

# LICENSING DIVISION

## Staff Report for the Electrical Safety and Licensing Advisory Board May 25, 2022

### Statistics

#### MASTER ELECTRICIANS

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	566	421
Renewed Licenses Issued	16,343	10,828
Online Renewals	16,244	10,789
% Renewed Online	99%	99%
Total Population	17,160	17,359

#### MASTER SIGN ELECTRICIANS

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	10	16
Renewed Licenses Issued	491	313
Online Renewals	489	312
% Renewed Online	99%	99%
Total Population	510	509

#### JOURNEYMAN ELECTRICIANS

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	4,412	1,395
Renewed Licenses Issued	33,697	21,337
Online Renewals	31,030	21,242
% Renewed Online	92%	99%
Total Population	36,852	37,343

**JOURNEYMAN APPLIED BY 7,000 HOURS**  
**2/1/21 – 4/30/22**

Number of 7K applications received	<b>664</b>
Number of 7K applications in an apprenticeship training program	213
Number of 7K that are exam eligible	323
Number of 7K that have received their license	<b>273</b>

**JOURNEYMAN SIGN ELECTRICIANS**

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	16	12
Renewed Licenses Issued	280	180
Online Renewals	280	179
% Renewed Online	100%	99%
Total Population	323	318

**JOURNEYMAN LINEMAN ELECTRICIANS**

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	8	6
Renewed Licenses Issued	34	25
Online Renewals	34	25
% Renewed Online	100%	100%
Total Population	43	47

**JOURNEYMAN INDUSTRIAL ELECTRICIANS**

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	98	81
Renewed Licenses Issued	210	184
Online Renewals	210	184
% Renewed Online	100%	100%
Total Population	309	375

**MAINTENANCE ELECTRICIANS**

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	8	6
Renewed Licenses Issued	782	452
Online Renewals	776	448
% Renewed Online	99%	99%
Total Population	854	830

## RESIDENTIAL WIREMEN

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	236	156
Renewed Licenses Issued	1,365	961
Online Renewals	1,355	958
% Renewed Online	99%	99%
Total Population	1,695	1,751

## APPRENTICES

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	35,423	22,894
New Licenses Issued Online	34,992	22,517
Renewed Licenses Issued	43,906	28,852
Online Renewals	43,548	28,641
% Renewed Online	99%	99%
Total Population	88,930	91,734

## SIGN APPRENTICES

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	1,028	692
New Licenses Issued Online	1,017	685
Renewed Licenses Issued	601	397
Online Renewals	599	395
% Renewed Online	99%	99%
Total Population	1,960	2,044

## ELECTRICAL CONTRACTORS

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	966	706
Renewed Licenses Issued	9,841	6,398
Online Renewals	9,780	6,110
% Renewed Online	99%	95%
Total Population	10,858	11,205

## ELECTRICAL SIGN CONTRACTORS

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	27	27
Renewed Licenses Issued	518	344
Online Renewals	513	296
% Renewed Online	99%	86%
Total Population	555	561

**RESIDENTIAL APPLIANCE INSTALLERS**

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	125	79
Renewed Licenses Issued	1,894	1,341
Online Renewals	1,888	1,338
% Renewed Online	99%	99%
Total Population	2,033	2,020

**RESIDENTIAL APPLIANCE INSTALLATION CONTRACTORS**

	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Licenses Issued	49	32
Renewed Licenses Issued	632	467
Online Renewals	628	417
% Renewed Online	99%	89%
Total Population	697	702

