GENERATORS

For Building Inspectors

Presented by:

Tim Mikloiche

Generators for Building Inspectors

General Topics

Generators for Building Inspectors

Do I need a permit, and inspections, in order to install a generator, and why?

Generators for Building Inspectors

✓ **Building permit requirements**

2003 IRC® - Section R105.1 Permits Required

Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause such work to be done, shall first make application to the building official and obtain the required permit

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✓ **Building permit requirements**

2005 NEC® - Section 702.1 General- Scope

The provisions of this article apply to the installation and operation of optional standby systems. **The systems covered by this article consist of those that are permanently installed in the entirety, including prime movers,** ***and those that are arranged for a connection to a premises wiring system from a portable alternate power supply.***

Presenter's note: Portable electrical equipment plugged directly into a portable generator does not require a building permit

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✓ **Construction Documents**

2003 IRC® - Section R106.1 Construction Documents

Construction documents, special inspection and structural observation programs, and other data shall be submitted in one or more sets with each permit application for a permits…… Where special conditions exist, the Building Official is authorized to require additional construction documents to be prepared by a registered design professional.

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Generator Permit Information

ADDITIONAL **INFORMATION TO BE SUBMITTED** ***WITH*** **PERMIT APPLICATION**

To obtain a permit for the installation of a generator, the applicant shall first file a permit application along with the following information:

1. **Type, make, and model of the transfer switch to be installed along with cut/spec sheet.**
2. **Type, make, and model of the generator to be installed along with cut/spec sheet and clearance requirements for generator.**
3. **If an automatic transfer switch is proposed to be installed, a load calculation is required in order to show compliance with the capacity and rating requirement of Section 702.5 of the 2005 NEC®.**
4. ***A*** **wiring diagram to show,** ***in detail*****, the location of the new equipment and the existing equipment, the transfer switch location (before main or after main), wiring sizes and method.** ***If a whole house transfer switch is being proposed to be installed ahead of the current main disconnect, details on the grounding and bonding arrangement are to be provided.***
5. ***If*** **a permanent generator is being installed a letter of start-up is required for the final inspection stating the generator has been installed per manufacturer's instructions, and is operating properly**

****
The West Hartford Building Department is offering this handout as a representative of the typical information and/or questions that arise for a typical generator installation job. The Town assumes no responsibility for any errors, omissions that may be found or is missing from this handout. This is to be used as a supplement to the normally required information that is submitted on a permit application. The installer is required to follow all applicable codes and standards applicable to the installation. This handout cannot possibly cover all situations, set-ups, or configurations, nor is it intended too.
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What do I want my generator to run?

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What do I want my generator to run?

Sump pump 1/2hp	- 1000 watts
Boiler	- 1000 watts
Furnace	- 1500 watts
Refrigerator	- 750 watts
Microwave	- 1500 watts
Television	- 400 watts
Light fixture	- 40-150 watts

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✓ Generator Sizing Requirements

2005 NEC® - 702.5 Capacity and Rating

- ***An optional standby system shall have adequate capacity and rating for the supply of all equipment intended to be operated at one time*****.....The user of the standby system shall be permitted to select the load connected to the system**

2005 NEC® - 220.40 General – Load Calculations

- **The calculated load of a feeder or service shall not be less than the sum of the loads on the branch circuits supplied……..**

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STATE BUILDING CODE INTERPRETATION NO. I-12-12

May 31, 2012

The following is in response to your request for formal interpretation dated May 18, 2012.

Question:

Does Section 702.5, of the 2005 National Electrical Code portion of the 2005 State Building Code, require the applicant for a permit to provide calculations of current loads to the building official when installing a generator that has a **MANUAL** transfer of power to the generator?

Answer:

No. However, according to Jean M. Blanc, Associate Electrical Engineer from NFPA, with my concurrence, load calculations are required to be provided to the building official when you install a generator with an **AUTOMATIC** transfer switch. This is required to insure that the generator and associated equipment is adequate for the potential load that system could see.

