

**First Regular Session  
Sixty-ninth General Assembly  
STATE OF COLORADO**

**ENGROSSED**

*This Version Includes All Amendments Adopted  
on Second Reading in the House of Introduction*

LLS NO. 13-0226.01 Jennifer Berman x3286

**SENATE BILL 13-186**

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**SENATE SPONSORSHIP**

**Tochtrop,**

**HOUSE SPONSORSHIP**

**Pettersen,**

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**Senate Committees**  
Business, Labor, & Technology

**House Committees**

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**A BILL FOR AN ACT**

101 **CONCERNING UPDATING REQUIREMENTS FOR NEW**  
102 **BUILDING-INTEGRATED PHOTOVOLTAIC TECHNOLOGIES.**

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**Bill Summary**

*(Note: This summary applies to this bill as introduced and does not reflect any amendments that may be subsequently adopted. If this bill passes third reading in the house of introduction, a bill summary that applies to the reengrossed version of this bill will be available at <http://www.leg.state.co.us/billsummaries>.)*

Because new photovoltaic technologies such as "solar shingles" are integrated into building materials, they are designed to be installed by trained roofing contractors and other trained building professionals and subsequently wired by electricians. Current law requires that a photovoltaic energy practitioner certified by the North American board

Shading denotes HOUSE amendment. Double underlining denotes SENATE amendment.  
*Capital letters indicate new material to be added to existing statute.*  
*Dashes through the words indicate deletions from existing statute.*

SENATE  
Amended 2nd Reading  
March 18, 2013

of certified energy practitioners (NABCEP) supervise a photovoltaic installation.

The bill permits a licensed master electrician, licensed journeyman electrician, or licensed residential wireman to supervise a photovoltaic installation. It also permits practitioners certified by NABCEP or roof integrated solar energy (RISE) to supervise an installation if the type of solar photovoltaic technology installed or the scope of installation involved need not be performed by a licensed master electrician, journeyman electrician, or residential wireman and the installation work concerns the installation of roofing materials; however, a licensed master electrician, journeyman electrician, or residential wireman must perform any installation work after the installation materials penetrate the roof, a structural wall, or another part of the building, or the building-integrated photovoltaic material transitions to a surface-mounted junction box and utilizes types of conduit and building wire that are approved by the national electrical code.

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1 *Be it enacted by the General Assembly of the State of Colorado:*

2 **SECTION 1.** In Colorado Revised Statutes, 12-23-104, **add** (2)  
3 (f.5) as follows:

4 **12-23-104. Board powers and duties - rules.** (2) In addition to  
5 all other powers and duties conferred or imposed upon the board by this  
6 article, the board is authorized to:

7 (f.5) REGULATE A LICENSED MASTER ELECTRICIAN, JOURNEYMAN  
8 ELECTRICIAN, OR RESIDENTIAL WIREMAN WHO, ACTING WITHIN HIS OR HER  
9 SCOPE OF COMPETENCE, SUPERVISES A SOLAR PHOTOVOLTAIC  
10 INSTALLATION PURSUANT TO SECTION 40-2-128, C.R.S.

11 **SECTION 2.** In Colorado Revised Statutes, 40-2-128, **amend** (1)  
12 introductory portion and (1) (a) (I) as follows:

13 **40-2-128. Solar photovoltaic installations - supervision by**  
14 **certified practitioners - qualifications of electrical contractors.**

15 (1) ~~Effective January 1, 2012,~~ For all photovoltaic installations funded  
16 wholly or partially through ratepayer-funded incentives as part of the

1 renewable energy standard adjustment allowed under section 40-2-124:

2 (a) (I) (A) The performance of all photovoltaic electrical work, the  
3 installation of photovoltaic modules, and the installation of photovoltaic  
4 module mounting equipment shall be IS subject to on-site supervision by  
5 a certified photovoltaic energy practitioner, as designated by the North  
6 American board of certified energy practitioners (NABCEP), or another  
7 nationally recognized professional organization designated by the  
8 Colorado state electrical board by rule. Upon the A LICENSED MASTER  
9 ELECTRICIAN, LICENSED JOURNEYMAN ELECTRICIAN, OR LICENSED  
10 RESIDENTIAL WIREMAN, AS DEFINED IN SECTION 12-23-101, C.R.S.

