

# Standards and Quality Assurance

*Central Hudson Electric & Gas Solar Summit*



**NYSERDA**

March 7<sup>th</sup>, 2024

# Standards and Quality Assurance Team

## Our Approach to Quality Assurance and Insights



# Standards and Quality Assurance – QA vs. QC

Quality Control, QC: “control of the process, before and during the process”

Planned and systematic activity implemented to ensure quality requirements are met and deficiencies documented in a QA inspection are corrected.

Contractors/builders/installers should have their own QC resources to confirm their work.

Quality Assurance, QA: “assuring the work is done properly, at the end of a process”

Field and photo evaluations to verify compliance of key milestones within projects to assess compliance with industry standards and Program requirements; identify corrective action necessary to comply with said standards and requirements.

NYSERDA’s QA team provides 3<sup>rd</sup> party Quality Assurance and monitoring. NYSERDA’s QA team does not fix broken projects but looks at the quality of the projects being performed.

## Standards and Quality Assurance Team's Origin and Changing Role

The Quality, Standards and Compliance team was created in 2010 to support the Residential Energy Services team. The team provided in-field QA and technical support to EmPower, HPwES, NYESH, small PV and Solar Thermal.

With the expansion of solar and restructuring under NY-Sun, the team began to support multiple departments and began servicing large PV.

Under restructuring to support the CEF in 2016, the Standards and Quality Assurance team was created and chartered with a NYSERDA-wide role. The team has added or is in the process of adding services to support authority wide programs.

# Current SQA Portfolio

# Standards and Quality Assurance NY-Sun Portfolio

## Residential and Nonresidential Program

- 1,522 project inspections in 2021
- 1,302 projects inspected in 2022
- 1,606 projects inspected in 2023

