



BRIDGE DESIGN PRECERTIFICATION

Jamie F. Farris, PE



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Licensure Requirement

- Minimum requirements for licensure - applicant must be licensed in one of the 50 United States or territories
- For a PE, the minimum requirement may also be met if the applicant is licensed in Canada or in the United Mexican States.
- Input the earliest license obtained with date the license was first acquired



Bridge Design Definition

- Bridge Design in terms of precertification means the person applying for precertification has designed the bridges personally
 - Design superstructure
 - Design substructure
- Does not include:
 - Checking
 - Managing a bridge design project
 - Managing a bridge construction project
 - Organizing the bridge sheets
 - GEC



Bridge Design Categories

- 5.1.1 Minor Bridge Design
- 5.2.1 Major Bridge Design
- 5.3.1 Multi-Level Interchange Design
- 5.4.1 Exotic Bridge Design



Bridge Design Categories

- 5.1.1 Minor Bridge Design

Category Description	Certification Requirements
This category includes the design of conventional, non-complex bridges, bridge replacements, simple bridge widening, railroad overpasses, non-standard retaining walls, and pedestrian bridges.	The firm must employ one professional engineer with a minimum of <u>two years structural bridge</u> design experience after licensure as a professional engineer.

2 years after licensure

Structural Bridge Design

Bridge Design Categories

▪ 5.2.1 Major Bridge Design

Category Description	Certification Requirements
This category includes the design of bridges with complex geometry, complexity of design, spans less than 350 feet, non-conventional substructures, substructures requiring ship impact design, design of dolphins for bridge pier protection, railroad underpasses, complex bridge widening, steel truss spans, and concrete arch bridges.	The firm must employ one professional engineer with a minimum of <u>five years of structural bridge design</u> experience after licensure as a professional engineer.

5 years after licensure

Structural Bridge Design

Bridge Design Categories

- 5.3.1 Multi-Level Interchange Design

Category Description	Certification Requirements
This category includes design of bridges with three levels or more.	The firm must employ one professional engineer with a minimum of <u>seven years</u> of structural bridge design experience <u>in multi-level interchanges</u> after licensure as a professional engineer.

7 years after licensure

In Multi-level Interchanges

Bridge Design Categories

- 5.4.1 Exotic Bridge Design

Category Description	Certification Requirements
This category includes the design of bridges with spans greater than 350 feet, suspension bridges, cable-stayed bridges, precast, post-tensioned segmental bridges, bridges requiring unique analytical methods, and movable bridges.	The firm must employ one professional engineer with a minimum of <u>seven years of structural bridge design experience in exotic bridge design</u> after licensure as a professional engineer.

7 years after licensure

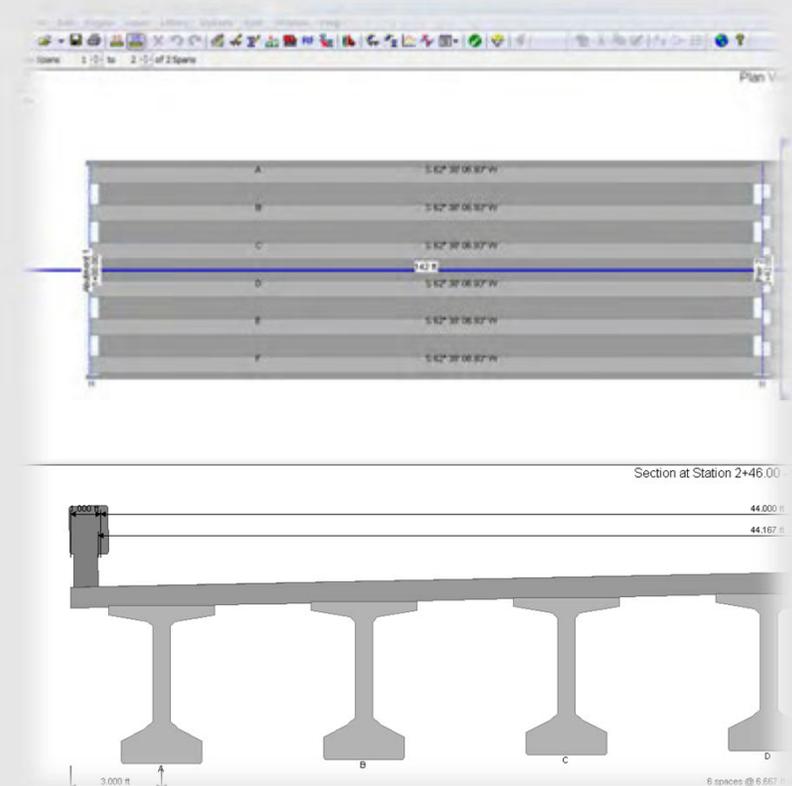
In Exotic Bridge Design

Application Tips

- Be descriptive, be descriptive, be descriptive
- Fill out the Description of Work
- Only state what applicant personally worked on in Description of Work
- Bridge description
 - Superstructure type – prestressed concrete, steel, cable stay, arch, truss...
 - Span lengths
 - Geometry – straight or curved; skewed
 - Substructure type – multi-column, single column, inverted-tee, post-tensioned
- For 5.3.1, state number of levels for the interchange

Application Tips

- Total Project Duration – should be the amount of time applicant worked on the design, not the entire design and construction duration
- Units – helpful if they are in English
- Years of experience and Description of Work should be experience in bridge design:
 - NOT Bridge Retrofits
 - NOT Bridge Inspection
 - NOT Bridge Layouts
 - NOT Buildings
 - NOT Feasibility Studies
 - NOT Hydraulics
 - Etc.



