



COLORADO

**Department of
Regulatory Agencies**

Colorado Office of Policy, Research &
Regulatory Reform

**2018 Review:
Proposal for Mandatory Continuing Education
for Plumbers**

March 26, 2018



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**Department of
Regulatory Agencies**

Executive Director's Office

March 26, 2018

Members of the Colorado General Assembly
c/o the Office of Legislative Legal Services
State Capitol Building
Denver, Colorado 80203

Dear Members of the General Assembly:

Section 24-34-901, Colorado Revised Statutes, directs the Executive Director of the Department of Regulatory Agencies to:

- Conduct an analysis and evaluation of any proposal to impose mandatory continuing education on a given profession or occupation, and
- Present a written report to the General Assembly that addresses whether the proposed continuing education requirement would likely protect the public.

The Colorado Office of Policy, Research and Regulatory Reform (COPRRR), located within my office, is responsible for fulfilling this statutory mandate. Accordingly, COPRRR has completed its evaluation of the proposal to impose mandatory continuing education requirements on plumbers. I am pleased to submit this written report.

Sincerely,

Marguerite Salazar
Executive Director



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Background

Prior to introduction of legislation designed to impose a mandatory continuing education (MCE) requirement on a regulated occupation or profession, the proponents of the legislation must submit information concerning the need for such a requirement to the office of the Executive Director of the Department of Regulatory Agencies. The Executive Director has assigned this function to the Colorado Office of Policy, Research, and Regulatory Reform (COPRRR). As such, COPRRR is required to review, analyze, and evaluate the proposal and report in writing to the General Assembly whether mandatory continuing education would likely protect the public. Section 24-34-901, Colorado Revised Statutes, states:

Proposed continuing education requirements for regulated occupations and professions - review by office of executive director.

(1) Before any bill is introduced in the general assembly that contains, or any bill is amended to contain, a mandatory continuing education requirement for any occupation or profession, the practice of which requires a state of Colorado license, certificate, or registration, the group or association proposing such mandatory continuing education requirement shall first submit information concerning the need for such a requirement to the office of the executive director of the department of regulatory agencies. The executive director shall impartially review such evidence, analyze and evaluate the proposal, and report in writing to the general assembly whether mandatory continuing education would likely protect the public served by the practitioners. Proposals may include, but need not be limited to: Information that shows that the knowledge base for the profession or occupation is changing; that mandatory continuing education of this profession or occupation is required in other states; if applicable, that any independent studies have shown that mandatory continuing education is effective in assuring the competency of practitioners. The proposal may also include any assessment tool that shows the effectiveness of mandatory continuing education and recommendations about sanctions that should be included for noncompliance with the requirement of mandatory continuing education. The provisions of this section shall not be applicable to:

- (a) Any profession or occupation that, as of July 1, 1991, has mandatory continuing education requirements in place;
- (b) Any bill that is introduced as a result of a legislative interim committee and that as introduced in the general assembly includes a mandatory continuing education requirement.

Before beginning the review, COPRRR staff evaluated the application to determine if the review was necessary under the requirements of the statute. The evaluation revealed that an MCE program for plumbers did not meet any of the exemptions from the statute and, therefore, was subject to review.

Proposal for Continuing Education

The Colorado Association of Mechanical & Plumbing Contractors (Applicant) submitted information on February 9, 2018, to the Department of Regulatory Agencies, proposing MCE for plumbers. The requirement would apply to all plumbers licensed through the State Plumbing Board (Board).

The Applicant suggested proposed statutory changes that, if enacted, would require plumbers to complete MCE as a prerequisite for license renewal. The proposed changes made no recommendations concerning the appropriate number of hours, subject matter, or timeframe to complete the requirements.

In response to the statutory guidance that the Applicant provide information illustrating how the knowledge base for the profession or occupation is changing, the Applicant provided the following reflections:

[T]he plumbing trade has and continues to rapidly change, due to technology. Without continuing education requirements, these technological advancements pose a concern for public health and safety, if systems are not properly installed and maintained.

For example, 10 years ago, almost all plumbing was installed with copper pipes, valves and fittings, using solder or brazing for connections. Today these connections are done using Propress (Viega) or similar pressure joining. There continues to be migration to Pex Piping (Uponor) or similar plastic piping. Additionally, ten years ago the state plumbing code was UPC [Uniform Plumbing Code] and today the code is IPC [International Plumbing Code]. Some journeyman licenses are 20+ years old. These licenses have been renewed, without additional training requirements to ensure installations were properly installed and have been maintained. Annual continuing education requirements would address these concerns.