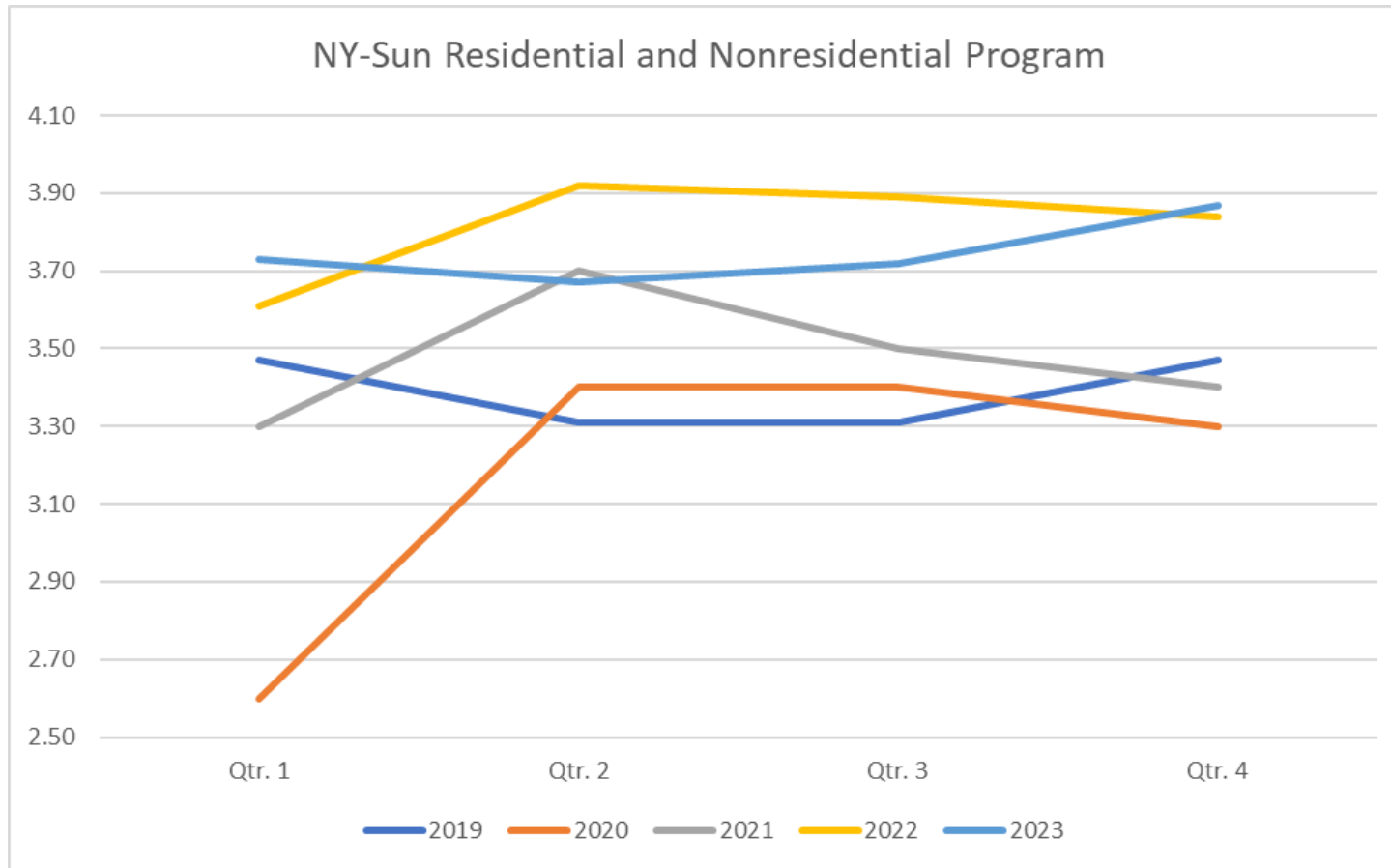
## Large Commercial and Industrial

- 98 project inspections in 2021
- 116 projects inspected in 2022
- 111 projects inspected in 2023
  
- Average QA score for all programs is stable or improving over last quarter/last year
  
- 80% of builders (contractors) across both programs are meeting program requirements with average scores of 3.0 or above for their jobs

**What does SQA do with QA data?**

# Standards and Quality Assurance Data Interpretation

Data provides an overarching snapshot of how well a program is performing.





# Regional Scores - 2023

NY-Sun Residential and Nonresidential

Region	Average In-Field QA Score 2021	Average In-Field QA Score 2022	Average In-Field QA Score 2023
Statewide	3.57	3.76	3.75
Albany	4.32	3.15	4.38
Columbia	3.23	3.11	4.33
Dutchess	3.94	4.10	4.15
Greene	4.29	3.33	5.00
Orange	3.75	4.00	4.12
Putnam	3.00	3.67	3.89
Schoharie	1.00	4.33	4.25
Sullivan	4.20	3.00	3.00
Ulster	4.11	3.79	4.71

Region	Average In-Field QA Score 2023
Statewide	3.75
CHG&E	3.78

# Regional Scores - 2023

NY-Sun Large Commercial and Industrial

Region	Average In-Field QA Score 2021	Average In-Field QA Score 2022	Average In-Field QA Score 2023
Statewide	4.30	3.90	4.19
Albany	5.00		
Columbia			
Dutchess	3.25	3.20	3.50
Greene	5.00	5.00	4.80
Orange		5.00	5.00
Ulster	3.50	4.00	5.00