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Total Running Watts: 6561 W
Total Starting Volt-Amps: 26280 VA
Home Square Footage: 2000 Square Ft
Appliances:

Dishwasher	Occasional use	700 W	1500 VA
Refrigerator	Significant use	500 W	2000 VA
Garbage Disposal	Occasional use	200 W	450 VA
Microwave Oven	Occasional use	1200 W	1200 VA
Range (per 8" element)	Significant use	2000 W	2000 VA
Coffee Maker	Occasional use	1500 W	1500 VA
Toaster Oven	Occasional use	1200 W	1200 VA
Misc	Occasional use	1000 W	1000 VA
TV	Significant use	500 W	500 VA
Personal Computer	Significant use	700 W	700 VA
Security System	Significant use	180 W	180 VA
Garage Door Opener	Significant use	500 W	1500 VA
Furnace Fan	Significant use	750 W	2000 VA
Dryer (Electric)	Occasional use	5000 W	6000 VA
Washer	Occasional use	700 W	1800 VA
Central Air Conditioner	Occasional use	Central Air Conditioner 18,000 BTU	

Prepared by:

Generators for Building Inspectors

Worksheet — NEC 2011, 220 Part IV

Contractor		Email			
Phone		Fax			
Job Name					
Date	Location				
Voltage (Circle)	240V -1Ø				
Fuel		NG	LPV		
Elec. Service	100 Amp	200 Amp	400 Amp	Other	
NET SQUARE FOOTAGE					
GENERAL LOADS	Qty	Rating (Load)	Factor	Loads (VA)	Loads (kW) (VA ÷ 1,000)
General Lighting and General Use Receptacles	900	3 VA/ft²	100%	2700	
Branch Circuits (1500 VA/ft²)					
Small Appliance Circuits (20 Amp)	2	1500	100%	3000	
Laundry Circuits		1500	100%		
Fixed Appliances		Full Current Rating			
Well			100%		
Sump Pump			100%		
Freezer	1	600	100%	600	
Microwave (Not counter-top model)	1	1600	100%	1600	
Disposal			100%		
Dishwasher			100%		
Range (See Table 220.55 for multiple cooking appliances)			100%		
Wall-Mounted Oven			100%		
Counter-Mounted Cooking Surface			100%		
Water Heater			100%		
Clothes Dryer			100%		
Garage Door Opener			100%		
Septic Grinder			100%		
Other (list)			100%		
			100%		
			100%		
			100%		
			100%		
			100%		
			100%		
			100%		
			100%		
			100%		
Total General Loads				7900 VA	kW
HEAT / A-C LOAD GAS Furnace					
A-C / Cooling Equipment			100%		
Heat Pump					
• Compressor (if not included as A-C)			100%		
• Supplemental Electric Heat			65%		
Electric Space Heating					
• Less than 4 separately controlled units			65%		
• 4 or more separately controlled units			40%		
System With Continuous Nameplate Load			100%		
Largest Heat / A-C Load (VA) VA kW	1	400			

GENERAL LOADS			
• **1st 10 kW of General Loads 100% kW**	100%	7900 kW	
• **Remaining General Loads (kW) 40% kW**	40%	0 kW	
CALCULATED GENERAL LOAD (kW) kW			7900 kW
LARGEST HEAT / A-C LOAD 100% kW kW			400 kW
TOTAL CALCULATED LOAD (Net General Loads + Heat/A-C Load)			8,300 kW

8,300 W ÷ 240 = 34.6A.

