

**CDOT's Construction Engineer In Responsible Charge  
Information Document  
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## PURPOSE

The purpose of this document is to provide information and guidance regarding the Engineer in Responsible Charge (EIRC) duties as they relate to construction of CDOT's projects.

## BACKGROUND

The State Board of Licensure for Architects, Professional Engineers, and Professional Land Surveyors (The Board) is charged by Colorado Statute with the oversight of Professional Engineers in Colorado. The By Laws and Rules (By Laws) is a document through which the Board presides over and utilizes to perform oversight. This document is intended to provide additional information to assist CDOT's managers, supervisors, and construction staff in how to apply the By Laws to CDOT's specific business practices. T.

## AUDIENCE

Individuals who should become familiar with this document are:

1. All staff who have responsibilities related to construction administration. This includes Project Engineers, Resident Engineers, Assistant Project Engineers, Inspectors, Materials Testers, Engineers in Responsible Charge for design, and consultant construction staff and firms.
2. Individuals who make decisions regarding staffing of construction projects.
3. CDOT Management; those who have responsibilities toward shaping staffing of CDOT.

## DEFINITION OF ENGINEER IN RESPONSIBLE CHARGE

This document is intended to convey information regarding EIRC for construction. To do that we must provide some information regarding EIRC's for design.

There are EIRC's in the design phase. They can be the Engineer of Record (see By Laws) or an engineer working for the Engineer of Record. The Engineer(s) of Record do have EIRC responsibilities during construction. But, per CDOT's structure these engineers typically do not have construction observation and compliance responsibilities. Their EIRC responsibilities during construction are limited to addressing changes to their design. Construction Project Engineer's and construction EIRC's are responsible for notifying design EIRCs of potential changes to the design.

For one to obtain a complete understanding of EIRC one should read the By Laws. In very general terms section 3.1.1 of the By Laws defines the concept.

*"Licensees shall at all times recognize that their **primary obligation** is to protect the safety, health, property, and welfare of the public."*

Below is more key information in the By Laws:

**"Responsible Charge of Engineering.** The Board shall interpret "responsible charge" of engineering, as defined in Section 12-25-102(14), C.R.S., as follows.

*“Responsible charge” of engineering shall mean that degree of control an engineer is required to maintain over engineering decisions made personally or by others over which the engineer exercises supervisory direction and control authority.*

**(a)** *The degree of control necessary for an engineer to be in responsible charge shall be such that the engineer:*

*(i) Personally makes engineering decisions, or personally reviews and approves proposed decisions prior to their implementation, including consideration of alternatives whenever engineering decisions that could affect the life, health, property, and welfare of the public are made. In making said engineering decisions, the engineer shall be physically present or, through the use of communication devices, be available in a reasonable period of time as appropriate.*

*(ii) Judges the validity and applicability of recommendations prior to their incorporation into the work, including the qualifications of those making the recommendations.*

**(b)** *Engineering decisions that are made by, and are the responsibility of, the professional engineer in responsible charge are those decisions concerning permanent or temporary work that could create a danger to the life, health, property, and welfare of the public, such as, but not limited to, the following:*

*(i) The selection of engineering alternatives to be investigated and comparison of alternatives for engineering works.*

*(ii) The selection or development of design standards or methods, and materials to be used.*

*(iii) The selection or development of techniques or methods of testing to be used in evaluating materials or completed works, either new or existing.*

## **GENERAL INFORMATION**

Section 12-25-102(10) of the Colorado Revised Statutes (CRS) states that “... observation of construction to evaluate compliance with plans and specifications” is the practice of engineering.” The By Laws quote this CRS. Per the By Laws, an individual can only practice engineering if one is a licensed professional engineer or is under the responsible charge of a licensed professional engineer (or is exempt in accordance with the CRS). From these two pieces of information comes the following conclusions:

- a. A licensed professional engineer with direct responsibilities for observing construction to evaluate compliance with plans and specifications, or supervises staff with such responsibilities, is an engineer in responsible charge (EIRC)..
- b. Any individual who is not a licensed professional engineer with responsibility for observing construction to evaluate compliance with plans and specifications, or supervises staff with such responsibilities, is working under the individual(s) who is the ERIC.
- c. Every construction project is required to have a licensed professional engineer who is either performing the observation and evaluation of the work or who is supervising and monitoring the project staff who are charged with observing and evaluating the work.

- d. Considering a professional engineer can only practice engineering in which he or she is knowledgeable, a project may require multiple licensed engineers and thus multiple EIRCs.

## **STAFFING A PROJECT**

CDOT's Resident Engineer (RE) is charged with determining the needs for staffing a project. The RE is CDOT's default EIRC for a project. "Default" meaning CDOT's structure is such that the RE is automatically assumed to be the EIRC for a project if nobody is proactively or specifically designated to be a EIRC.

The RE may decide that he or she has the time and engineering knowledge to be the construction EIRC for a project. If the RE determines he or she does not have the time or the engineering knowledge to cover the needed roles for EIRC for a project, the RE needs to staff the project with personnel who will fulfill the project's EIRC needs. EIRC's may be CDOT employees or consultants.

If a RE staffs a project with a Project Engineer who is a licensed professional engineer, the Project Engineer is by default the EIRC for construction of the project. "Default" meaning that by CDOT structure the licensed Project Engineer is automatically assumed to be the EIRC if nobody is proactively or specifically designated to be an EIRC.

If a RE staffs a project with a non-licensed consultant as the Project Engineer, the RE need clarify whether the EIRC is the RE himself or the licensed consultant supervisor of the Project Engineer. This should be determined by the RE on a project by project basis.