**COMBINED**

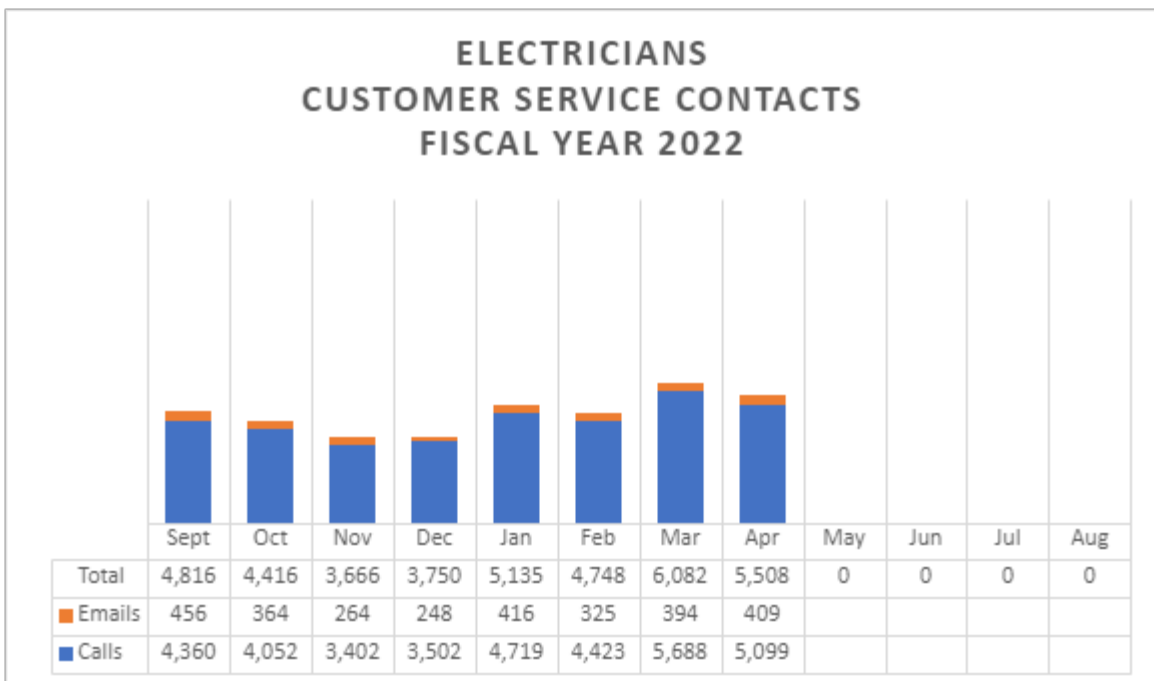
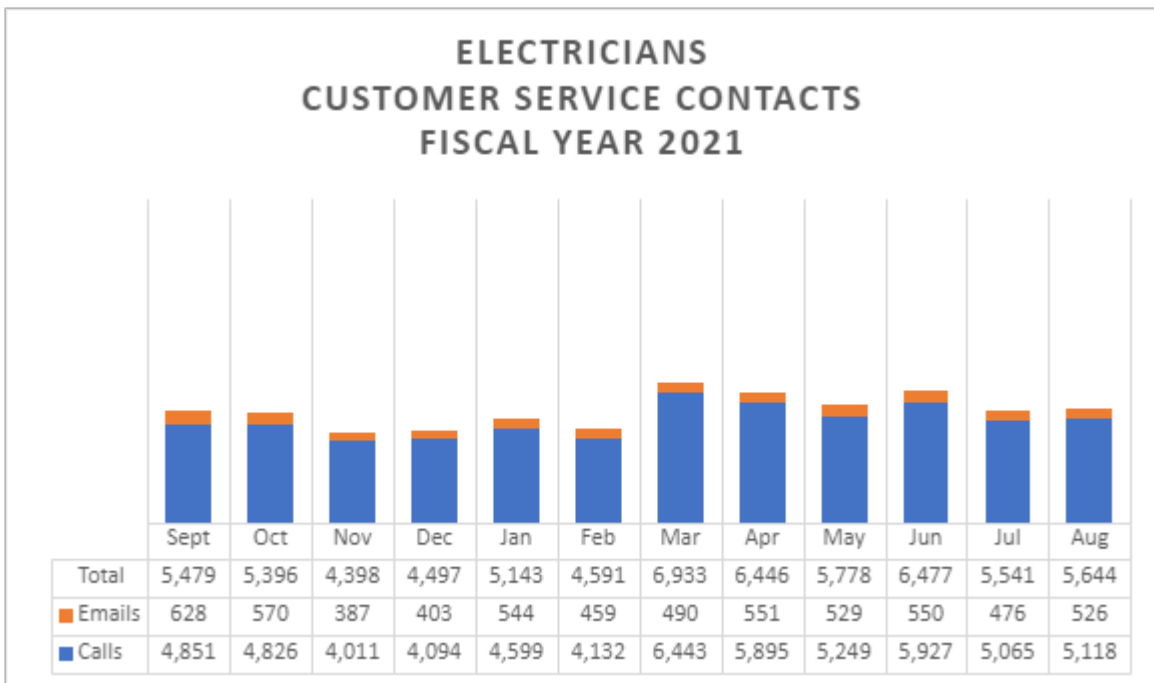
	<b>TOTAL FY 2021</b>	<b>Sept 2021 – April 2022 FY 22</b>
New Facility Licenses Issued	1,042	765
Renewed Facility Licenses Issued	10,991	7,209
Online Renewals	10,921	6,917
% Renewed Online	99%	96%
New Individual Licenses Issued	41,930	25,758
Renewed Individual Licenses Issued	99,603	64,870
Online Renewals	96,453	64,511
% Renewed Online	97%	99%
Total Population (Individuals)	150,669	154,330
Total Population (Facilities)	12,110	12,648
Total COMBINED Licenses	162,779	166,798

# Customer Service Division

Staff Report for the Electrical Safety and Licensing Advisory Board

May 25, 2022

## Statistics



# Enforcement Division

## Staff Report for Electrical Safety and Licensing Advisory Board May 25, 2022

### Personnel Updates:

- On September 15, 2021, Estella Ramos was promoted to Senior Legal Assistant in our Intake Section. Estella has worked for TDLR for over 6 years, previously serving as an Intake Administrative Assistant and Legal Assistant II.
- On September 15, 2021, Kimberly (Kim) Ferreiro Mitchell was promoted to Management Analyst III. Kim has worked for TDLR for 13 ½ years, previously serving as a Legal Assistant III and Legal Assistant II.
- Karen Cox retired January 31, 2022, after 17 years with TDLR and over 30 years working in State Government which include stints at the Texas Workforce Commission, Texas Department of Transportation, and the Texas Railroad Commission. She was promoted to Senior Prosecutor in, January 1, 2019, where she helped oversee and mentor attorneys within the Enforcement Division. She also helped develop and facilitate our expert witness training program utilized by the Health Professions Program. She will be greatly missed, but we wish her well in her retirement.
- On February 15, 2022, Robert Nino was promoted to the Team Lead Supervisor for the South Region Team. Robert has worked for TDLR for over 14 years with vast knowledge and experience on case investigations, sting operations and working on very complex cases. Robert also assisted in the training and mentoring on newly hired investigators. Robert has had nearly 38 years of experience as an investigator and auditor with both federal and state government, as well as private industry..