11 (B) IN THE CASE OF BUILDING-INTEGRATED PHOTOVOLTAIC  
12 TECHNOLOGY, IF THE TYPE OF BUILDING-INTEGRATED PHOTOVOLTAIC  
13 TECHNOLOGY INSTALLED OR THE SCOPE OF THE BUILDING-INTEGRATED  
14 PHOTOVOLTAIC INSTALLATION INVOLVED DOES NOT REQUIRE A LICENSED  
15 MASTER ELECTRICIAN, LICENSED JOURNEYMAN ELECTRICIAN, OR LICENSED  
16 RESIDENTIAL WIREMAN TO PERFORM THE INSTALLATION WORK AND THE  
17 INSTALLATION WORK CONCERNS THE INSTALLATION OF ROOFING  
18 MATERIALS, THE ON-SITE SUPERVISION MAY BE PERFORMED BY A  
19 CERTIFIED SOLAR ENERGY INSTALLER, AS DESIGNATED BY NABCEP OR  
20 ROOF INTEGRATED SOLAR ENERGY (RISE).

21 (C) FOR A BUILDING-INTEGRATED PHOTOVOLTAIC INSTALLATION,  
22 A LICENSED MASTER ELECTRICIAN, LICENSED JOURNEYMAN ELECTRICIAN,  
23 OR LICENSED RESIDENTIAL WIREMAN MUST PERFORM THE INSTALLATION  
24 WORK FOR ANY STAGE OF THE INSTALLATION AFTER THE INSTALLATION  
25 MATERIALS PENETRATE THE ROOF, A STRUCTURAL WALL, OR ANOTHER  
26 PART OF THE BUILDING, OR ANY STAGE OF THE INSTALLATION IN WHICH  
27 THE BUILDING-INTEGRATED PHOTOVOLTAIC MATERIALS TRANSITION TO A

1 SURFACE-MOUNTED JUNCTION BOX AND UTILIZE TYPES OF CONDUIT AND  
2 BUILDING WIRE THAT ARE APPROVED BY THE NATIONAL ELECTRICAL CODE,  
3 AS DEFINED IN SECTION 12-23-101 (3.2), C.R.S.

4 (D) BY SUBMITTING AN initial application for funding or ~~in the~~ AN  
5 initial contract proposal, the applicant ~~shall assume~~ ASSUMES  
6 responsibility for employing or contracting with one or more certified  
7 energy practitioners OR LICENSED MASTER ELECTRICIANS, LICENSED  
8 JOURNEYMAN ELECTRICIANS, OR LICENSED RESIDENTIAL WIREMEN to  
9 supervise the installation and as necessary to maintain the three-to-one  
10 ratio required by paragraphs (b) and (c) of this subsection (1), including  
11 during any off-site, preinstallation assembly. ~~Approval of the Payment of~~  
12 ~~any incentives for the work shall NOT be conditioned upon the applicant's~~  
13 ~~supplying~~ APPROVED UNTIL THE APPLICANT SUPPLIES the name and  
14 certification number of each certified energy practitioner OR THE LICENSE  
15 NUMBER OF EACH MASTER ELECTRICIAN, JOURNEYMAN ELECTRICIAN, OR  
16 RESIDENTIAL WIREMAN who actually provided on-site supervision or was  
17 present to maintain the three-to-one ratio required by paragraphs (c) and  
18 (d) of this subsection (1).

19 **SECTION 3.** In Colorado Revised Statutes, 24-38.7-104, **amend**  
20 (2.5) (a) introductory portion and (2.5) (a) (I) as follows:

21 **24-38.7-104. Program administrator - training and**  
22 **certification of contractors - reporting.** (2.5) (a) ~~Effective July 1, 2011,~~  
23 ~~The issuance of~~ OFFICE SHALL NOT ISSUE a clean energy loan under this  
24 article for the installation of solar photovoltaic equipment ~~shall be~~  
25 ~~conditioned upon~~ TO A QUALIFIED BORROWER UNTIL the ~~borrower's~~  
26 ~~certification~~ BORROWER CERTIFIES that:

27 (I) (A) The performance of all photovoltaic electrical work, the

1 installation of photovoltaic modules, and the installation of photovoltaic  
2 module mounting equipment shall be IS subject to on-site supervision by  
3 a certified photovoltaic energy practitioner as designated by the North  
4 American board of certified energy practitioners (NABCEP) or another  
5 nationally recognized professional organization designated by the  
6 Colorado state electrical board by rule. Upon the A LICENSED MASTER  
7 ELECTRICIAN, LICENSED JOURNEYMAN ELECTRICIAN, OR LICENSED  
8 RESIDENTIAL WIREMAN, AS DEFINED IN SECTION 12-23-101, C.R.S.

9 (B) IN THE CASE OF BUILDING-INTEGRATED PHOTOVOLTAIC  
10 TECHNOLOGY, IF THE TYPE OF BUILDING-INTEGRATED PHOTOVOLTAIC  
11 TECHNOLOGY INSTALLED OR THE SCOPE OF THE BUILDING-INTEGRATED  
12 PHOTOVOLTAIC INSTALLATION INVOLVED DOES NOT REQUIRE A LICENSED  
13 MASTER ELECTRICIAN, LICENSED JOURNEYMAN ELECTRICIAN, OR LICENSED  
14 RESIDENTIAL WIREMAN TO PERFORM THE INSTALLATION WORK AND THE  
15 INSTALLATION WORK CONCERNS THE INSTALLATION OF ROOFING  
16 MATERIALS, THE ON-SITE SUPERVISION MAY BE PERFORMED BY A  
17 CERTIFIED SOLAR ENERGY INSTALLER, AS DESIGNATED BY NABCEP OR  
18 ROOF INTEGRATED SOLAR ENERGY (RISE).

19 (C) FOR A BUILDING-INTEGRATED PHOTOVOLTAIC INSTALLATION,  
20 A LICENSED MASTER ELECTRICIAN, LICENSED JOURNEYMAN ELECTRICIAN,  
21 OR LICENSED RESIDENTIAL WIREMAN MUST PERFORM THE INSTALLATION  
22 WORK FOR ANY STAGE OF THE INSTALLATION AFTER THE INSTALLATION  
23 MATERIALS PENETRATE THE ROOF, A STRUCTURAL WALL, OR ANOTHER  
24 PART OF THE BUILDING, OR ANY STAGE OF THE INSTALLATION IN WHICH  
25 THE BUILDING-INTEGRATED PHOTOVOLTAIC MATERIALS TRANSITION TO A  
26 SURFACE-MOUNTED JUNCTION BOX AND UTILIZE TYPES OF CONDUIT AND  
27 BUILDING WIRE THAT ARE APPROVED BY THE NATIONAL ELECTRICAL CODE,

1 AS DEFINED IN SECTION 12-23-101 (3.2), C.R.S.

2 (D) BY SUBMITTING AN initial application for funding or ~~in the~~ AN  
3 initial contract proposal, the applicant ~~shall assume~~ ASSUMES  
4 responsibility for employing or contracting with one or more certified  
5 energy practitioners OR LICENSED MASTER ELECTRICIANS, LICENSED  
6 JOURNEYMAN ELECTRICIANS, OR LICENSED RESIDENTIAL WIREMEN to  
7 supervise the installation and as necessary to maintain the three-to-one  
8 ratio required by subparagraphs (II) and (III) of this paragraph (a),  
9 including during any off-site, pre-installation assembly. TO RECEIVE final  
10 payment for the work, ~~shall be conditioned upon the applicant's supplying~~  
11 THE APPLICANT MUST SUPPLY the name and certification number of each  
12 certified energy practitioner OR THE LICENSE NUMBER OF EACH MASTER  
13 ELECTRICIAN, JOURNEYMAN ELECTRICIAN, OR RESIDENTIAL WIREMAN who  
14 actually provided on-site supervision or was present to maintain the  
15 three-to-one ratio required by subparagraphs (III) and (IV) of this  
16 subsection ~~(2.5)~~ PARAGRAPH (a).

17 **SECTION 4. Safety clause.** The general assembly hereby finds,  
18 determines, and declares that this act is necessary for the immediate  
19 preservation of the public peace, health, and safety.