Example 1

5.1.1

Category of Work (5.1.1) MINOR BRIDGE DESIGN

Description of Work Completed in This Category

REVIEWED DESIGN OF BRIDGES AS A MEMBER OF DESIGN-BUILT TEAM AT ALL DESIGN STAGES. PROVIDE SOLUTIONS TO BRIDGE NCRS

REVIEWED DESIGN OF BRIDGES AS A MEMBER OF DESIGN-BUILT TEAM AT ALL DESIGN STAGES...

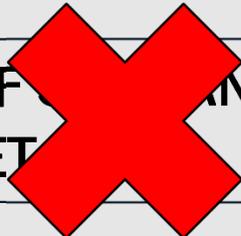
NOT DESIGN – THIS PROJECT WOULD NOT BE ACCEPTED TOWARDS PRECERTIFICATION

Example 2

5.2.1

Category of Work (5.2.1) MAJOR BRIDGE DESIGN
Description of Work Completed in This Category
DESIGN OF 35 SPANS OF STRUCTURE STRETCHING ACROSS 6,295 FEET.



DESIGN OF  SPANS OF STRUCTURE STRETCHING ACROSS 6,295 FEET



NO DESCRIPTION OF TYPE OF BRIDGE – THIS PROJECT WOULD NOT BE ACCEPTED TOWARDS PRECERTIFICATION

Example 3

5.3.1

Category of Work (5.3.1) MULTI-LEVEL INTERCHANGE DESIGN

Description of Work Completed in This Category

PROVIDED QC FOR LAYOUT & BRIDGE DESIGN OF A 4 LEVEL FLYOVER BRIDGE OVER SH

PROVIDED QC FOR LAYOUT & BRIDGE DESIGN OF 4 LEVEL FLYOVER BRIDGE OVER SH.

NO DESCRIPTION OF TYPE OF BRIDGE –
IS THIS QC OF THE LAYOUT ONLY OR LAYOUT AND DESIGN?
THIS PROJECT MAY NOT BE ACCEPTED TOWARDS
PRECERTIFICATION, IF MORE DESCRIPTION IS NOT GIVEN IN THE
PROJECT GENERAL DESCRIPTION

Example 4

5.2.1

Category of Work (5.2.1) MAJOR BRIDGE DESIGN

Description of Work Completed in This Category

REVIEWED PAVEMENT DESIGN FOR [REDACTED] DR OVERPAS AND AN [REDACTED] EBFR DETOUR AT [REDACTED] INTERCHANGE

REVIEWED PAVEMENT DESIGN FOR OVERPASS AND EBFR DETOUR

PAVEMENT DESIGN IS NOT BRIDGE DESIGN
REVIEWING DOES NOT COUNT AS DESIGNING
- THIS PROJECT WOULD NOT BE ACCEPTED TOWARDS
PRECERTIFICATION

Example 5

5.3.1

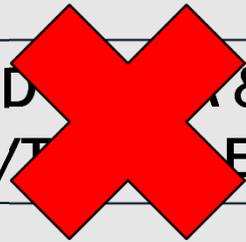
Category of Work (5.3.1) MULTI-LEVEL INTERCHANGE DESIGN

Description of Work Completed in This Category

I PROVIDED QC/QA & PEER REVIEWS OF THE DESIGN. CHECKED/ TROUBLESHOOTING CONSTRUCTABILITY.



I PROVIDED QC/QA & PEER REVIEWS OF THE DESIGN.
CHECKED/ TROUBLESHOOTING CONSTRUCTABILITY.



**NOT DESIGN – THIS PROJECT WOULD NOT BE ACCEPTED
TOWARDS PRECERTIFICATION**

Example 6

Project Name:	[REDACTED] EXTENSION OF NB & SB MAINLANES
Location:	[REDACTED], TX
Date Began:	04 / 01 / 2014
Date Completed:	09 / 01 / 2016
Total Project Duration Represented in Days:	884
Total Project Duration Represented in Months:	28.52
Total Project Duration Represented in Years:	2.38

Project General Description

STRUCTURAL ENGINEER RESPONSIBLE FOR THE ENTIRE CONCRETE SECTION OF 2700-FT BRIDGE CROSSING OVER [REDACTED] ROAD. I WORKED CLOSELY W/ROADWAY ENGINEERS TO DETERMINE LOCATIONS OF BENTS & TO FINALIZE LIMITS OF BRIDGE. VERIFIED AND WORKED WITH ROADWAY ENGINEER TO MODIFY VERTICAL PROFILE.