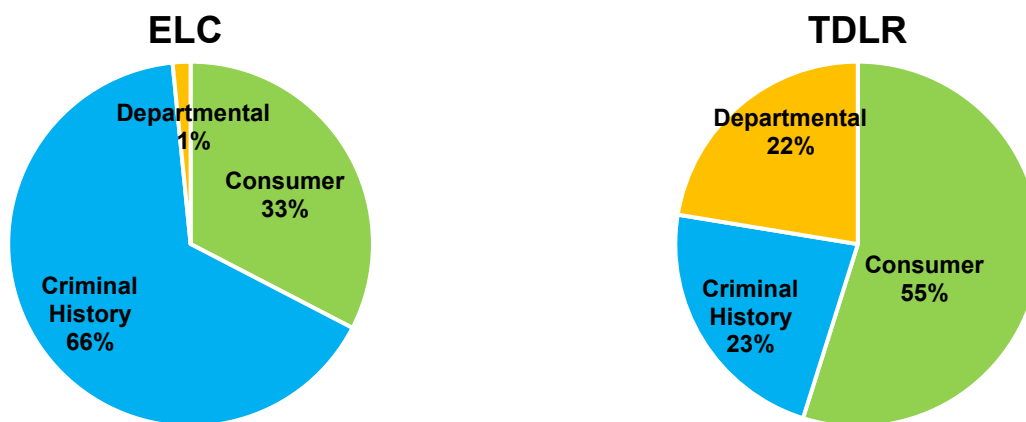
### Statistics:

Shown below are the Complaints Received, Enforcement Performance Measures, and key statistics for the Electrical (ELC) program and for all TDLR programs combined through March of Fiscal Year 2022:

<b>Complaints Received Break Down</b>	<b>ELC</b>	<b>TDLR</b>
Total Complaints Received	5,694	19,449
Consumer	598	9,075
Criminal History	5,096	10,374

<b>Key Statistics</b>	<b>ELC</b>	<b>TDLR</b>
Cases opened	1,012	6,473
Cases closed	1,258	6,457
Average time to close (days)	175.77	216.96
% of cases resolved within 6 months	71.07%	57.29%
% of cases resulting in disciplinary action	8.27%	10.67%
Cases pending at end of March	649	6,646

### Source of Cases Opened through March Fiscal Year 2022



<b>Case Outcomes</b>	<b>ELC</b>	<b>TDLR</b>
Commission Orders	4	14
Default Orders	56	201
Agreed Orders	23	408
Penalties Assessed	\$152,625.00	\$1,472,575.00
Penalties Collected	\$25,003.00	\$833,384.00
Licenses Revoked (Disciplinary)	3	33
Licenses Suspended	2	4
Licenses Denied/Revoked (Criminal History)	48	106
Cease & Desist Orders	2	9
Informally Resolved	1,150	5,767

## Top 10 ELC Alleged Violations at Opening through March of Fiscal Year 2022

Violation:	Count
Criminal History	672
Contracted without license	222
Evaded responsibility to client	32
Performed in violation of code	19
Dishonesty, misrepresentation, or fraud	18
Unlicensed electrical work	16
Did not have TDLR information on proposal or investigation	13
Failed to display TECL in advertising	12
Performed in negligent manner	9
No name or TECL on proposal or invoice	9

## Top ELC Violations Resulting in Disciplinary Action through March of Fiscal Year 2022

Violation:	Count
Criminal History	52
Contracted without license	39
Evaded responsibility to client	6
Used another's license	4
Failed to ensure licensed work	3
Failed to pay dishonored check	2
No name or TECL on proposal or invoice	1
Failed to comply with an order	1
Did not have TDLR information on proposal or invoice	1

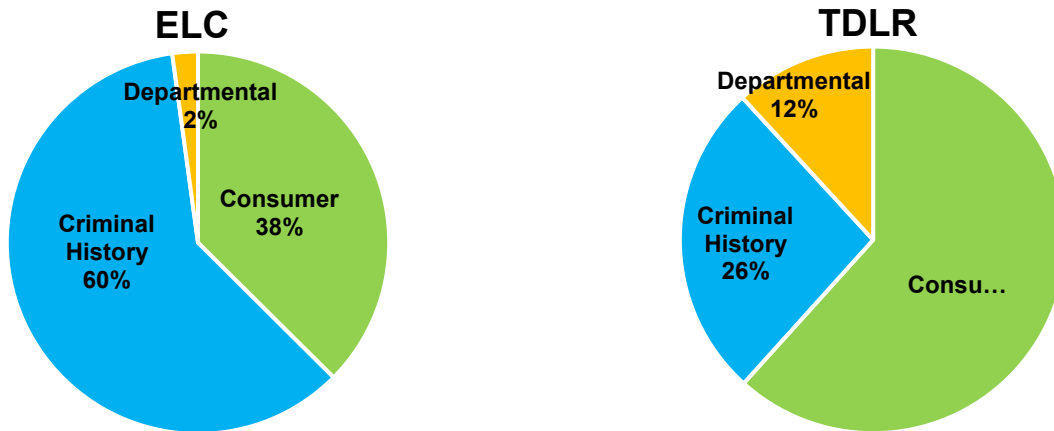
Shown below are the Complaints Received, Enforcement Performance Measures, and key statistics for the Electrical (ELC) program and for all TDLR programs combined for **Fiscal Year 2021:**

Complaints Received Break Down	ELC	TDLR
Total Complaints Received	8,309	32,655
Consumer	1,021	13,759
Criminal History	7,288	18,896