The statute also suggests that an applicant provide independent studies that illustrate MCE's efficacy in assuring competency. The Applicant provided information which spoke to workers' perceptions that education/training was important for success and how to prepare oneself for the workplace. The information did not address MCE or competency.

Other information supplied by the Applicant shows that 31 states require some level of MCE. Of those, Virginia has the lightest requirement at 3 MCE hours every two years and Ohio has the heaviest requirement at 10 MCE hours every year. While the Applicant did not opine on the subject matter for plumbing MCE, the subjects often covered in other states include: plumbing industry, code, and safety. The plumbing code is the most widespread required subject for MCE.

Profile of Plumbers

The movement of liquids in pipes is a vital part of modern American life. In homes, water is needed for both drinking and sanitation. Plumbers install and repair the water, waste disposal, drainage, and sometimes the gas fuel systems in buildings. Depending on the installation, a plumber can employ different materials and practices. Residential water systems, for example, incorporate copper, steel, and plastic pipe that can be handled and installed by one or two plumbers. Plumbers also work in commercial and residential settings where water and septic systems need to be installed and maintained.¹

Plumbers must be able to follow building plans or blueprints and instructions from supervisors, lay out jobs, and work efficiently with the materials and tools of their trade. When plumbing a new house, plumbers typically work from blueprints or drawings that may show the planned location of pipes, plumbing fixtures, and appliances. Their knowledge of building codes and the operation of plumbing systems is vital.

This occupation experiences a higher than average rate of nonfatal injuries. Plumbers frequently lift heavy pipes, stand for long periods, and work in uncomfortable or cramped positions. On occasion they also may have to work outdoors in inclement weather. In addition to these problems, they are subject to possible falls from ladders, cuts from sharp tools, and burns from hot pipes or soldering equipment.²

A person becomes a plumber in a variety of ways. Most get their training in apprenticeships and/or in technical schools. Most states and communities require plumbers to be licensed. Licensing requirements vary, but generally years of experience and passage of an examination that tests knowledge of the trade and of plumbing codes is necessary.

The Colorado Plumbing Code (Code) is the foundation for the plumbing profession in Colorado. It provides the heart for all education, training, and installations in the state. The Code addresses the problems that can be associated with poor or inadequate installations by standardizing plumbing practices. Because the details of a plumbing installation are not always worked out prior to installation, plumbers can be involved in on-site design. Therefore, a thorough knowledge of the Code is necessary to protect public health, safety, and welfare. The State of Colorado, through the Board, adopts the Code, modifies the Code, licenses plumbers, and inspects plumbing installations to verify that they meet the standards specified in the Code.

¹ U.S. Bureau of Labor and Statistics, *Occupational Outlook Handbook, What Plumbers, Pipefitter, and Steamfitters Do*. Retrieved March 15, 2018, from <https://www.bls.gov/ooh/construction-and-extraction/plumbers-pipefitters-and-steamfitters.htm#tab-2>

² U.S. Bureau of labor and Statistics, *Occupational Outlook Handbook, Work Environment*. Retrieved March 15, 2018 from <https://www.bls.gov/ooh/construction-and-extraction/plumbers-pipefitters-and-steamfitters.htm#tab-3>

The Board is the regulatory authority for plumbing in Colorado. It licenses qualified individuals and disciplines plumbers who do not follow the Code or live up to the professional standards required by the license granted to them. It ensures that only individuals who have performed up to those professional standards remain eligible to perform plumbing in an ongoing manner through license renewal. The Board is also empowered to conduct plumbing installation inspections in jurisdictions that do not issue permits and conduct inspections. Because inspections are performed on all permitted plumbing in Colorado, the risk of a consumer being harmed is kept to a minimum.

Within the state, a licensed master plumber is required to be in charge of every plumbing installation. He or she must have a grasp of the theories to install plumbing correctly in those instances where improvising is necessary. On those occasions, applying technical and theoretical expertise, cooperating with the other construction trades, and collaborating with plumbing inspectors protects the consumer from harm.