Region	Average In-Field QA Score 2023
Statewide	4.19
CHG&E	4.92

# Program Health – Residential and Nonresidential

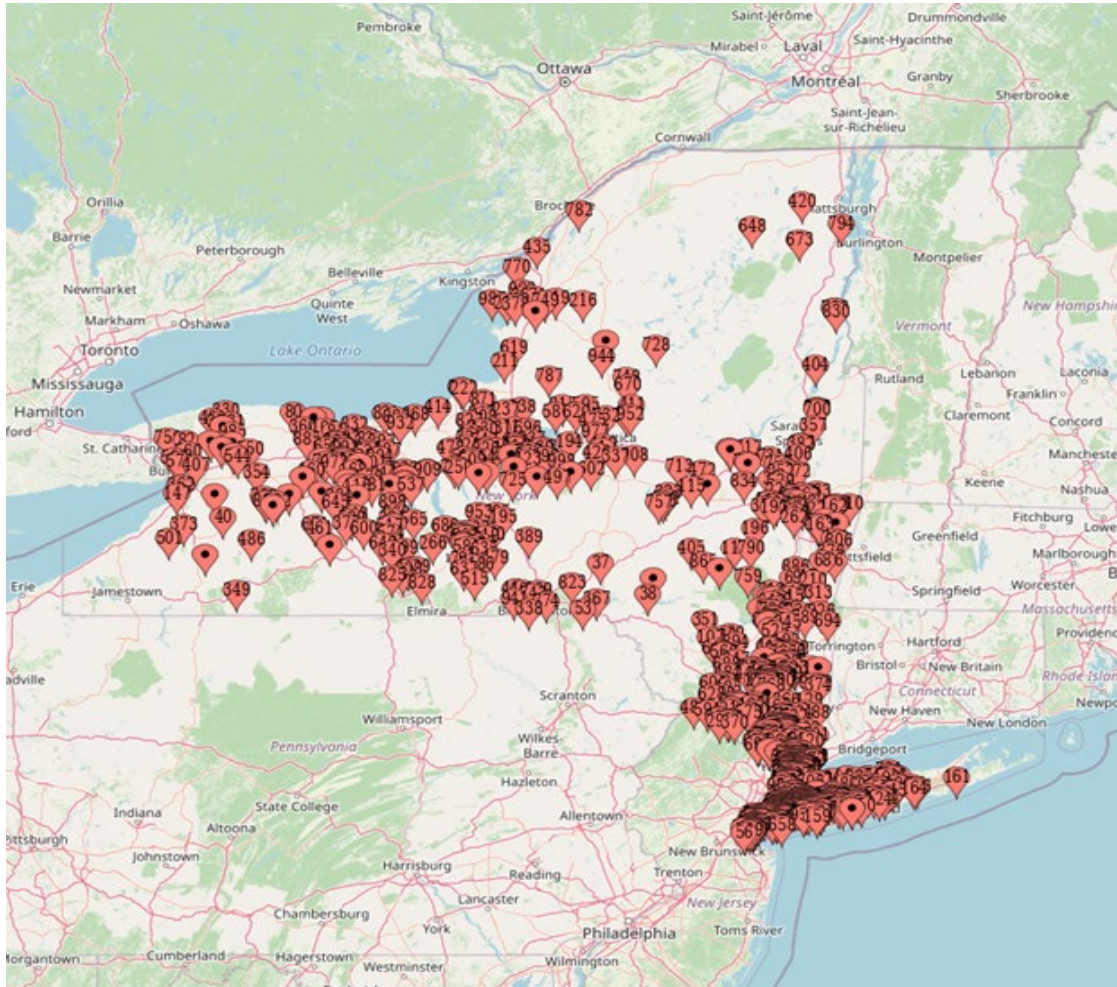
NY Sun Residential and Non-Residential Field Inspections YTD 2023							
Quality Score Description	Score	Average Quality Score	Number of Contractors Inspected in Score Range	Number of Projects by Contractors in Score Range	Average Number of Projects per Contractor	Percent of Contractor Inspected	Percent of Inspections
Exceeds or Meets all Requirements	5	5	35	679	19.4	23.3%	5.5%
		4.0 - 4.9	44	11,345	257.8	29.3%	41.3%
Meets Requirements at Minimum Level	3	3.0 - 3.9	36	6,046	167.9	24.0%	40.8%
							<b>Total Passing</b>
Does Not Meet Requirements	1	2.0 - 2.9	20	415	20.8	13.3%	9.2%
		1.0 - 1.9	15	202	13.5	10.0%	3.2%
					<b>Total Failing</b>	<b>23.33%</b>	<b>12.40%</b>
Program Totals			150	18,687		100.0%	100.0%