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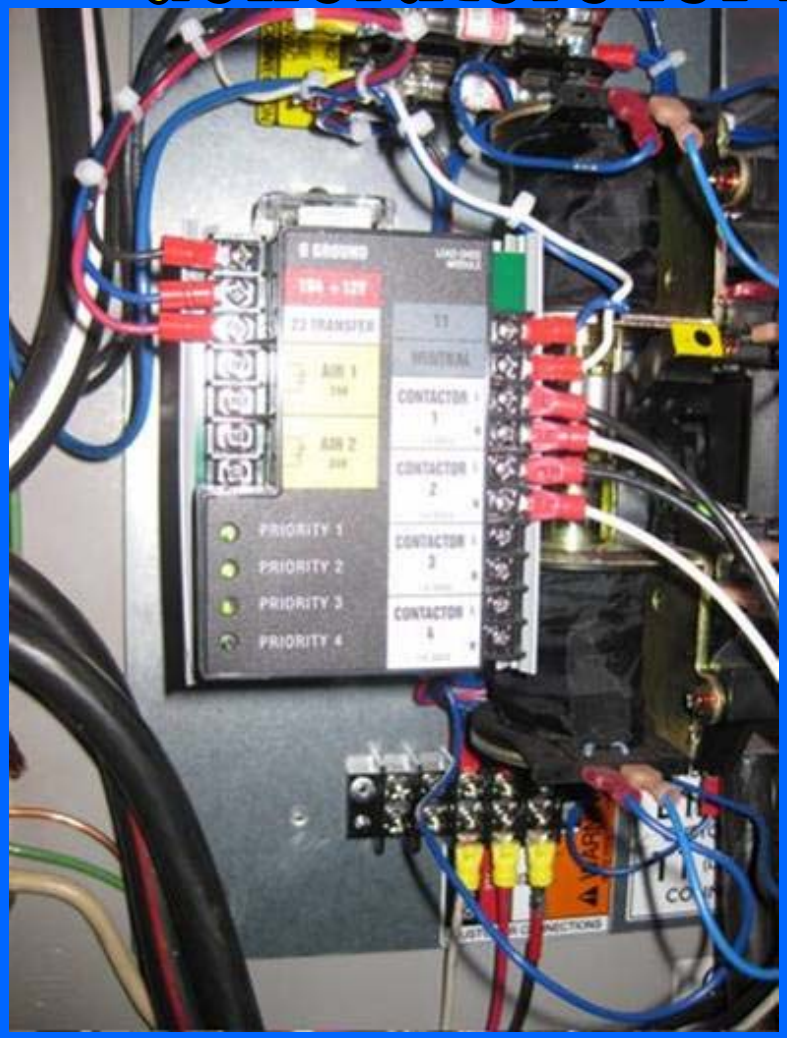

Generac transfer switch with load shedding capabilities

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150kw residential generator

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Do I want a portable or permanent generator?

Presenter's note: Portable electrical equipment plugged directly into a portable generator does not require a building permit

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Do I want a portable or permanent generator?

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✓ **Inspection requirements**

2003 IRC® - Section R109 Inspections

R109.1.2 Rough inspection of plumbing, mechanical, gas, and electrical systems shall be made prior to covering or concealment, before fixtures or appliances are set or installed

R109.1.5 Other inspections. In addition to the called out inspections above, the building official may make or require other inspections to ascertain compliance with this code and other laws enforced by the building official.

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Generator Permit Information

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Do generators automatically kick on when there is a power failure?

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✓ **Transfer Equipment**

2005 NEC® - Section 702.6 Transfer Equipment

Transfer equipment shall be required for all standby systems subject to the provisions of this article and for which an electric utility supply is either the normal or standby source

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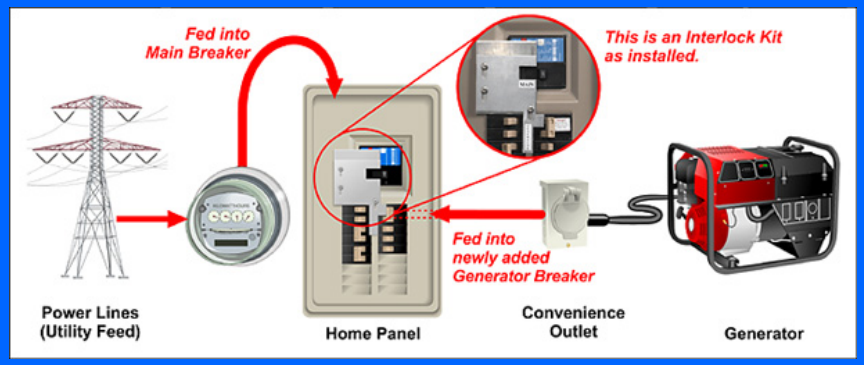