Key Statistic	ELC	TDLR
Cases opened	1,757	10,121
Cases closed	1,745	9,335
Average time to close (days)	171.74	209.86
% of cases resolved within 6 months	72.84%	60.00%
% of cases resulting in disciplinary action	11.00%	13.41%
Cases Pending	895	6,627

### Source of Cases Opened Fiscal Year 2021



Case Outcomes	ELC	TDLR
Commission Orders	12	44
Default Orders	91	455
Agreed Orders	50	711
Penalties Assessed	\$337,200.00	\$2,570,716.00
Penalties Collected	\$79,275.00	\$1,140,068.95
Licenses Revoked (Disciplinary)	3	103
Licenses Suspended	1	8
Licenses Denied/Revoked (Criminal History)	92	240
Cease & Desist Orders	0	19
Informally Resolved	1,545	7,976

## Top 10 ELC Alleged Violations at Opening for Fiscal Year 2021

<b>Violation:</b>	<b>Count</b>
Criminal History	1048
Contracted without license	424
Unlicensed electrical work	71
Failed to display TECL in advertising	46
Evaded responsibility to client	43
Performed in violation of code	24
Using another's license	19
Performed in negligent manner	18
Dishonesty, misrepresentation, or fraud	17
Did not have TDLR information on proposal or invoice	12

## ELC Violations Resulting in Disciplinary Action for Fiscal Year 2021

<b>Violation:</b>	<b>Count</b>
Criminal History	83
Contracted without license	80
Lacks honesty, trustworthiness, and integrity	6
Evaded responsibility to client	4
Used another's license	4
Unlicensed electrical work	3
Failed to ensure licensed work	3
Failed to comply with an order	3
Allowed unlicensed person to subcontractor	1
Leased license to another	1
Performed in negligent manner	1
Performed in violation of NEC	1
Did not have TDLR information on proposal or invoice	1
Dishonesty, misrepresentation, or fraud	1

## Case Highlights:

- Benjamin Kyle Meece – ELC20200006125

On August 10, 2021, the Commission of the Texas Department of Licensing and Regulation signed an order denying Respondent Benjamin Kyle Meece's application for an apprentice electrician license. It was found by the Commission that Respondent had a history of convictions from March 2011 through August 2018 that were directly related to the duties and responsibilities of a licensed electrician. The Commission found that the offenses for which Respondent was convicted involved fraud, deception, or were crimes against property. The Commission also found that insufficient time had passed in order for Respondent to demonstrate the requisite honesty, trustworthiness, and integrity required for licensure.

- Charles E. Cox – ELC20210012065

On January 20, 2022, an agreed order regarding Respondent Charles E. Cox was signed and issued on behalf of the Executive Director. Respondent agreed that he had offered to perform electrical contracting work without holding the appropriate contractor license. During a sting operation conducted by the Department, an undercover Department Investigator contacted Respondent in response to his offer as found on the [houston.craigslist.org](http://houston.craigslist.org) website. Respondent visited the sting location and offered to perform the work being requested for a fee. The agreed order provided for an administrative penalty of \$750.00, which Respondent paid in full on October 25, 2021.

- Mario Garcia, III – ELC20210004884

On March 31, 2022, an agreed order regarding Respondent Mario Garcia, III, was signed and issued by Deputy Executive Director David Gonzales for the Executive Director. Respondent agreed that he allowed an unlicensed individual to use his license to obtain a permit for electrical work. The agreed order included an administrative penalty of \$2,625.00. Respondent paid the penalty in full on January 31, 2022.

- Jason Subia Orona – ELC20210005841

On October 7, 2021, a Restricted License Agreement for a restricted journeyman electrician license was signed and issued in favor of Jason Subia Orona. Licensee Orona was the subject of a criminal history investigation after he applied for a renewal of his Journeyman Electrician license. Mr. Orona accrued a criminal history that directly related to the duties and responsibilities of an electrician as reflected in the criminal conviction guidelines for the Electricians program. Currently, Mr. Orona is on parole for an offence directly related to the guidelines for the program.

As part of the investigation, the prosecuting attorney interviewed the individual who would be directly supervising Mr. Orona. The Department received supporting documentation from Mr. Orona in his bid for licensure. The information received by the prosecuting attorney led to a recommendation that a restricted license be granted to Mr. Orona. Executive Director Brian Francis signed the agreement that includes the terms of the restrictive license.

Under the terms of the restricted license, licensee Orona may only work under the direct supervision of the named supervisor. Additionally, the licensee may work only on new construction, industrial job sites, commercial buildings, or vacant residential facilities. Licensee Orona must carry or have access to a legible, paper copy of the Restricted License Agreement at all times and must present it upon the request of any person. The restricted license is valid for a period of one year as of the date of issuance.

- Samuel R. Daniels– ELC20210002771

On September 17, 2021, an agreed order regarding Respondent Samuel R. Daniels was signed and issued by Deputy Executive Director David Gonzales for the Executive Director. Respondent agreed that he allowed an unlicensed worker to perform non-exempt electrical work. Respondent Daniels and the Department entered into a settlement agreement for an administrative penalty of \$1,500.00. Respondent paid the full amount of the penalty on July 16, 2021.