# Program Health – Large Commercial and Industrial

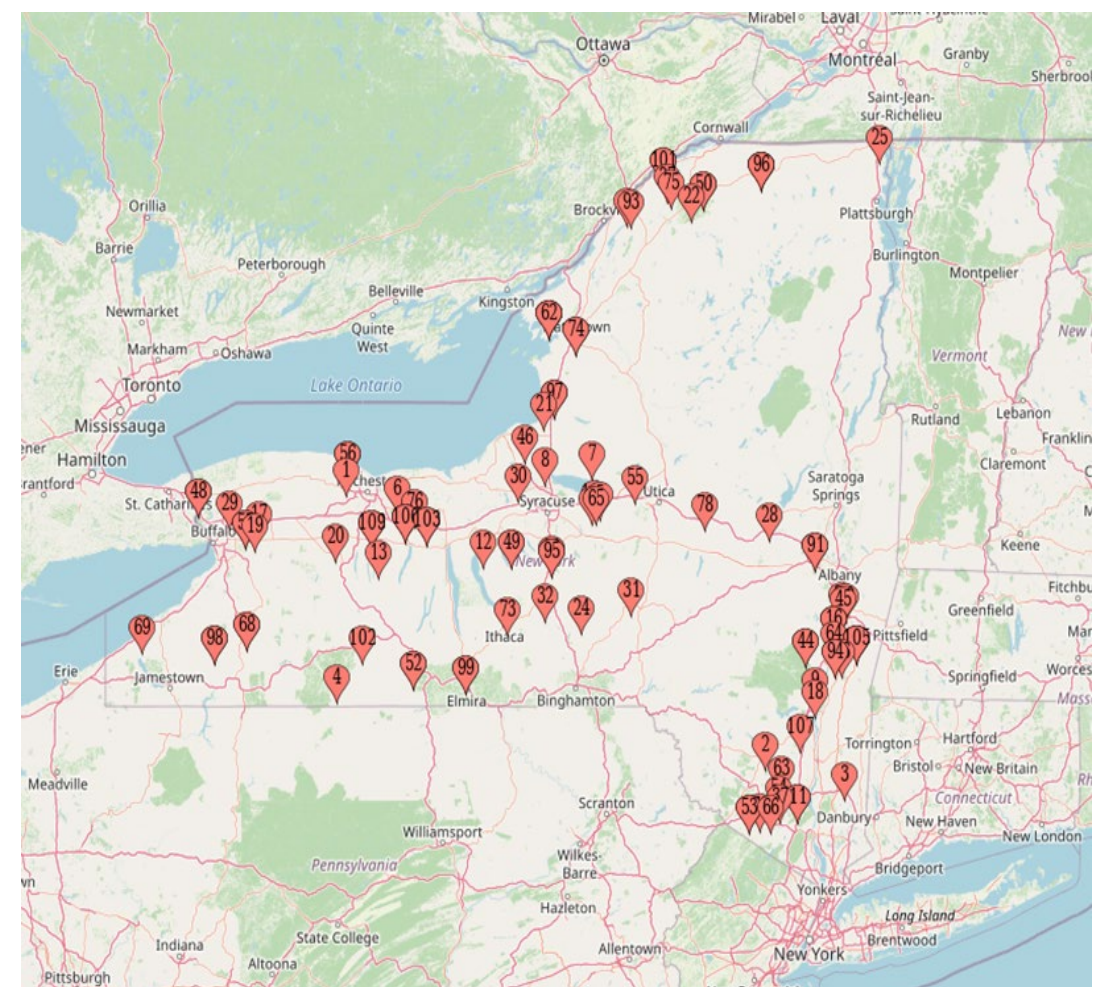
NY Sun Large CI YTD 2023 Field Inspections							
Quality Score Description	Score	Average Quality Score	Number of Contractors Inspected in Score Range	Number of Projects by Contractors in Score Range	Average Number of Projects per Contractor	Percent of Contractor Inspected	Percent of Inspections
Exceeds or Meets all Requirements	5	5	14	31	2.2	46.7%	29.5%
		4.0 - 4.9	8	54	6.8	26.7%	52.4%
Meets Requirements at Minimum Level	3	3.0 - 3.9	3	6	2.0	10.0%	7.6%
						<b>Total Passing</b>	<b>83.33%</b>
Does Not Meet Requirements	1	2.0 - 2.9	3	6	2.0	10.0%	7.6%
		1.0 - 1.9	2	0	0.0	6.7%	2.9%
					<b>Total Failing</b>	<b>16.67%</b>	<b>10.48%</b>
Program Totals		4.2	30	97	3.2	100.0%	100.0%

# Map of all 2023 NY-Sun

Residential/Nonresidential inspections



Large Commercial and Industrial inspections



# What else do we do with the data?

NY Sun Residential and Non-Residential Field Inspections YTD 2023	
Non-conformance Category	Percent of Non-conformances
Critical	1.00%
Major	19.00%
Minor	24.00%
Incidental	56.00%

# Statewide Non-conformances

Top critical and major statewide non-conformances for the Residential and Nonresidential Program.

NY-Sun Residential and Nonresidential Program Wide 2023		
Nonconformance Category	Field Inspection Non-Conformance	Percentage of Occurrence of all Inspected Projects
<b>Design and Workmanship</b>		
Critical	Inverter-interactive output circuit load side connection overcurrent protective device must be properly sized.	0.24%
Critical	PV source circuit, PV output circuit, inverter output circuit and storage battery circuit conductors and equipment shall be protected with an OCPD.	0.09%
Major	Grounding electrode conductor is properly bonded to the main premises grounding electrode system.	1.90%
Major	Module is properly secured to the racking system per manufacturer instructions.	1.40%
Major	Roof penetrations are properly sealed and flashed.	1.10%