Manual transfer methods

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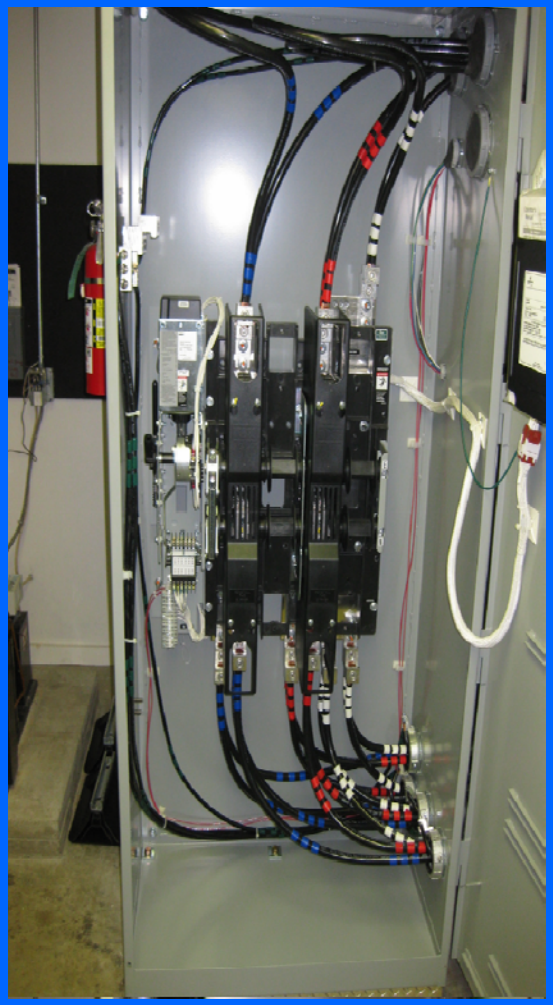

Automatic transfer methods

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ONLINE CERTIFICATIONS DIRECTORY

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WPXW.GuideInfo
Meter-mounted Transfer Switches

View Listings Page Bottom

[Switches] (Transfer Switches) Meter-mounted Transfer Switches

See General Information for Transfer Switches

USE

This category covers transfer switches rated 600 V or less, intended for mounting in a meter base, on the line side of the service disconnect switch. These transfer switches are intended to transfer the loads connected to the load side of the meter from the normal utility supply to an alternate supply, consisting of a portable generator that is temporarily cord connected to the meter-mounted transfer switch. These devices are not intended for use in emergency systems or in legally required standby systems.

The installation of these devices is intended to be under the exclusive control of the serving utility, and is not considered under the purview of ANSI/NFPA 70, "National Electrical Code." As such, these devices are not considered service equipment.

ADDITIONAL INFORMATION

For additional information, see Transfer Switches (WPTZ) and Electrical Equipment for Use in Ordinary Locations (AALZ).

REQUIREMENTS

The basic requirements used to investigate products in this category are contained in UL Subject 1008M, "Outline of Investigation for Transfer Switch Equipment, Meter Mounted."

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Meter-mounted Transfer Switch."

* *

Generators for Building Inspectors

STATE OF CONNECTICUT
DEPARTMENT OF CONSTRUCTION SERVICES

OFFICE OF THE STATE BUILDING INSPECTOR

May 1, 2013

Mr. Steve Osuch
Meter Engineering
Northeast Utilities Service Company
P.0. Box 270
Hartford, CT 06141-0270

Re: PURA Draft Decision - United Illuminating Generlink Device

Mr. Osuch,

Please find enclosed a letter in response to a request for comment on a United Illuminating (UI) rate proposal. In this docket, UI is proposing to install and control Generlink devices as meter equipment, under their public service company authority.

