REFERENCE CARDS

KEYWORDS: bridges; construction; cost, design (structural); durability; Maryland; post-tensioned decks; precast concrete; prestressed concrete; replacement; rural highways; slab bridges.

ABSTRACT: Discusses the decision making process involved in the use of precast/prestressed concrete slab bridges for the replacement of structurally deficient bridges in the state of Maryland. Presents the costs associated with constructing four such bridges and discusses the economic efficiency of precast and prestressed concrete.

REFERENCE: Narer, John W., "A New Generation of Precast Prestressed Concrete Slab Bridges for Maryland's Rural Highways," PCI JOURNAL, V. 42, No. 3, May-June 1997, pp. 16-21.

KEYWORDS: architectural precast concrete; balustrades; bridges; bridge decks; brackets; construction; cost; erection; history; post-tensioned construction; precast concrete; prestressed concrete; production; rehabilitation.

ABSTRACT: Precast/prestressed concrete was used very effectively from an architectural, structural, constructability and cost viewpoint to rehabilitate the 75-year-old Hillhurst (Louise) Bridge in Calgary, Alberta, Canada. This historic five-span, spandrel wall arch structure is 172.21 m (565 ft) long with the length of each clear span equal to 32.0 m (105 ft). The total deck width is 19.6 m (64.3 ft). In the rehabilitation work, the following precast concrete components were used: (1) Precast, prestressed concrete deck panels; (2) Precast concrete sidewalk support brackets; and (3) Precast concrete architectural balustrades. Erection of the precast concrete components took only 3½ months, finishing the project a week ahead of schedule. The total cost of rehabilitating the bridge was $5.1 million (Canadian).

REFERENCE: Rust, S. John, "Rehabilitation of Historic Hillhurst (Louise) Bridge," PCI JOURNAL, V. 42, No. 3, May-June 1997, pp. 22-31.

KEYWORDS: architectural precast concrete; bracing; buildings; cladding panel; committee report; composite panels; connections; connector; cracking; design (structural); detailing; erection; fire resistance; handling; high-rise buildings; industrial buildings; inspection; insulation; justice facilities; loadbearing panels; office buildings; performance; precast concrete; prestressed concrete; production; reinforcement; repair; sandwich wall panels; shear walls; shipping; storage; stressing; thermal properties; tolerances; wall panels; wythes.

ABSTRACT: The purpose of this report is to present to the architect, engineer, contractor, precast/prestressed concrete producer and owner current, well tested North American practices concerning uses, design, detailing, manufacturing and thermal performance of sandwich wall panels. Sandwich panels provide economic, attractive and energy efficient hard walls, and are found in virtually every type of structure including residential buildings, low-temperature environments, controlled atmospheres, warehouses, industrial buildings and justice facilities. The chapters include: applications; design and detailing considerations; insulation and thermal performance; manufacture of panels; product tolerances, cracking and repairs; handling, shipping and storage of panels; erection of panels; inspection of panels; and a bibliography. In the March-April issue, the first eight chapters were published. This issue contains the detailed calculations of six design examples.

REFERENCE: PCI Committee on Precast Sandwich Wall Panels, "State-of-the-Art of Precast/Prestressed Sandwich Wall Panels," PCI JOURNAL, V. 42, No. 3, May-June 1997, pp. 32-49.