# Regional Non-Conformances

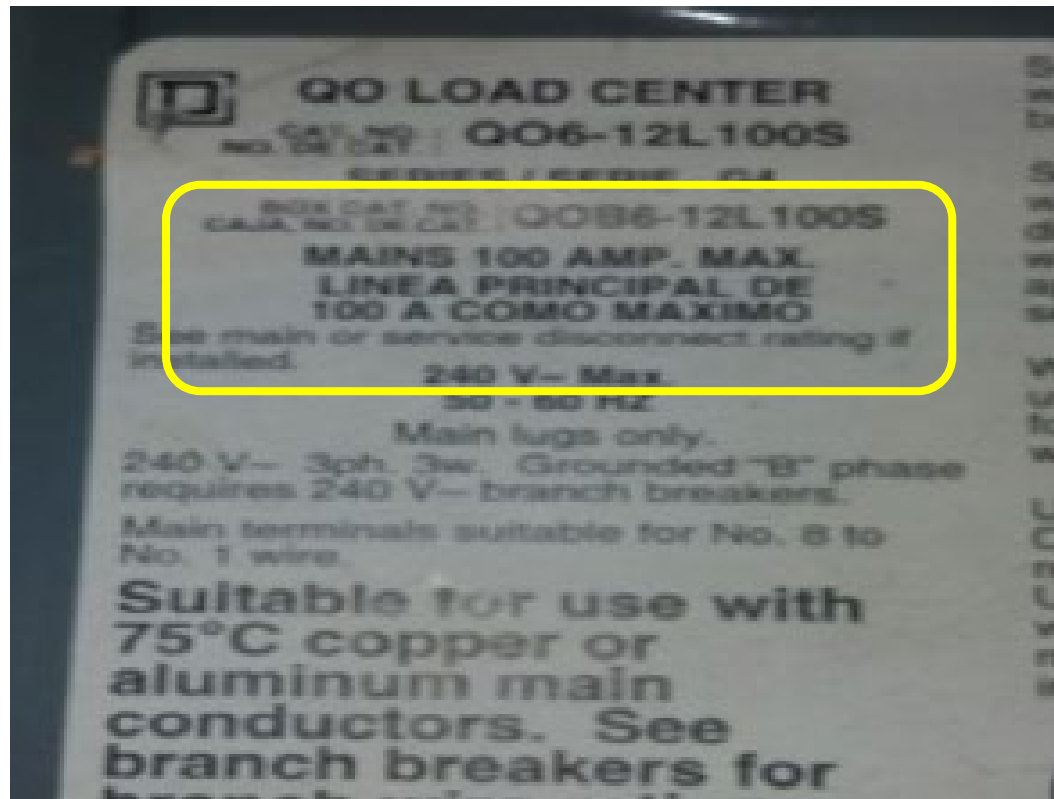
Top critical and major regional non-conformances for the Residential and Nonresidential Program.

NY-Sun Residential and Nonresidential Central Hudson Electric & Gas Regions 2023		
Nonconformance Category	Field Inspection Non-Conformance	Percentage of Occurrence of all Inspected Projects
<b>Design and Workmanship</b>		
Critical	Equipment must be sufficiently rated for expected voltage and/or current.	0.19%
Critical	Main panel overcurrent protection is sufficient.	0.19%
Major	Grounding electrode conductor is properly bonded to the main premises grounding electrode system.	1.90%
Major	The grounded conductor(s) shall be routed with the ungrounded conductors to each service disconnecting means and shall be connected to each disconnecting means grounded conductor(s) terminal or bus.	1.70%
Major	Roof penetrations are properly sealed and flashed.	0.94%
Major	The conduit is grounded (when required).	0.94%



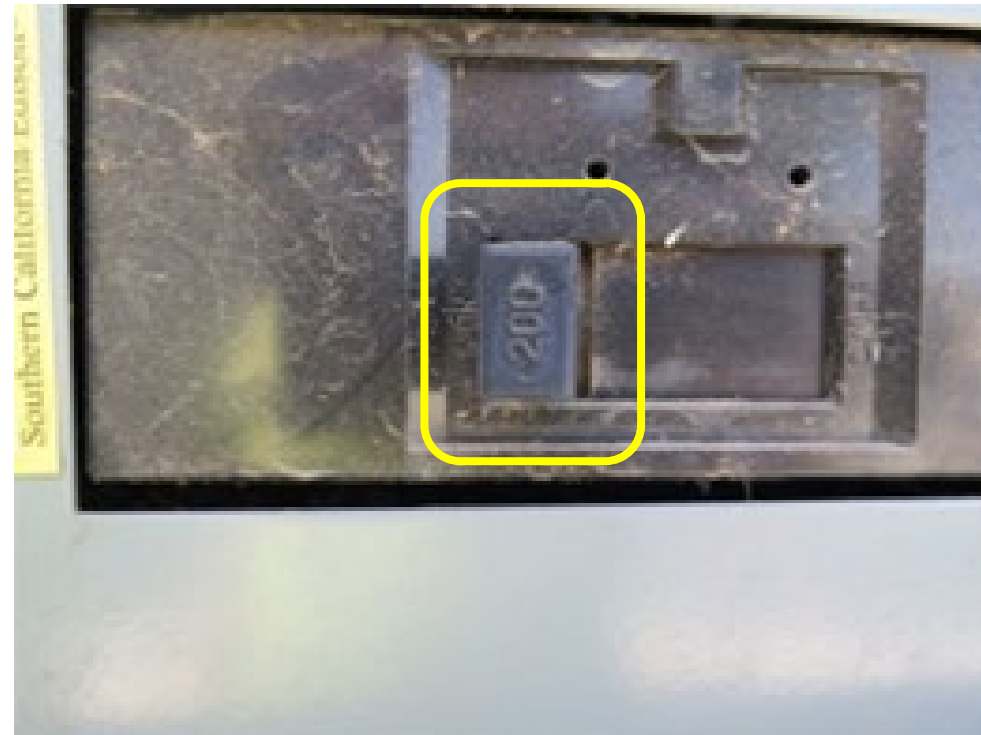
# Regional Top Non-Conformances

Equipment must be sufficiently rated for expected voltage and/or current. - Critical



