

# BRIDGE & STRUCTURES ARCHITECTURE

## BRIDGE ARCHITECT SERVICES

## WSDOT BRIDGE ARCHITECT SERVICES

### State Bridge and Structures Architect Bridge and Structures Office

#### PRELIMINARY PLANS & PROCEDURES

Manages the Architecture Applications for the Bridge and Structures Office. The State Bridge and Structures Architect is responsible for the aesthetic quality of the architecture composition of statewide transportation bridges and structures by developing aesthetic policy, providing visual and conceptual guidance for the statewide design of bridge and transportation structures, such as tunnels, retaining walls, noise walls and barriers, sign structures, luminaries, and SC&DI attachments. Approves all bridge preliminary plans for conformance to the architectural requirements.

#### RETAINING WALLS & NOISE WALL FINISHES

As an experienced Bridge Design Engineer performs intricate structural design tasks for complex structures (curved steel plate girder bridges, segmental bridges, floating bridges or for major bridge rehabilitation or retrofit) for the State Bridge Design Engineer and design unit supervisors.

#### PRESENTATION DRAWINGS

As the State Bridge and Structures Architect and Bridge Design Engineer works with the Regions and Headquarters determining advance planning, scheduling, and coordination of project requirements and supervises and directs the preparation of conceptual bridge plans and schematic plans for proposed transportation structures. Participates in interdisciplinary design teams.

#### CORRIDOR GUIDELINES & MEGA PROJECTS

Supervises the preparation of visual imaging sketches, exhibits, and models of proposed bridges and transportation structures for presentation to the public, Transportation Commission, executive management, and Regions.

#### LOCAL AGENCIES

Supervises the preparation of the state, regional, and national awards program applications for bridge and transportation projects

#### NEW PRODUCTS, AWARDS....ETC

Coordinates with the Transportation Improvement Board and the Highway and Local Programs Office on local agency projects. Assists and provides design guidance to counties and cities relating to their transportation projects.

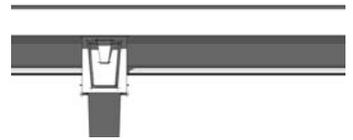
## BRIDGE DESIGN MANUAL AND WSDOT DESIGN MANUAL CHAPTERS TO REMEMBER

- BDM 1.2.2 G
- BDM 2.1.5 A (6)
- BDM 2.2.6 A
- DM 730.04(5), 06
- DM 740.04
- DM 950

## REFERENCE TO WSDOT POLICIES AND PROCEDURES WITH RESPECT TO BRIDGE ARCHITECTURE

The services of the State Bridge and Structures Architect are documented in the *WSDOT Bridge Design Manual and the Design Manual*.

The following pages contain short descriptions of each manual section.



**BRIDGE DESIGN MANUAL 1.2.2 (G) RESPONSIBILITIES**

The State Bridge and Structure Architect is responsible for:

- Reviewing and approving Preliminary Plans
- Renderings
- Models
- Coordinating aesthetic activities with Regions
- Other duties to improve aesthetics
- Approving design phase changes to architectural details.



**BRIDGE DESIGN MANUAL 2.1.5 (A) TYPE, SIZE & LOCATION STUDIES**

The State Bridge and Structures Architect should be consulted early in the TS&L study period.

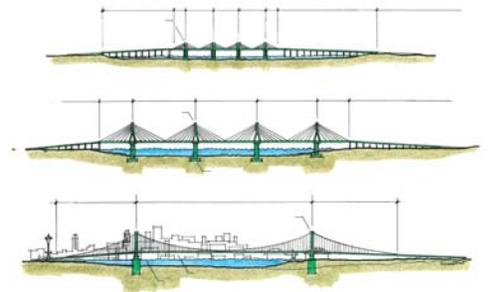
“Notes to the File” should be made documenting the aesthetic requirements and recommendations of the State Bridge and.....