STRUCTURAL ENGINEER RESPONSIBLE FOR THE ENTIRE CONCRETE SECTION OF 2700-FT BRIDGE CROSSING OVER XXX ROAD. I WORKED CLOSELY W/ ROADWAY ENGINEERS TO DETERMINE THE LOCATIONS OF BENTS & TO FINALIZE LIMITS OF BRIDGE. VERIFIED AND WORKED WITH ROADWAY ENGINEER TO MODIFY VERTICAL PROFILE.

Example 6

Project Name:	[REDACTED] EXTENSION OF NB & SB MAINLANES
Location:	[REDACTED], TX
Date Began:	04 / 01 / 2014
Date Completed:	09 / 01 / 2016
Total Project Duration Represented in Days:	884
Total Project Duration Represented in Months:	28.52
Total Project Duration Represented in Years:	2.38

Project General Description

STRUCTURAL ENGINEER RESPONSIBLE FOR THE ENTIRE CONCRETE SECTION OF 2700-FT BRIDGE CROSSING OVER [REDACTED] ROAD. I WORKED CLOSELY W/ROADWAY ENGINEERS TO DETERMINE LOCATIONS OF BENTS & TO FINALIZE LIMITS OF BRIDGE. VERIFIED AND WORKED WITH ROADWAY ENGINEER TO MODIFY VERTICAL PROFILE.

Category of Work (5.1.1) MINOR BRIDGE DESIGN

Description of Work Completed in This Category

SPAN LENGTHS?

Category of Work (5.2.1) MAJOR BRIDGE DESIGN

Description of Work Completed in This Category

STRAIGHT OR CURVED?

STEEL OR CONC?

Category of Work (5.3.1) MULTI-LEVEL INTERCHANGE DESIGN

Description of Work Completed in This Category

NO. OF LEVELS?

NOT ENOUGH INFORMATION TO DETERMINE – THIS PROJECT WOULD NOT BE ACCEPTED TOWARDS PRECERTIFICATION

Example 7

5.3.1

Project Name:	RECONSTRUCTION
Location:	
Date Began:	03 / 16 / 2007
Date Completed:	11 / 01 / 2009
Total Project Duration Represented in Days:	960
Total Project Duration Represented in Months:	30.97
Total Project Duration Represented in Years:	2.58

Project General Description

RECONSTRUCTION AND WIDENING OF THE 6 LANE HIGHWAY WITH BRIDGE RECONSTRUCTION, RETAINING AND NOISE WALL CONSTRUCTION AS WELL AS DESIGN OF RAMP J WITH A SUPERSTRUCTURE OF 3 UNITS A TOTAL OF 2390 FEET LONG, EACH UNIT ABOUT 770 FEET LONG MAX SPAN OF 280 FEET A CONTINUOUS PLATE GIRDER DESIGN.

Category of Work (5.3.1) MULTI-LEVEL INTERCHANGE DESIGN

Description of Work Completed in This Category

DESIGN OF 2390 FEET LONG SUPERSTRUCTURE, (3 UNITS EACH UNIT 770 FEET LONG) CONTINUOUS PLATE GIRDER DESIGN.

- Span length dimensions ✓
- Continuous plate girder ✓
- Number of Levels ✗

Example 8

Category(s) Of Work Covered In This Project	
5.1.1	

PROJECT SELECTION MENU

PROJECT 4 ▼

Project Name:	
Location:	
Date Began:	10 / 01 / 2012
Date Completed:	03 / 12 / 2013
Total Project Duration Represented in Days:	162
Total Project Duration Represented in Months:	5.23
Total Project Duration Represented in Years:	0.44

Project General Description

DESIGNED THE PRESTRESSED CONCRETE SLAB BEAMS, CALC NECESSARY HAUNCH THICKNESS, CALC BEARING SEAT ELEVATIONS, DESIGNED ABUTMENT & INTERIOR BENT CAPS, CALC THE NECESSARY SKIN FRICTION FOR DRIVEN PILE FOUNDATION, & CALC ALL RELATED BRIDGE QUANTITIES FOR THIS PHASED BRIDGE REPLCMNT.

Category of Work (5.1.1) MINOR BRIDGE DESIGN
Description of Work Completed in This Category
DESIGN OF PHASED BRIDGE REPLACEMENT.

- Beam Type ✓
- Clear that applicant performed the design ✓
- Description of Work ✓
- Bridge Type suitable for category ✓

Summary

- Input the earliest license obtained with date the license was first acquired
- Bridge Design = designing bridges
- The certification requirements are number of years experience after licensure
- Be descriptive and fill out the Description of Work
- Only state what applicant personally worked on in Description of Work

Questions?

Jamie F. Farris, PE
Jamie.Farris@txdot.gov
512-416-2433

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