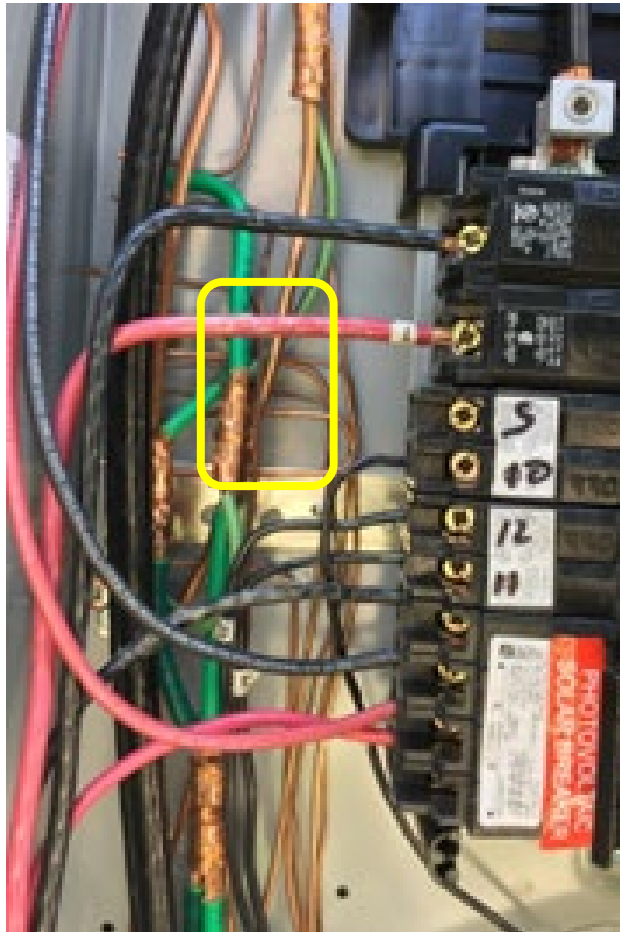
# Regional Top Non-Conformances

Main panel over-current protection is sufficient.- Critical



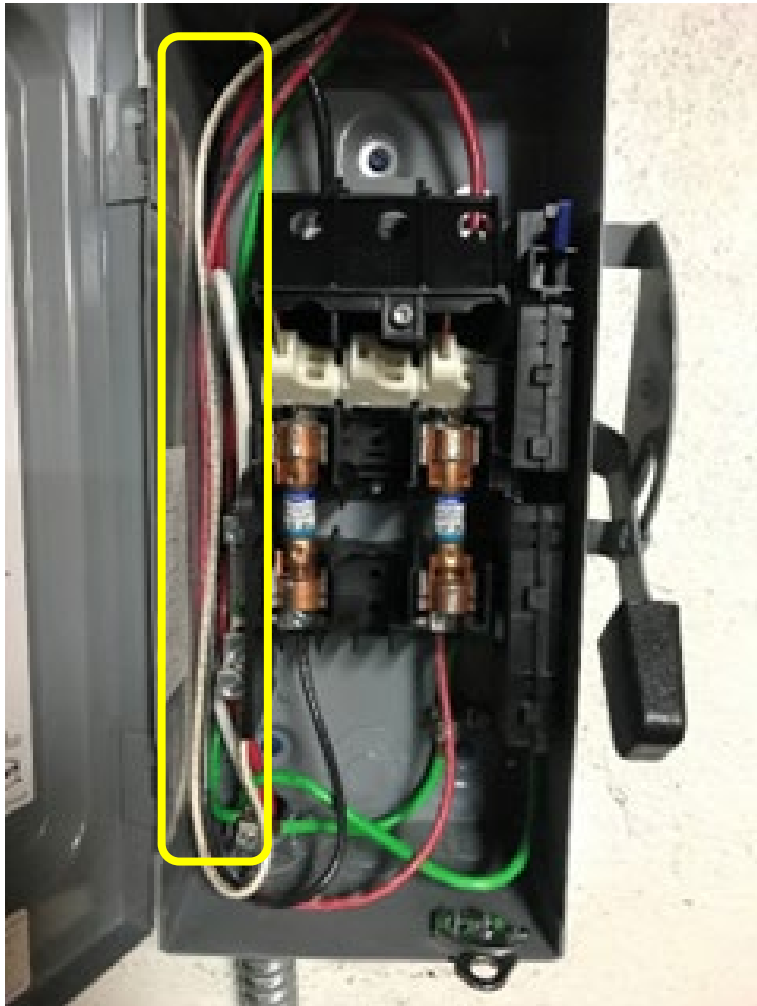
# Regional Top Non-Conformances

Grounding electrode conductor is properly bonded to the main premises grounding electrode system. - Major