# Education and Examination Division

## Staff Report for the Electrical Safety and Licensing Advisory Board

### May 25, 2022

#### Statistics

#### Examination Statistics

(As of March 31, 2022)

FY 2022	SEP	OCT	NOV	Q1	DEC	JAN	FEB	Q2	MAR	APR	MAY	Q3	JUN	JUL	AUG	Q4	TOT
PASS	289	314	262	865	249	300	317	866	351	0	0	351	0	0	0	0	2,082
FAIL	719	892	722	2,333	582	779	728	2,089	867	0	0	867	0	0	0	0	5,289
TOTAL	1008	1206	984	3,198	831	1079	1045	2,955	1218	0	0	1,218	0	0	0	0	7,371
RATE	28.7%	26.0%	26.6%	27.0%	30.0%	27.8%	30.3%	29.3%	28.8%	0.0%	0.0%	28.8%	0.0%	0.0%	0.0%	0.0%	28.2%

FY 2021	SEP	OCT	NOV	Q1	DEC	JAN	FEB	Q2	MAR	APR	MAY	Q3	JUN	JUL	AUG	Q4	TOT
PASS	306	419	238	963	178	188	139	505	265	268	305	838	332	304	296	932	3,238
FAIL	953	1,129	716	2,798	586	496	339	1,421	610	654	700	1,964	767	727	730	2,224	8,407
TOTAL	1259	1548	954	3,761	764	684	478	1,926	875	922	1005	2,802	1099	1031	1026	3,156	11,645
RATE	24.3%	27.1%	24.9%	25.6%	23.3%	0%	0%	26.2%	30.3%	29.1%	30.3%	29.9%	30.2%	29.5%	28.8%	29.5%	27.8%

## Examination by License Type

(As of March 31, 2022)

1 <sup>ST</sup> QUARTER					2 <sup>ND</sup> QUARTER				
SEPTEMBER					DECEMBER				
OCTOBER					JANUARY				
NOVEMBER					FEBRUARY				
LICENSE TYPE	PASS	FAIL	TOT	RATE	LICENSE TYPE	PASS	FAIL	TOT	RATE
MASTER CALCULATIONS	129	550	679	19.00%	MASTER CALCULATIONS	142	473	615	23.09%
MASTER NEC	157	475	632	24.84%	MASTER NEC	148	360	508	29.13%
JOURNEYMAN LINEMAN	1	13	14	7.14%	JOURNEYMAN LINEMAN	4	7	11	36.36%
JOURNEYMAN	473	1,116	1,589	29.77%	JOURNEYMAN	476	1,078	1,554	30.63%
MAINTENANCE	3	0	3	100.00%	MAINTENANCE	2	0	2	100.00%
RESIDENTIAL WIREMAN	62	119	181	34.25%	RESIDENTIAL WIREMAN	56	112	168	33.33%
MASTER SIGN	3	14	17	17.65%	MASTER SIGN	8	7	15	53.33%
JOURNEYMAN SIGN	5	12	17	29.41%	JOURNEYMAN SIGN	5	7	12	41.67%
APPLIANCE INSTALLER	32	34	66	48.48%	APPLIANCE INSTALLER	25	43	68	36.76%
JOURNEYMAN INDUSTRIAL ELE*	0	0	0	0.00%	JOURNEYMAN INDUSTRIAL ELE*	0	2	2	0.00%
<b>TOTAL (ALL)</b>	865	2,333	3,198	27.05%	<b>TOTAL (ALL)</b>	866	2,089	2,955	29.31%
3 <sup>RD</sup> QUARTER					4 <sup>TH</sup> QUARTER				
MARCH					JUNE				
APRIL					JULY				
MAY					AUGUST				
LICENSE TYPE	PASS	FAIL	TOT	RATE	LICENSE TYPE	PASS	FAIL	TOT	RATE
MASTER CALCULATIONS	65	203	268	24.25%	MASTER CALCULATIONS	-	-	-	-
MASTER NEC	70	157	227	30.84%	MASTER NEC	-	-	-	-
JOURNEYMAN LINEMAN	0	2	2	0.00%	JOURNEYMAN LINEMAN	-	-	-	-
JOURNEYMAN	174	458	632	27.53%	JOURNEYMAN	-	-	-	-
MAINTENANCE	1	0	1	100.00%	MAINTENANCE	-	-	-	-
RESIDENTIAL WIREMAN	22	30	52	42.31%	RESIDENTIAL WIREMAN	-	-	-	-
MASTER SIGN	4	2	6	66.67%	MASTER SIGN	-	-	-	-
JOURNEYMAN SIGN	1	3	4	25.00%	JOURNEYMAN SIGN	-	-	-	-
APPLIANCE INSTALLER	14	11	25	56.00%	APPLIANCE INSTALLER	-	-	-	-
JOURNEYMAN INDUSTRIAL ELE*	0	1	1	0.00%	JOURNEYMAN INDUSTRIAL ELE*	-	-	-	-
<b>TOTAL (ALL)</b>	0	1	1	0.00%	<b>TOTAL (ALL)</b>	-	-	-	-

### Continuing Education Course, Provider, and Curriculum

(As of March 31, 2022)

FY 2022	SEP	OCT	NOV	Q1	DEC	JAN	FEB	Q2	MAR	APR	MAY	Q3	JUN	JUL	AUG	Q4	TOT
NEW COURSE APPROVAL ISSUES	14	9	4	27	21	16	17	54	26	-	-	26	-	-	-	0	107
TOTAL COURSES	169	174	178	178	192	180	167	167	177	-	-	177	-	-	-	0	177

FY 2021	SEP	OCT	NOV	Q1	DEC	JAN	FEB	Q2	MAR	APR	MAY	Q3	JUN	JUL	AUG	Q4	TOT
NEW COURSE APPROVAL ISSUES	9	11	1	21	15	18	33	66	21	15	12	48	12	8	12	32	167
TOTAL COURSES	166	159	148	148	143	145	165	165	162	163	166	166	173	164	164	164	164