**Bridge Design  
Manual  
References to  
the Bridge  
Architect**

**BRIDGE DESIGN MANUAL 2.2.6 (A) PRELIMINARY PLANS**

For the preparation of preliminary plans the Architect (and Specialists)

- Involve architect early in plan development.
- Designers provide print of plan prior to checking.
- Architect reviews, approves, signs and dates plan for job file.
- Repeat review process for revisions affecting aesthetics.
- Architect develops coordinated architectural concept for large multiple bridge projects.
- Architect approval appears in title block.



**WSDOT DESIGN MANUAL 730.04(5),06 RETAINING WALLS**

See Bridge Design Manual 2.3.6 for references to WSDOT Design Manual. See flowchart in DM figure 730-4a & b.

The Bridge Architects involvement in retaining wall design follows:

- Region initiates process except for walls developed in bridge preliminary plan. Coordination between region, Bridge Office, Geotechnical Branch and Bridge Architect must occur early.
- Standard & Proprietary Walls: Region coordinates with Architect for final wall selection. Region prepares the PS&E.
- Non Proprietary & Non Standard Walls (soil nail): Bridge Office coordinates with Geotech & Architect for final wall selection. Bridge Office prepares PS&E.
- Architect approves all retaining wall finishes, materials & configuration.



**WSDOT DESIGN MANUAL 740.04 NOISE BARRIERS**

The Architects involvement in noise barriers is as follows:

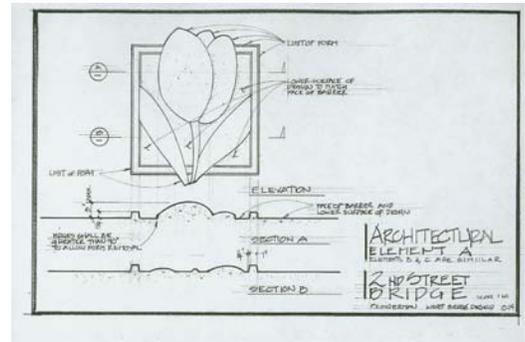
- The Region is responsible for interdisciplinary teams for consultation with noise specialists, maintenance, Region Landscape Architects, R.O.W. , Bridge Office, Bridge Architect and others.
- Region sends data and Architect provides list of standard, draft standard and pre-approved proprietary walls.
- Architect approves appearance, finish, materials and configuration of noise barriers.

WSDOT Design Manual references to the Bridge Architect

**WSDOT DESIGN MANUAL 950 PUBLIC ART POLICY**

The Architects involvement in public art is as follows:

- Where local agencies or citizen groups provide funding, WSDOT may become involved in public art. In these cases the Architect serves on specialty teams and approves public art.



# LITERATURE

## WSDOT

*Bridge Aesthetics Around the World* Transportation Research Board  
*Spanning Washington* Craig Holstine and Richard Hobbs  
*The Freeway in the City* Urban Advisors to FHWA  
*Esthetics in Concrete Design* Watson & Hurd  
*The Tower and the Bridge* David Billington  
*Santiago Calatrava* Tzonis & Donadei  
*Bridging, Discovering the Beauty of Bridges* Robert Cortright  
*30 Bridges* Matthew Wells  
*Robert Maillart's Bridges* David Billington  
*Aesthetics and Technology in Building* Pier Luigi Nervi  
*Bridge Design Aesthetics and Developing Technologies* Bacow & Kruckemeyer

## HISTORIC VARIATIONS ON A THEME

FORM FOLLOWS FUNCTION

LOUIS SULLIVAN 1910

FORM IS IDENTICAL WITH FUNCTION

GAUDI 1910

FORM FOLLOWS FORMULA

FRANZ DISCHINGER 1930

WHO CARES PEOPLE WANT BOTH

FRANK LLOYD WRIGHT 1940

FORM FOLLOWS FUNDING

PHILLIP JOHNSON 1970

FUNCTION FOLLOWS FORM

DAVID BILLINGTON 1980

Tacoma Narrows Concept  
Drawing 1930's