# Regional Top Non-Conformances

The grounded conductor(s) shall be routed with the ungrounded conductors to each service disconnecting means and shall be connected to each disconnecting means grounded conductor(s) terminal or bus. - Major



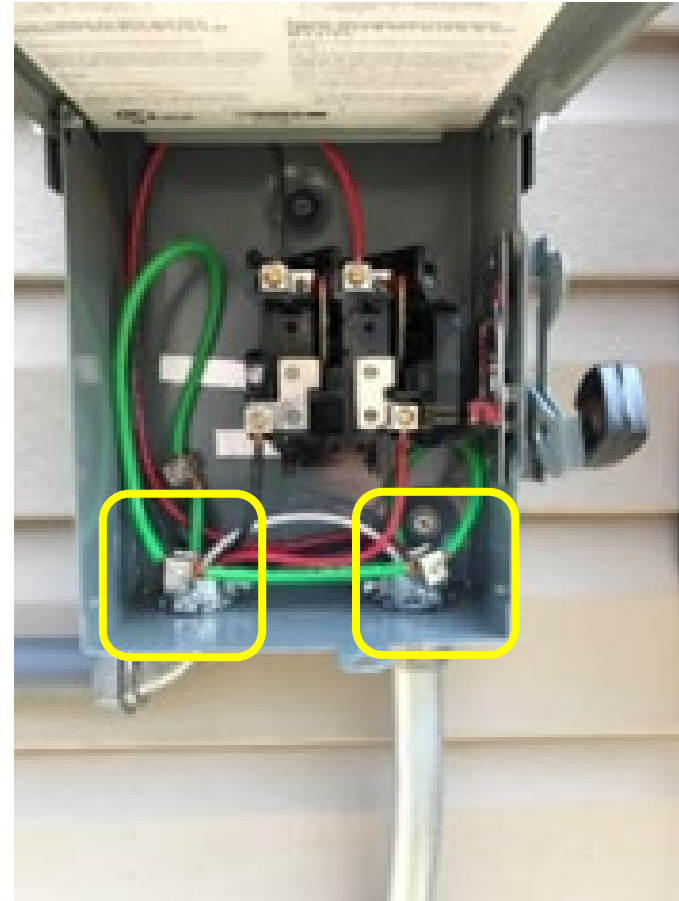
# Regional Top Non-Conformances

Roof penetrations are properly sealed and flashed. Major



# Regional Top Non-Conformances

The conduit is grounded (when required). - Major



# Customer Satisfaction Survey

# Customer Satisfaction Results – State Wide

Numbers are in percent and rounded	Would you recommend the Program to a friend or family member? (%)		
	January 2022 - June 2022	July 2022 - December 2022	January 2023 - June 2023
Yes	75.5%	50.40%	65.9%
No	6.4%	2.10%	5.6%
Unsure/Don't Know	7.4%	5.00%	8.9%
Did not respond	10.7%	42.50%	19.6%
Numbers are in percent and rounded	Would you recommend the contractor to a friend or family member? (%)		
	January 2022 - June 2022	July 2022 - December 2022	January 2023 - June 2023
Yes	70.1%	47.50%	60.5%
No	11.3%	3.80%	9.1%
Unsure/Don't Know	6.4%	5.00%	8.4%
Did not respond	12.2%	43.80%	22.0%



# Quality Solar Installer

# What is the Quality Solar Installer Designation?

Launched in 2019 it is a designation given to high quality solar installers (builders) who consistently exceed the annual quality assurance criteria in the NY-Sun Residential and Nonresidential Program.

In a calendar year, builders need to meet for exceed the following guidelines:

- Active Builders
- Full Status
- Installed at least 12 projects
- Have an average QA field inspection score of 4.0 or greater on a 1-5 scale

# What is the Motivation to obtain Quality Solar Installer Designation?

Builders can use this designation as a **third-party differentiator** and **validation of the quality** of their work with customers and prospective customers.

Designated builders are recognized in a **special listing on the NY-Sun website**, <https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Solar-for-Your-Home/How-to-Go-Solar/Find-a-contractor/Residential-Installers>, and receive a **NYSERDA Quality Solar Installer logo to use in marketing materials**.



