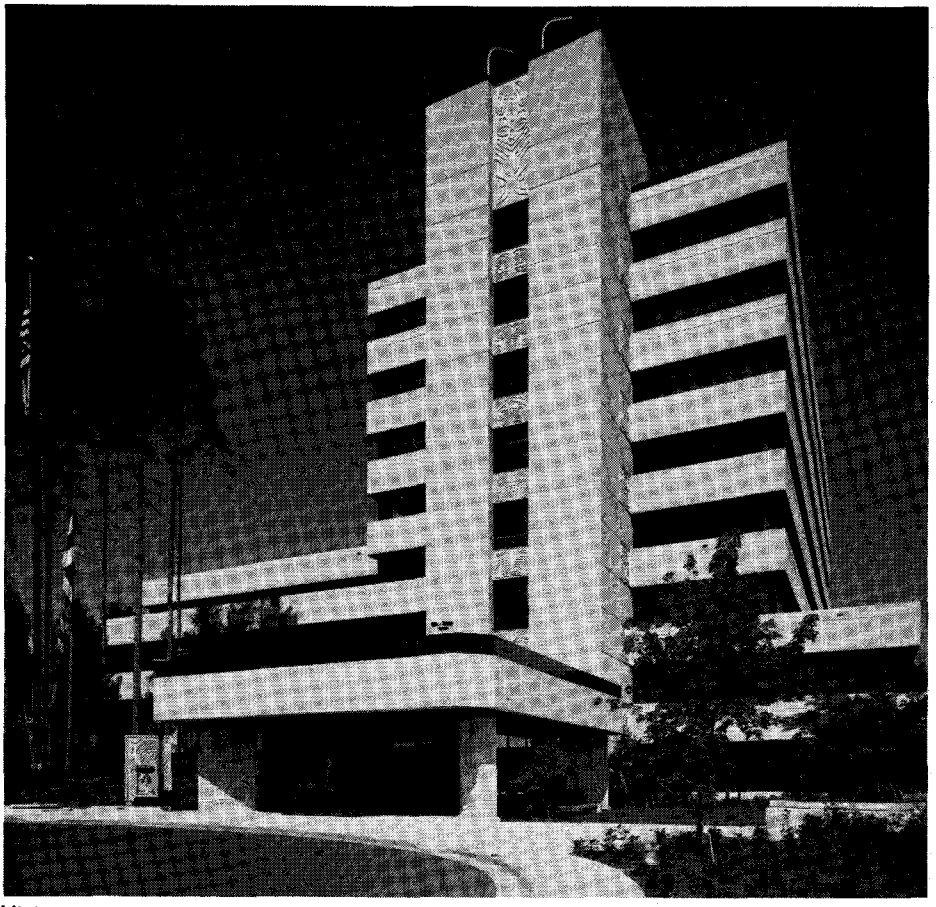
This medical center is a comprehensive facility with combined inpatient and outpatient care for Navy personnel and dependents in the Pacific Northwest. The nine-floor medical center rests on a sloping site overlooking Ostrich Bay and is surrounded by the wooded environment of the Kitsap Peninsula. The natural surroundings established the theme for the design of the medical center and for the use of warm-colored precast concrete.

This 170-bed medical center is 227,296 sq ft (21,137m^2) in area. A pedestrian bridge, which connects the medical center to an upper-level parking area, is 140 ft (42.7 m) in length.

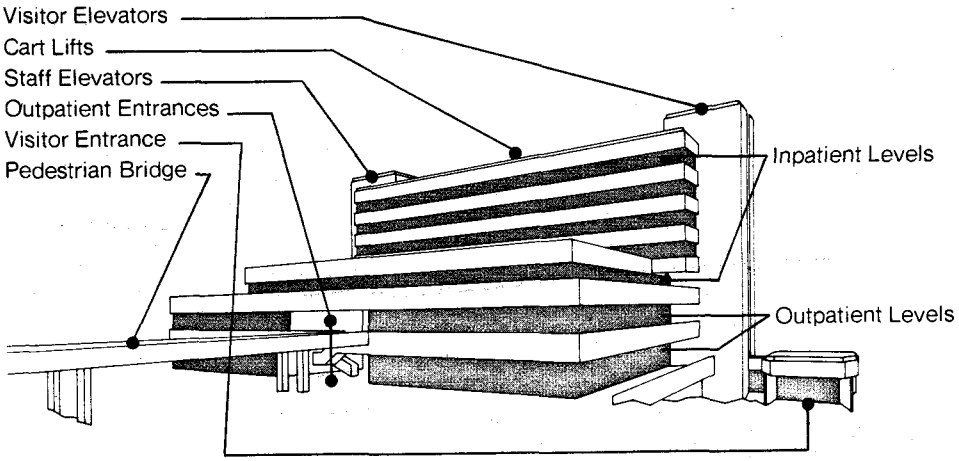
Precast concrete panels of varying sizes are supported by steel brackets that were shop fabricated as part of the main building columns. Two connnections for each panel provide support for gravity, wind, and seismic loading. All but the cap panels on the cast-in-place concrete base are prestressed by means of pretensioning.