### Electrician Apprentice Programs

(As of March 31, 2022)

FY 2022	SEP	OCT	NOV	Q1	DEC	JAN	FEB	Q2	MAR	APR	MAY	Q3	JUN	JUL	AUG	Q4	TOT
NEW PROGRAM REGISTRATIONS ISSUED	0	0	1	1	0	0	0	0	0	-	-	0	-	-	-	0	1
PROGRAM RENEWAL LICENSES ISSUED	29	7	4	40	1	1	5	7	2	-	-	2	-	-	-	0	49
TOTAL PROGRAM PROVIDER LICENSE COUNT (END OF MONTH)	57	57	58	58	58	58	59	59	59	-	-	59	-	-	-	0	59
TOTAL NEW PROGRAM COURSE APPROVALS ISSUED	0	0	1	1	0	0	0	0	0	-	-	0	-	-	-	0	1
TOTAL PROGRAM COURSE COUNT (END OF MONTH)	57	57	58	58	58	58	59	59	59	-	-	59	-	-	-	0	59

FY 2021	SEP	OCT	NOV	Q1	DEC	JAN	FEB	Q2	MAR	APR	MAY	Q3	JUN	JUL	AUG	Q4	TOT
NEW PROGRAM REGISTRATIONS ISSUED	2	0	0	2	1	0	3	4	1	0	2	3	0	0	0	0	9
PROGRAM RENEWAL LICENSES ISSUED	0	39	3	42	1	0	0	1	2	3	2	7	5	0	0	5	55
TOTAL PROGRAM PROVIDER LICENSE COUNT (END OF MONTH)	31	54	55	55	56	56	56	56	57	57	59	59	59	59	59	59	59
TOTAL NEW PROGRAM COURSE APPROVALS ISSUED	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
TOTAL PROGRAM COURSE COUNT (END OF MONTH)	31	54	55	55	56	56	56	56	57	57	59	59	59	59	59	59	59

## Early Journeyman Exam Statistics

### Journeyman Electrician 7K Exam Pass Rate by Total numbers of Exams Between 08/20/2021 and 04/30/2022

7K 1st Time Exam Pass Rate			7K Repeat Time Exam Pass Rate			7K Average Exam Pass Rate		
Total Pass 1st Time	Total Exams 1st Time	Pass Rate 1st Time	Total Pass Repeat	Total Exams Repeat	Pass Rate Repeat	Total Exams Pass	Total Exams	Avg Pass Rate
153	199	76.88	83	321	25.86	236	520	45.38

### Journeyman Electrician 7K Exam Pass Rate in Apprenticeship Pgm by Total numbers of Exams Between 08/20/2021 and 04/30/2022

7K 1st Time Exam Pass Rate			7K Repeat Time Exam Pass Rate			7K Average Exam Pass Rate		
Total Pass 1st Time	Total Exams 1st Time	Pass Rate 1st Time	Total Pass Repeat	Total Exams Repeat	Pass Rate Repeat	Total Exams Pass	Total Exams	Avg Pass Rate
51	61	83.61	24	75	32.00	75	136	55.15

### Journeyman Electrician 8K Exam Pass Rate by Total numbers of Exams Between 08/20/2021 and 04/30/2022

8K 1st Time Exam Pass Rate			8K Repeat Time Exam Pass Rate			8K Average Exam Pass Rate		
Total Pass 1st Time	Total Exams 1st Time	Pass Rate 1st Time	Total Pass Repeat	Total Exams Repeat	Pass Rate Repeat	Total Exams Pass	Total Exams	Avg Pass Rate
588	1,039	56.59	537	3,090	17.38	1,125	4,129	27.25



## Updates

- We met with PSI and our Examination Review Committee in February to review Items and to augment the item pools. We would like to thank our group of volunteers for their time helping to keep our exam up to date.

# Regulatory Program Management Division

## Staff Report for the Electrical Safety and Licensing Advisory Board

### May 25, 2022

## Outreach

### TDLR RPM Meetings, Sweeps and Other Notable Activities

- 11/06 - NEC 2020 Generators & Emergency Systems training
- 01/05 – Job sweeps/inspections in Jan. & Feb. to get Larry’s Master electrical inspector certification.
- 01/31 – NFPA NEC 70 Task Group on 210.8(F) meeting Jan. – May 6, 2022.
- 02/ 08-10 - Texas Electrician examination Development.
- 03/01 - NERA Teleconference.
- 03/07-09 - Building Professional Institute (BPI) – Houston – Eaton Experience Center.
- 03/31 - TDLR Disaster Response and Readiness Meeting and Training.
- 04/06 – Meeting with TDLR and BOAT on Disaster Response and Readiness.
- 04/12 - Conference Call with NASCLA 2022 National Coordinated Enforcement Effort.
- 05/05 – NECA COSAB Division Meeting.
- 05/10 - NASCLA 2022 National Coordinated Enforcement Effort.
- 05/07 – IEC BBQ Cook Off.
- 05/17 – NECA Houston Division Meeting.
- 06/06-10 – NFPA NEC 70 Convention & Expo. Final Vote on 2023 NEC 70.



## 2020 & 2023 National Electrical Code Proposed TIA for 210.8(F)

### 2020 Edition of NEC

210.8(F) Outdoor Outlets.