Colorado Licensing

The plumbing regulatory statutes are contained in Article 58, of Title 12, Colorado Revised Statutes (Act). The Act stipulates that no person may act as a residential, journeyman, or master plumber without a license or a temporary permit.³ Nor may a person use any of those titles without first being licensed.⁴ Any person who works, or attempts to work, as a residential, journeyman, master, or apprentice plumber without the appropriate license, commits a Class 2 misdemeanor.⁵

The public policy instrument used to confirm that a professional has the minimum set of qualifications needed to protect the health, safety, and welfare of consumers is licensure. Colorado follows the same general licensing rubric for plumbers as most other states. It employs graduated levels of licensure from apprentice to master plumber as well as a plumbing contractor registration. Each level of licensure carries different qualifications designed to warrant that each person performs only those tasks he or she is qualified to perform.

A master plumber has the training, experience, and technical knowledge to properly plan, lay out, install, and repair plumbing apparatus. He or she also has the ability to supervise installations in accordance with Board standards.⁶

A journeyman plumber is not a master plumber, residential plumber, or plumber's apprentice,⁷ but can alter, repair, and renovate plumbing in accordance with Board standards.

³ § 12-58-105(1), C.R.S.

⁴ § 12-58-106, C.R.S.

⁵ § 12-58-116(2), C.R.S.

⁶ § 12-58-102(3), C.R.S.

⁷ § 12-58-102(2), C.R.S.

A residential plumber is a person other than a master or journeyman plumber or plumbing apprentice who has the necessary training, experience, and technical knowledge to install plumbing and equipment in one-, two-, three-, and four-family dwellings, not more than two stories aboveground.⁸

A plumbing apprentice is a person who, as a principal occupation, is engaged in learning and assisting in the installation of plumbing.⁹ No apprentice may perform any plumbing work for which a license is required unless he or she does so under the responsible supervision of a licensed plumber who can be disciplined for the work.¹⁰

Rather than specifically delineating the time-based qualifications for licensure, the Act states that the Board is to establish experience ranges for licensure within defined parameters:¹¹

- The maximum practical experience the Board may require for an applicant to qualify for a master plumber's license is 8,500 hours;
- The maximum practical experience the Board may require for an applicant to qualify for a journeyman plumber's license is four years or 6,800 hours; and
- The maximum practical experience the Board may require for an applicant to qualify for a residential plumber's license is three years.

Academic training may substitute for practical experience. The applicant must be a graduate of a community college or a Board-approved trade school plumbing program. The Board is required by the Act to establish a rule providing a uniform ratio for work experience credit to other academic or military training.¹²

The Act directs the Board to hold licensing examinations at least four times per year.¹³ Examinations may include written and practical tests consistent with current practical and theoretical requirements of plumbing, and must ensure that a passing grade reflects a minimum level of competency.¹⁴

Examinations are administered by a private, third-party testing agency. The examination is multiple-choice format based on the International Plumbing Code, the International Fuel Gas Code, and Board Rules and Regulations. For residential and journeyman examinees, a score of 70 percent is required to pass the written examination and 75 percent is required for a master.

⁸ § 12-58-102(9), C.R.S.

⁹ § 12-58-102(6), C.R.S.

¹⁰ § 12-58-117, C.R.S.

¹¹ § 12-58-107(1)(a), C.R.S.

¹² § 12-58-107(1)(b), C.R.S.

¹³ § 12-58-107(2), C.R.S.

¹⁴ § 12-58-107(3), C.R.S.

Endorsement Licensing

The Board may issue a license by endorsement to someone licensed in another state. The applicant must present “proof satisfactory” that he or she has credentials and qualifications “substantially equivalent” to those required by Colorado.¹⁵

The Board may issue a temporary permit to journeyman and residential plumbers. The applicant must furnish satisfactory evidence that he or she has the requisite experience and must apply for an examination.¹⁶

Plumbing Contractors

Every firm, partnership, corporation, or association that desires to act or advertise as a plumbing contractor, or use the title “plumbing contractor,” must be registered with the Board. A contractor must designate a full-time master plumber responsible for all the plumbing performed by the contractor.¹⁷

¹⁵ § 12-58-111, C.R.S.

¹⁶ § 12-58-112(1), C.R.S.

¹⁷ §§ 12-58-105(3) and 12-58-106.5, C.R.S.