Thirteen types of panels comprise the 488 panels used for the building, exterior stairway, and pedestrian bridge. The panels range from 6 in. to 13 ft (0.15 to 3.96 m) in width, 7 ft 6 in. to 31 ft (2.29 to 9.45 m) in length, and 2½ in. to 3 ft 9 in. (0.063 to 1.14 m) in depth. (More detailed informa-

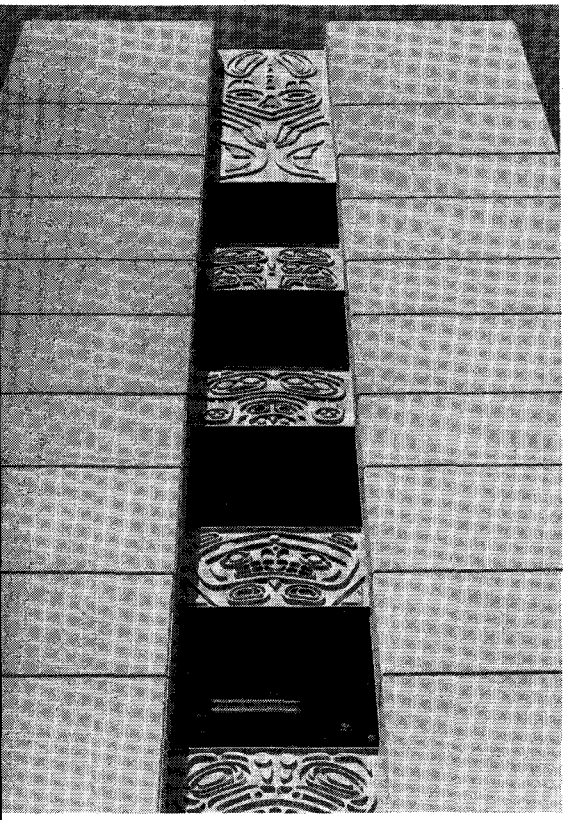
Nearly 500 architectural precast concrete panels were used imaginatively and economically for the building, exterior stairway, and pedestrian bridge of this medical center in Bremerton, Washington. A special design feature of the facility is the use of sculptured precast concrete panels, reflecting native Indian art forms of the Pacific Northwest.



Visitor entrance and elevator tower with sculptured panels.



Schematic of medical center showing outpatient entrances with exterior stairway and pedestrian bridge.



Detail of sculptured panels in center section of elevator tower.

tion on the types of panels, sizes, and quantity is shown in Table 1.)

Sculptured precast concrete panels that decorate the elevator towers and visitor entrance are a special design feature of the medical center. To reflect the native Indian heritage of the Pacific Northwest, the designs for the panels adhere to original Haida art forms, but are adapted to the size and shape of the panels.

The outdoor stairway near the outpatient entrances is another special design feature of the medical center. Four precast concrete panels were used to provide inside and outside handrails for the stairs. These panels were first erected and used as side forms for the cast-in-place stair runs and landing. The landing and stair runs are freestanding and cantilever from the foundation.

Special Design Advantages

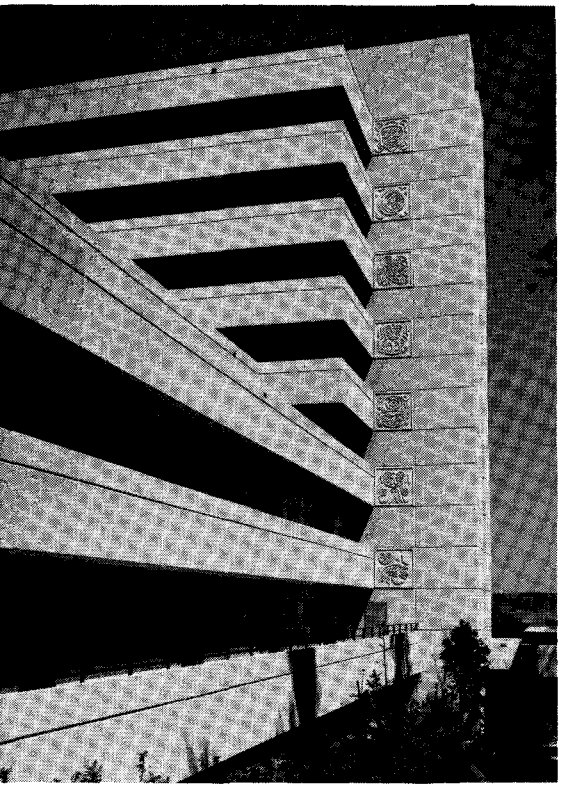
The 488 separate precast concrete panels of the medical center produce a uniform, weathertight exterior that reflects a sensitivity to the natural surroundings of the site. The use of precast concrete for the building, exterior stairway, and pedestrian bridge provides a number of

TABLE 1. SUMMARY OF TYPE, SIZE, AND QUANTITY OF PRECAST CONCRETE COMPONENTS.