**NYSERDA**  
Quality Solar Installer  
2024

# What is the Motivation to obtain Quality Solar Installer Designation?

New in 2021: additional **Gold Status** for builders that have achieved Quality Solar Installer designation three consecutive years.



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Quality Solar Installer  
Gold Status - 2024

NEW in 2024: additional **Platinum Status** for builders that have achieved Quality Solar Installer designation six consecutive years.



**NYSERDA**  
Quality Solar Installer  
Platinum Status - 2024

The designated QSI builders installed 63% of all projects in 2023.  
20% of all projects were installed by a QSI-Gold or Platinum builder.

25% of all active NYSun, Residential-Nonresidential builders  
have the designation of Quality Solar Installer.

Of the 25% :

49% of the builders were once on Probation Status.

13% of the builders were once Suspended.

5% of QSI- Platinum were once on a disciplinary status.

10% of QSI- Gold were once on a disciplinary status.

The combined efforts of SQA and Program Staff of presenting a prescriptive plan and working directly with the builders has a positive effect on the market.

25% of all active NYSun, Residential-Nonresidential builders have the designation of Quality Solar Installer.

Of the 25% :

13% of the builders earned QSI -Platinum Status.

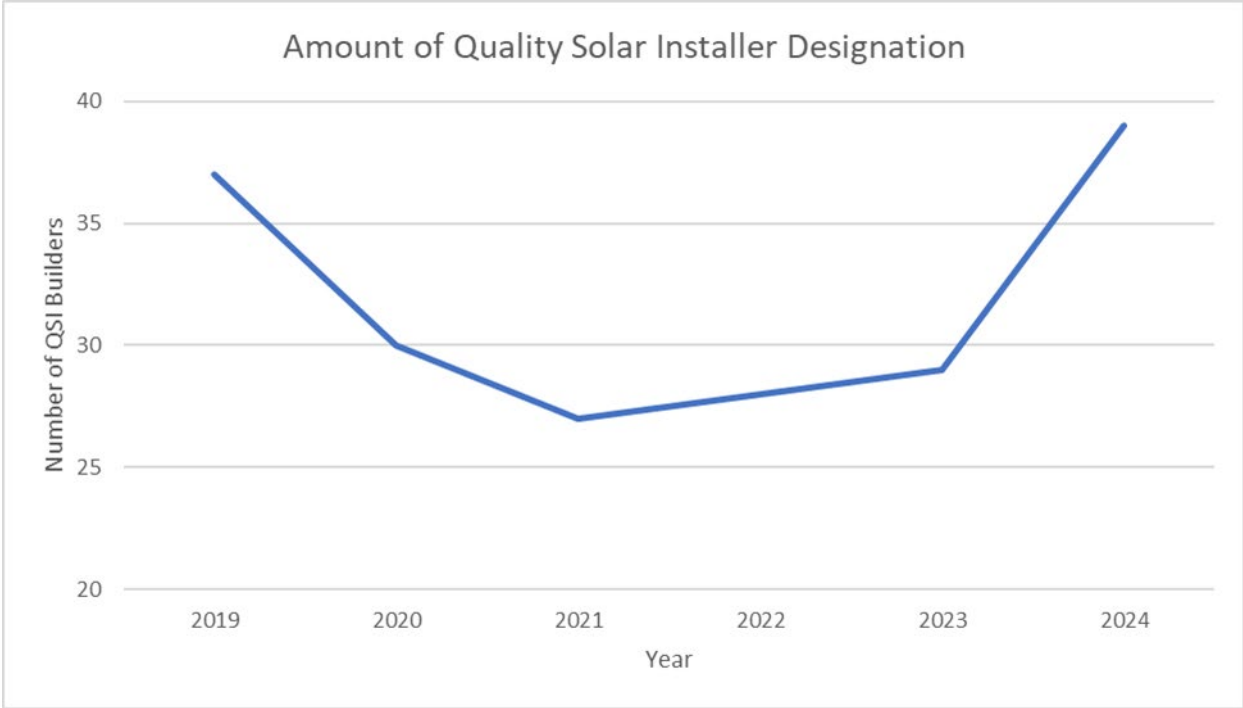
15% of the builders earned QSI- Gold Status.

72% of the builders earned QSI status.

15% of the QSI builders are first time on the list

8% have joined the NYSERDA NY-Sun program in 2021

# Yearly QSI Comparison



# Thank you!

**The contractors are our greatest asset, and every member of the Authority is helping to build a vibrant and sustainable clean energy future in our State – we thank you for all that you do.**



# Have a Quality Day!

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