Analysis

The Colorado Revised Statutes section that governs the consideration of MCE requirements posits that,

the group or association proposing such MCE requirement shall first submit information concerning the need for such a requirement.¹⁸

The statute also suggests that an applicant proposing the imposition of MCE upon a profession should provide the following information for analysis:

- Information that shows that the knowledge base for the profession or occupation is changing,
- Independent studies that show MCE is effective in assuring the competency of practitioners, and
- Any assessment tool that shows the effectiveness of MCE.

While the statute does not explicitly state that the onus to illustrate the need for MCE is on an applicant, considering these provisions, it is a reasonable inference.

The information submitted by the Applicant is summarized in the “Proposal for Continuing Education” section of this report. It bases the argument for MCE on a single premise: the plumbing trade has and continues to rapidly change, due to technology. The persistent change means that plumbers need MCE. A different way of stating this is that without MCE, licensees will not perform competently. However, the Applicant provided no substantiation of such a claim.

Generally speaking, changes in a profession or industry unaccompanied by other indicators, are not a sufficient rationale for imposing government directed MCE. New information, techniques, and technology often change the manner in which most professions and occupations operate. Market dynamics typically encourage professionals to keep abreast of innovation in order to remain commercially viable. It becomes a state concern when rapid change threatens the health, safety, and/or welfare of consumers.

As stated above, the principal tool for determining competency in Colorado is through licensing. Colorado licensure relies very heavily on practical field experience rather than classroom experience. The Applicant does not address the competency of those initially licensed through the current regime who may never have taken a plumbing class.

In conjunction with this review, COPRRR staff contacted Board staff to examine the state of competence among the professionals regulated by the Board. Board staff provided licensing and disciplinary data which were analyzed to help determine the

¹⁸ § 24-34-901, C.R.S.

necessity to have more competent plumbers in Colorado. Tables 1 and 2 show data concerning the number of licensees and the number of complaints filed against those licensees.

**Table 1
Active Licensees
Fiscal Years 14-15 through 16-17**

FY14-15	FY 15-16	FY 16-17
8,333	8,676	8,306

Table 1 shows that there was an average of 8,438 active credentials each year during the period examined.

Table 2 illustrates that there were very few complaints levied, compared to the number of active licensees. When considering the competency of practitioners, in any profession, complaints alleging “standard of practice” violations point to substandard, or incompetent performance.

**Table 2
Plumber Complaint Allegations
Fiscal Years 14-15 through 16-17**

	FY14-15	FY15-16	FY16-17
Practicing without a license	106	63	58
Standard of practice	21	39	49
Felony conviction	4	9	18
Failure to register/supervise apprentices	5	14	28
Failed to obtain a required permit/inspection	9	9	5
Deception or fraud in attempting to obtain a license	1	3	3
Employment of unlicensed personnel	1	6	1
False or misleading advertising	1	2	2
TOTAL	148	145	164

Taking into account the entire three-year period examined for this report, 24 percent, of the complaints alleged standard of practice violations. In fiscal year 16-17, the year the most complaints were filed in the standard of practice category, a violation was alleged against a mere 0.6 percent of the licensees in Colorado. This points to an extremely high rate of competency.

Under the Colorado licensing scheme, the public's interests and safety are protected employing the least restrictive regulatory environment. While it may be desirable for plumbers to keep current with changes in the industry, desirability cannot be the basis for a government to mandate superfluous regulatory requirements. Keeping up with Code requirements and changes have been requirements of plumbers as long as licensing and the Code have been in place. The state began regulating the plumbing profession in 1917. One must also consider that every permitted job in Colorado is inspected to ensure compliance with the Code.

Because the applicant did not provide data to establish a need for MCE, COPRRR emailed a survey to 8,348 active licensees. Of those surveyed, 3,187 replied, this represents a response rate of 38 percent, which is quite high.

Of the more than half, 57.7 percent, of the respondents who have taken continuing education, 87 percent, have done so to either learn a special procedure or to keep up with industry changes. This clearly indicates that many licensees currently seek to improve their professional practices based on demand, without a government mandate. Moreover, of this group that has taken continuing education classes, 59 percent do not agree that there should be MCE. This speaks to the need and raises questions about the utility of MCE.

Among the more telling responses came from the licensed contractors. Recall that the applicant is the Colorado Association of Mechanical & Plumbing Contractors. Nearly 7 out of 10 of the contractors who responded, 68 percent, do not believe there should be an MCE requirement. If the contractor responses are removed, 66 percent of the remaining respondent population that felt there should not be an MCE requirement.