The 488 precast concrete panels used for the building, exterior stairway, and pedestrian bridge include the following types of panels:

Type	Size	Quantity
1. Building Panels		
U-shaped spandrel panels	8 ft x 2 ft - 3 ft 6 in. x 24 ft - 30 ft	107
L-shaped parapet panels	5 ft 5 in. - 7 ft 7 in. x 2 ft 1 in. - 3 ft 9 in. x 24 ft - 30 ft	117
Cap panels	6 in. - 2 ft 6 in. x 10 in. - 2 ft x 24 ft - 30 ft	60
Trim shapes (miscellaneous)	2 ft - 5 ft x 10 in. - 2 ft 1 in. x 24 ft - 30 ft	19
	5 ft 4½ in. x 3 ft 6 in. x 12 ft - 30 ft	8
Flat panels (the base for some sculptured panels)	8 ft - 13 ft 6 in. x 5 in. x 23 ft - 30 ft	87
U-shaped panels with window (the base for some sculptured panels)	8 ft 8 in. x 5 in. x 13 ft 6 in. - 31 ft	10
2. Sculptured Panels		
Dragonfly pattern (center, top of towers)	7 ft 10 in. x 22 ft 7½ in. x 2½ in.	2
Storage chest patterns (center of towers below dragonfly)	6 ft x 7 ft 10 in. x 2½ in.	12
Sun, moon, raven, copper, frog, beaver, killer whale, and bear patterns (sides of towers)	7 ft 6 in. x 7 ft 6 in. x 2½ in.	30
Sun with the healing hand of the physician, moon with raven, copper with frog, and beaver with whale patterns (visitor entrance panels)	10 ft 11½ in. x 7 ft 2 in. x 2½ in.	8
3. Bridge and Exterior Stairway Panels		
U-shaped bridge panels	4 ft 3 in. x 2 ft x 17 ft - 20 ft	16
L-shaped bridge column panels	12 ft 3 in. x 2 ft 3 in. x 13 ft	8
Main stairway panels	5 ft 6 in. - 13 ft 8 in. x 5 in. x 12 ft 4 in. - 19 ft 6 in.	4

Note: 1 ft = 0.305 m; 1 in. = 25.4 mm.



Detail of sculptured panels on side of elevator tower.

advantages over other materials and techniques.

The uniformity of color and textured surface required by the design was best achieved with the quality control and techniques obtainable in precast concrete production. Color and texture also remain uniform in quality for a long period with minimal maintenance. Use of prestressing in all but the small cap panels helps maintain a crack-free surface and, therefore, a long-lasting quality exterior.

Precast Concrete

Because future expansion of the medical center was part of the design requirements, a steel frame with precast panels was selected. This type of structural system provides more flexibility than other systems for modifying the structure with the least amount of disturbance and with the maximum reuse of existing exterior wall components.

The precast panels were erected immediately after the steel frame construction, thereby minimizing the time required for enclosing the building. On-site storage requirements were reduced because the precast panels were erected as they were delivered.

In selecting precast concrete as the exterior material, the design team also considered two additional factors: the cost of materials and the casting of fine art forms.

To attain the texture and color required by the design, a sophisticated face mix of buff cement, warm brown sand, and buff aggregate was selected. With precasting, the expensive face mix could be placed in a mold and a less expensive mix used as backing, thereby reducing the amount of expensive mix that site-casting would have required.

Sculptured Panels

Precasting also was the most effective way to attain the fine quality of sculptured panels required by the design. The relief patterns, which are authentic Haida Indian designs, were sculptured in reverse images from 2 x 4-ft (0.61 x 1.22 m) pieces of styrofoam. The styrofoam pieces were anchored within the forms for the precast panels that comprise the tower facade and the freestanding sculptures of the visitor entrance. Steel reinforcement was installed into the forms and the concrete placed. When the forms were removed from the castings, the embedded styrofoam was sandblasted out of the concrete, leaving the finished surface of the sculptures.

The 52 sculptured panels are an integral part of the two elevator towers and the visitor entrance. The sides of both towers are decorated with totemic symbols of the Haida tribe. The symbols, from top to bottom, represent the sun, moon,

Sculptured panels of visitor entrance after casting by manufacturer.

raven, copper, frog, beaver, killer whale, and bear. In the center of each tower at the top is the symbol of the dragonfly, below which are six stylized reproductions of Haida storage boxes. The dragonfly was adapted from a design on a Haida oval argillite bowl to the rectangular form of the concrete panel.