All outdoor outlets for dwellings, other than those covered in 210.8(A)(3), Exception to (3), that are supplied by single-phase branch circuits rated 150 volts or less to ground, 50 amperes or less, shall have ground-fault circuit-interrupter protection for personnel.

*Exception No. 1: Ground-fault circuit-interrupter protection shall not be required on lighting outlets other than those covered in 210.8(C).*

*Exception No. 2: Ground-fault circuit-interrupter protection shall not be required for listed HVAC equipment. This provision shall expire September 1, 2026.*

## 2023 Edition of NEC

### 210.8(F) Outdoor Outlets.

For dwellings, all outdoor outlets rated 125 volts through 250 volts, other than those covered in 210.8(A), Exception No. 1, including outlets installed in the following locations, and supplied by single-phase branch circuits rated 150 volts or less to ground, 50 amperes or less, shall be provided with GFCI protection:

- (1) Garages that have floors located at or below grade level
- (2) Accessory buildings
- (3) Boathouses

If equipment supplied by an outlet covered under the requirements of this section is replaced, the outlet shall be supplied with GFCI protection.

Exception No. 1: GFCI protection shall not be required on lighting outlets other than those covered in 210.8(C).

*Exception No. 2: GFCI protection shall not be required for listed HVAC equipment. This provision shall expire September 1, 2026.*

## Technical Merit

When the Standards Council issued TIA 1593, the Council acknowledged “the concerted and sustained effort by numerous stakeholders to find a mutually agreeable solution to the technical issues at hand.” The Council directed that a Task Group of affected stakeholders be formed to evaluate and reach an informed, technically substantiated resolution to the issues raised. The Council further encouraged the Task Group to submit a TIA for processing to the current edition and in parallel to the work being done within the next edition of the NEC, if appropriate. This TIA is in response to the direction given to the Task Group. The Task Group consisted of representatives from home builder organizations, contractors, HVAC manufacturers, GFCI manufacturers, CMP2, electrical inspectors, CPSC, and testing laboratories.

Based upon the information submitted to and reviewed by the Task Group, the proposed TIA extends the date when the requirement for GFCI protection will be required and expands the application of the exemption for GFCI protection to all listed HVAC equipment. If GFCI protection is required while the incompatibility issue remains, there is a higher risk of people being adversely impacted by exposure to extreme temperatures due to nuisance tripping than the risk of people being exposed to a leakage current that could cause injury or harm. The issue of GFCI protection not being compatible with listed HVAC equipment was known at the time SR 7676-NFPA 70-2018 was approved by CMP-2. Three of the four negative ballots specifically mentioned the concern with incompatibility associated with requiring GFCI protection for listed HVAC equipment.

Data was submitted to the Task Group showing that listed HVAC equipment typically can have a leakage current higher than what would trip a Class A GFCI, but the touch current is well below levels that would injure or harm an individual. The number of potential deaths from electrocution involving HVAC equipment may be as high as four per year. However, the number of fatalities (no cooling during a heat wave period) due to nuisance trips associated with GFCI protection of HVAC equipment where no hazard exists may be as high as 750 per year. (See Table 1)

Estimates of HVAC Units and US At-Risk Populations	Estimates		References
Number of homes with HVAC systems in the US:	75,000,000	Approx	<a href="https://www.energy.gov/articles/history-air-conditioning">https://www.energy.gov/articles/history-air-conditioning</a>
% of HVAC Fixed appliances that are Variable Speed:	50	%	<a href="https://www.achrnews.com/articles/134406-variable-speeds-impact-on-hvac#:~:text=For%20heat%20pumps%20alone%2C%2065%20percent%20of%20the,the%20mini%20splits%20we%20sold%20were%20variable%20speed.">https://www.achrnews.com/articles/134406-variable-speeds-impact-on-hvac#:~:text=For%20heat%20pumps%20alone%2C%2065%20percent%20of%20the,the%20mini%20splits%20we%20sold%20were%20variable%20speed.</a>
Total number of variable speed HVAC Units	37,500,000	households	
Number of Households with people 65+	20.00	%	<a href="https://www.yardeni.com/pub/hseholdform.pdf">https://www.yardeni.com/pub/hseholdform.pdf</a>
Number of Households with people 65+ with HVAC?	7,500,000		
Temperature at which injury can occur from heat exahustion/Stroke	104	F	
If only 10% of these homes are in climates with high heat:	750,000		
If Only 10% have compatibility issues:	75,000		
<b>If 1% contain high risk occupants:</b>	<b>750</b>	<b>per year</b>	estimated rate of annual deaths due to nusiance trips where no hazard existed to the end user.
Number of annual deaths from electrocution, without specific details, involving HVAC equipment	4	per year	

Table 1: Loss of HVAC Operation – Potential Impact

With respect to the extension of the date, the Task Group understands that there may not be a resolution to the incompatibility associated with listed Class A GFCIs and the leakage current permitted for listed HVAC equipment. However, the Task Group has included the date so that the exemption is not continued for an undefined period of time and to encourage the affected parties to continue to work together to resolve the incompatibility issue. The Task Group acknowledges that the date may need to be re-evaluated in the future if the incompatibility issues are not resolved.

AHRI has developed a testing program to clarify the cause of interoperability issues. The causes need to be defined before solutions can be proposed and tested. Product design and testing must follow. Industry standard revisions and related standardized test procedures are needed. Production tooling and supply chain modifications require additional time after the earlier steps are completed.