The Applicant did not comment on which level(s) of licensure should have an MCE requirement. Recall that every registered contractor must have a full-time master plumber responsible for all the plumbing performed by the contractor.¹⁹ It is unclear if an MCE requirement would be required of solely master plumbers or also of journeymen, residential plumbers, apprentices, and contractors.

Finally, Colorado is not alone in not requiring MCE. According to information provided by the Applicant, Colorado is among 19 states that have no MCE requirement. Colorado's neighboring states are not consistent: Arizona, Nebraska, and Wyoming do not require MCE, but Kansas, New Mexico, and Utah do require MCE.

¹⁹ §§ 12-58-105(3) and 12-58-106.5, C.R.S.

Conclusion

COPRRR is charged in statute with determining whether MCE would likely protect the public consuming the services of plumbers.

With respect to the application submitted by the Applicant, an affirmative conclusion is not warranted based upon the information provided in the application and COPRRR review and analysis of that information. The Applicant did not establish that the public using the services would likely be better protected from current or predicted harm through the imposition of MCE.

According to statute, the Applicant must illustrate that any proposed MCE would alleviate incompetencies not accounted for under the Colorado licensure regime.

Among the determinations made by this analysis are:

- The current experiential-based licensing scheme delivers competent plumbers into the marketplace and the likelihood of a consumer being harmed by a plumber under the current licensing scheme is remote;
- It is rare for a complaint to be filed against a licensee alleging substandard practice, i.e. incompetence;
- The Applicant has not established any connection or relationship between advances in technology and the competency of plumbers licensed under the Colorado regulatory program; and
- The Applicant failed to demonstrate the efficacy of MCE with respect to maintaining or assuring the competency of those regulated by the Board.

For these reasons, increasing the regulatory burden on licensees as proposed under the subject application is unjustified. The General Assembly should not impose a mandatory continuing education requirement on plumbers.

Appendix A - Survey of Active Plumbing Licensees

On March 2, 2018, a link to the survey was sent via email to 8,348 active plumbing licensees. Of those surveyed, 3,187 replied. This represents a response rate of 38 percent.

One open-ended question was omitted for presentability. The question asked, “If you believe that continuing education should be required, what subject matter should be required?” This question received 62 percent fewer responses than the other survey questions and the answers were inconsistent.

1. I am licensed/registered with the State Plumbing Board as a (check all that apply):

Contractor	841	26.4%
Apprentice	232	7.3%
Residential Plumber	90	2.8%
Journeyman Plumber	861	27%
Master Plumber	2,049	64.3%

2. I have been licensed/registered for:

0-5 years	560	17.6%
6-10 years	439	13.8%
11-15 years	459	14.4%
16-20 years	505	15.8%
More than 20 years	1,224	38.4%

3. Please estimate the percentage of plumbing that you perform that is in a residential setting:

0-20 percent	961	30.2%
21-40 percent	287	9%
41-60 percent	406	12.7%
61-80 percent	624	19.6%
81-100 percent	909	28.5%

4. I am licensed in multiple states.

Yes	447	14%
No	2,740	86%

5. I have taken continuing education classes.

Yes	1,838	57.7%
No	1,349	42.3%

6. If you have taken continuing education classes, why?

It is a license requirement in another state.	263	8.3%
I wanted to learn a special procedure.	684	21.5%
I want to keep up on changes in the profession.	1,001	31.4%
I have never taken continuing education classes	1,239	38.9%

7. Technology is rapidly changing the way the plumbing profession operates.

Strongly disagree	227	7.1%
Disagree	485	15.2%
Neutral	955	30%
Agree	1,169	36.7%
Strongly agree	351	11%

8. Plumbers generally do not keep up with industry changes.

Strongly disagree	812	25.5%
Disagree	1,338	42%
Neutral	558	17.5%
Agree	389	12.2%
Strongly agree	90	2.8%

9. Continuing education would improve the professionalism of plumbers.

Strongly disagree	559	17.5%
Disagree	729	22.9%
Neutral	870	27.3%
Agree	698	21.9%
Strongly agree	331	10.4%

10. If you believe continuing education is necessary, what is the appropriate number of hours that should be required annually?

1-3	246	7.7%
4-6	334	10.5%
6-9	266	8.3%
9-12	237	7.4%
I do not think there should be a continuing mandatory continuing education	2,103	66%