The visitor entrance is bordered by freestanding sculptured panels with different designs on each side. The designs, originally used by the Haida as house posts, represent the sun with the healing hand of the physician, the moon with raven, copper with frog, and beaver with killer whale.

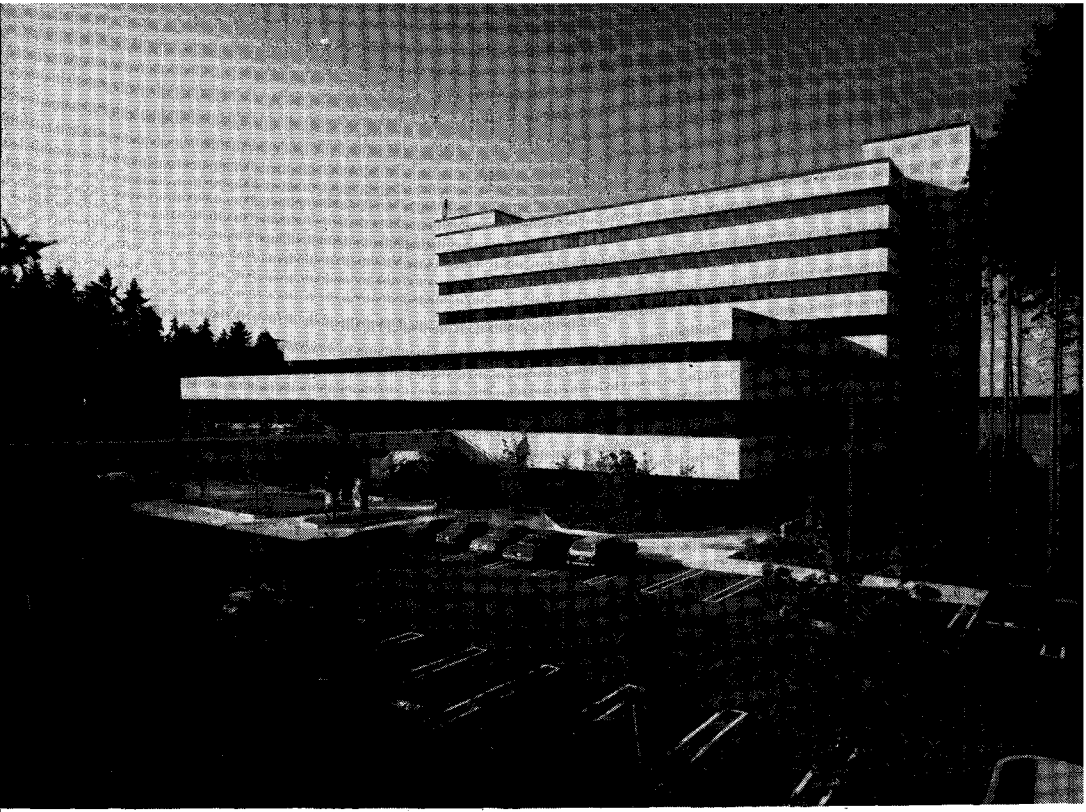
The sculptured panels and the texture of the warm, buff-colored exterior evoke an architectural sensitivity to the natural surroundings and artistic traditions of the area, thereby becoming a special design feature that enhances the appearance of the entire medical center.

During the past year and a half the sculptured native Indian art forms have drawn considerable public interest.

Cost

The total cost of the medical center was about $25,200,000. Out of this, the cost of the precast concrete work, including the sculptures design fee, comprised about $570,000 (spring 1977 prices). Note that this figure does not include the delivery and erection costs.

The medical center was substantially completed in January 1980.



Outpatient entrances with exterior stairway and pedestrian bridge to upper-level parking area. (Naval Regional Medical Center, Bremerton, California.)

Credits

Architect/Engineer: John Graham/Sherlock, Smith & Adams—A Joint Venture.

John Graham Company, Architects • Planners • Engineers, Seattle, Washington.

Sherlock, Smith & Adams, Inc., Architects and Engineers, Montgomery, Alabama.

Owner: U.S. Navy, Naval Regional Medical Center, Bremerton, Washington.

Precast Concrete Manufacturer: Concrete Technology Corporation, Tacoma, Washington.

Sculptor: Oliver Tiedeman, Sculptor/Acrylicist/Muralist, Tacoma, Washington.

Photographers:

Tim Gohrke, Tim Gohrke/Photographer, Redmond, Washington.

Walter Conner, Walter Conner Photography, Bellevue, Washington.

Dudley, Hardin & Yang, Inc., Seattle, Washington.

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