*It is best not to have these defaults or unclear situations. Whether you are the RE, Project Engineer, or inspector/tester with a professional engineer license, it is best to have discussion and documentation assigning EIRCs so that all staff is aware of their duties. In the case of consultant staff it is best to clearly define in the contract any EIRC duties the consultant will have.*

A project may require multiple EIRCs. A licensed engineer can only practice engineering in areas which he or she is knowledgeable, Therefore, when the RE is determining the staffing for the project he or she need determine which engineering disciplines will be needed during construction.

Consideration and planning is needed for instances where an EIRC may not be present. Instances include when RE positions are vacant for months when an RE retires, promotes, etc. Replacement EIRCs need available for instances such as vacations, sick leave, etc.

## **AFTER PROJECT STAFF IS CHOSEN**

It is the responsibility of the EIRC to know the construction work he or she is responsible for, to know who is working under his or her license, and to communicate this role to the staff. In order to perform the required EIRC duties, the EIRC is to communicate with this staff on a frequent enough basis so as to be fully informed of the status of the work and to be prepared for future planned work.. This allows the EIRC to make informed decisions regarding how comfortable the EIRC is with letting his or her staff perform their duties and which instances the EIRC would feel warrants his or her presence or involvement. It

is the staff's responsibility working under the EIRC to observe and evaluate work and communicate with the EIRC.

CDOT has requirements for qualifications of construction inspection staff. Although the RE determines project staffing, it is the EIRC's responsibility to determine if the staff working under his or her license is qualified and capable of performing their duties in assisting with the EIRC responsibilities.

## SPECIFIC CONSTRUCTION CONSIDERATIONS

### **TRAFFIC CONTROL / METHOD OF HANDLING TRAFFIC (MHT)**

Traffic control is by far CDOT's biggest risk when it comes to safety and therefore warrants significant attention by construction staff and specifically EIRC's. CDOT specification 630.10(a) paragraph three states "Each proposed MHT shall be approved in writing by the Engineer..." Therefore the EIRC charged with monitoring traffic control for compliance with the plans and specifications, is the engineer responsible for reviewing and approving MHTs. As with any EIRC duty the EIRC may choose to pass the responsibility of reviewing MHT's to an individual under his or her charge.

As with any other EIRC duty, the EIRC responsible for traffic control needs be performing the observation and evaluation of traffic control work or shall delegate the work to an individual under his or her charge..

### **TRAFFIC CONTROL / MUTCD**

Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) covers temporary traffic control. Section 6A.01 paragraph 4 states "The primary function of TTC (temporary traffic control) is to provide for the reasonable safe and effective movement of roads users through or around TTC zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment." The key word here being "reasonable"

Engineering judgement is addressed and allowed per the MUTCD. Per section 1A.13 of the MUTCD

- A. A Standard (bold lettering in the MUTCD) "shall not be modified or compromised based on engineering judgement or engineering study.
- B. Guidance (unbold type in the MUTCD) can be deviated from when engineering judgement or engineering study indicates a deviation is appropriate

### **WORKING DRAWINGS / SHOP DRAWINGS**

Section 105 of CDOT's specifications says the Engineer shall review working drawings and shop drawings. It also says the contractor must flag anything not meeting the requirements of the contract. It also says the Engineer's review "*does not extend to the accuracy of dimensions, means, methods, techniques, sequences, schemes, procedure of*

*construction, or to safety precautions. The review by the Engineer is not a complete check.”*

Whether the contractor did or did not flag an item not meeting the requirements of the contract, and whether or not the Engineer reviewing the document missed something in review of the document, the construction EIRC (responsible for oversight of construction work) is still responsible for catching the discrepancy during construction.

### **LICENSED ENGINEER WORKING FOR THE CONTRACTOR**

CDOT can, and does, designate EIRC responsibilities to the contractor. Examples include the Revision of Section 202 Removal of Bridge and section 509.27 of the Standard Specifications. Both specifications require the contractor to provide a licensed engineer who provides construction services.

### **AS-BUILTS / AS CONSTRUCTED DRAWINGS**

Considering the EIRC for construction covers only observation and evaluation of work, there are no EIRC responsibilities related to providing as-built plans.

### **GOVERNMENT IMMUNITY**

If the EIRC is a government employee, there is some government immunity. This does not mean the Board cannot take action against your license. The State Attorney General office will defend a government employee against a lawsuit, but will not defend the state employee against the Board or any other State government entity. This is because the Attorney General office would find itself in a conflict of interest representing both the government employee and the government agency which is looking at taking action against the government employee. The State may cover the legal fees of a government employee defending himself from another government agency. Attached is the Government Immunity CRS for more information.

### **LOCAL AGENCY PROJECTS**

There are Local Agency projects where a CDOT employee may have EIRC construction responsibilities. The local agency manual states a local agency must provide a Project Engineer for the project but that this individual need not be a licensed professional engineer. It is CDOT's policy that this is one of the negotiated aspects of the intergovernmental agreement (IGA). The RE needs to decide no later than the time of the IGA if the RE wants to be the construction EIRC for the local agency project. If the RE determines he or she does not want to be the construction EIRC, then he or she must require, in the IGA, that the Local Agency Project Engineer be a licensed professional engineer.

### **DESIGN BUILD PROJECTS**

For Design Build projects, in which the Owner (CDOT) self performs the Quality Assurance for the project, EIRC responsibility will be the same as with traditionally delivered projects and remains with the Resident Engineer or his delegate.

For Design Build projects, in which the Owner (CDOT) relies on the Contractor to perform the Quality Assurance function of the project, then the Owner (CDOT) will

require that the Contractor designate someone among the key personnel that will perform as the EIRC.

## **ATTACHMENTS**



By Laws.pdf



Government  
Immunity.pdf