With respect to the expansion to all listed HVAC equipment, industry standards for power conversion equipment allow leakage currents above the trip current of Class A GFCI's. Residential air-conditioning (AC) and heat pump (HP) power conversion equipment for compressors have demonstrated leakage currents above Class A GFCI trip currents in lab measurements. Residential AC and HP electronically commutated outdoor fan motors have demonstrated leakage currents above the trip current of Class A GFCI's in lab measurements. Data was submitted based upon actual nuisance trips and a survey of air-conditioning contractors indicating that nuisance trips also occur with single-stage units. (Also see Source 3 listed below)

Q3 If you answered yes to question #2, please indicate which type of unit(s) for which you experienced the nuisance trips. Choose as many as apply.

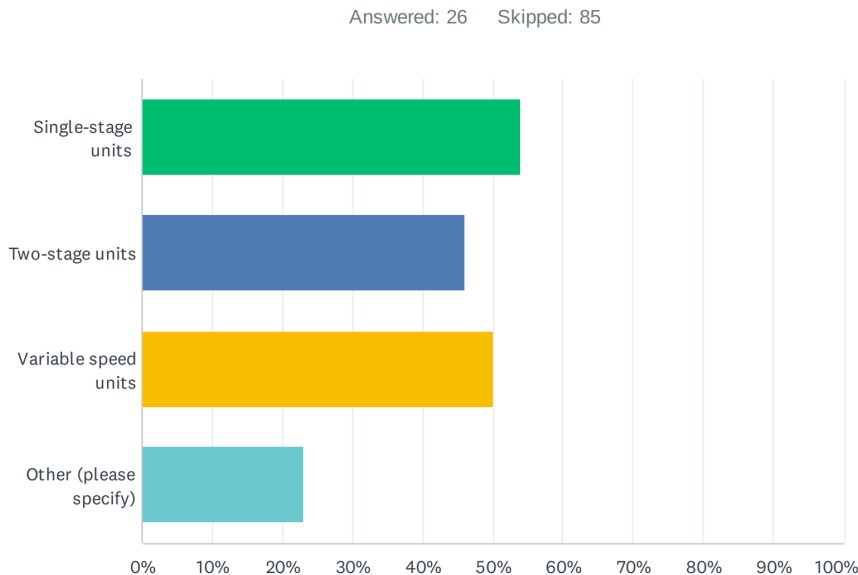


Figure 1: Texas Air Conditioning Contractor Association (TACCA) Survey

There are multiple reports of interoperability issues ('nuisance tripping') from AC and HP units that do not have power conversion equipment for the unit compressor which is the only current TIA exception. The cause(s) of this nuisance tripping remain unknown at this time. Furthermore, the presence of electronically commutated motors (ECM) is not currently documented on AC and HP nameplates or consumer/installer documents readily available to the code official. Therefore, an exception limited to ECM motors and/or other power conversion is not practical for the code official, builder or electrical contractor.

Conditions that affect interoperability include the following issues which have yet to be fully examined.

1) Residential AC and HP starting conditions distort circuit power supply conditions to such a great extent that other separate circuits in the building, such as lighting, experience power distortion that is well known to be noticed by occupants (through lights dimming). The appliances identified as comparable to AC and HP do not display and create distortion of this magnitude. There is no study to date to document that interoperability issues do not result from this startup power distortion.

2) A Class A GFCI's trip level amperage is based on the effects on humans of 60 hertz current. The higher frequency currents that create interoperability issues may not affect humans at the same current level. Evidence of safe use in Japan with a different means of protection has been documented.

3) AC and HP units include refrigeration devices that cause the direct drive compressor to start under conditions of existing high-pressure differential. This condition does not exist or is much less common in the refrigeration equipment that was cited in the 2020 code deliberations as a similar load.

4) AC and HP units operate under a much wider range of temperature conditions than the refrigeration equipment cited as similar in the 2020 code deliberations. The conductivity of the fluids

surrounding the motor windings may increase as a result. The net result has not yet been tested to confirm this is not an interoperability issue.

5) Higher federal minimum energy standards have increased the use of power conversion equipment for compressors and high efficiency ECM fan motors. Standards again increase January 1, 2023, further increasing the portion of equipment that will contain features that have demonstrated measured interoperability problems.

In addition to some of the information sources cited above, the Task Group was presented with a significant amount of technical information that was considered in developing this TIA. The following is a bibliography of that information:

2020 NEC Adoption/210.8(F)

AHRI Experts GFCI TG April 4, 2022, PowerPoint Presentation

AHRI 2020 NEC GFCI Summary Data Only 02-08-21

Assessment of Incompatibility of HVAC Equipment and GFCI Breakers, AHRI Project 8029  
PowerPoint Presentation

GFCI Survey by TACCA

Minnesota April through September 2021 AC/HP Mini Split – Non GFCI Forms

## **Emergency Nature**

Almost every state that has adopted the 2020 Edition of the NEC have modified or deleted Section 210.8(F). NFPA is aware of at least six states that have deleted Section 210.8(F) in its entirety GFCI protection is also lost for outdoor outlets that do not serve listed HVAC equipment. As such, GFCI protection for equipment for which there is not a compatibility issue is lost (see source listed as 1 above).

The equipment incompatibility issues identified above will not be resolved by January 1, 2023. If GFCI protection is required while the incompatibility issue remains, there is a higher risk of people being adversely impacted by exposure to extreme temperatures due to nuisance tripping than the risk of people being exposed to a leakage current that could cause injury or harm. Data was submitted to the task group showing that listed HVAC equipment typically can have a leakage current higher than what would trip a Class A GFCI but the touch current is well below levels that would injure or harm an individual.