I understand that NU has had discussions with the Electrical Work Examining Board regarding the installation of the Generlink device, specifically whether this device would be considered service equipment, and thus regulated by the State Building Code, or meter equipment regulated under the utility's public service company authority.

We have reviewed the PURA Draft Decision as well as the manufacturer's technical data and the UL listing information for the Generlink device. The UL listing for this device specifically states, "The installation of these devices is intended to be under the exclusive control of the serving utility, and is not considered under the purview of ANSI/NFPA 70, 'National Electrical Code.' As such, these devices are not considered service equipment."

In light of this information, the State Building Inspector's Office has determined that the Generlink device is meter equipment, not service equipment, and that these devices are outside of the jurisdiction of the Connecticut State Building Code, and no local building permit would be required for their installation.

If you have any questions regarding this matter feel free to contact me at 860-685-8310.

Sincerely,

Joseph V. Cassidy, P.E.
Acting State Building Inspector

Cc: D. Tierney – Deputy State Building Inspector
R. Nuzzi - State Electrical Inspector
L. Vallieres – Chairman EWEB

1111 Country Club Road, Middletown, CT 06457
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STATE OF CONNECTICUT
DEPARTMENT OF CONSTRUCTION SERVICES

OFFICE OF THE STATE BUILDING INSPECTOR

April 30, 2013

Mr. Guy Cattaruzza
The United Illuminating Company
Revenue Meter Systems & Standard Field
100 Marsh Hill Road M.S OP-1F
Orange, CT 06477

Re: PURA Generlink Device Draft Decision

Mr., Cattaruzza,

The Office of the State Building Inspector has reviewed the PURA Draft Decision as well as the manufacturer's technical data and the UL listing information for the Generlink device. This device is intended to be installed in a meter socket in conjunction with the utility revenue meter to provide a protected means of connection for a portable generator to an electrical system. UI is proposing to install and control these devices as meter equipment, under their public service company authority.

The UL listing for this device specifically states: "The installation of these devices is intended to be under the exclusive control of the serving utility, and is not considered under the purview of ANSI/NFPA 70, 'National Electrical Code.' As such, these devices are not considered service equipment."

The State Building Inspector's Office agrees with, and endorses, this proposal to treat these devices as meter equipment. This means that the Generlink device is outside of the jurisdiction of the Connecticut State Building Code, and no local building permit would be required for their installation.

If you have any questions regarding this matter feel free to contact me at 860-685-8310.

Sincerely,

Joseph V. Cassidy, P.E.
Acting State Building Inspector

Cc: D. Tierney – Deputy State Building Inspector
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How far away from the house does the generator need to be?

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STATE BUILDING CODE INTERPRETATION NO. I-13-12

May 31, 2012

The following is in response to your request for formal interpretation dated May 24, 2012.

Scenario:

Section R303.4.1, of the 2003 International Residential Code portion of the 2005 State Building Code (IRC), has a general requirement that hazardous or noxious contaminants, such as vents, chimneys, plumbing vents, etc., are to be a minimum of 10 feet from gravity outdoor air intake openings (windows/doors). The 2003 International Residential Code, Section M1301.1, sends you to the 2003 International Mechanical Code when the installation of equipment is not addressed in the IRC (such as a generator). Section 915 of the 2003 International Mechanical Code portion of the 2005 State Building Code refers you to NFPA 37 and the manufacturer's installation instructions for the installation of stationary combustion engines and gas turbines.

Question:

Could the building official allow generators to be installed 5 feet from openings within exterior walls in accordance with NFPA 37 and the manufacturer's installation instructions in lieu of the general requirements contained within Section R303.4.1, of the 2003 International Residential Code portion of the 2005 State Building Code?

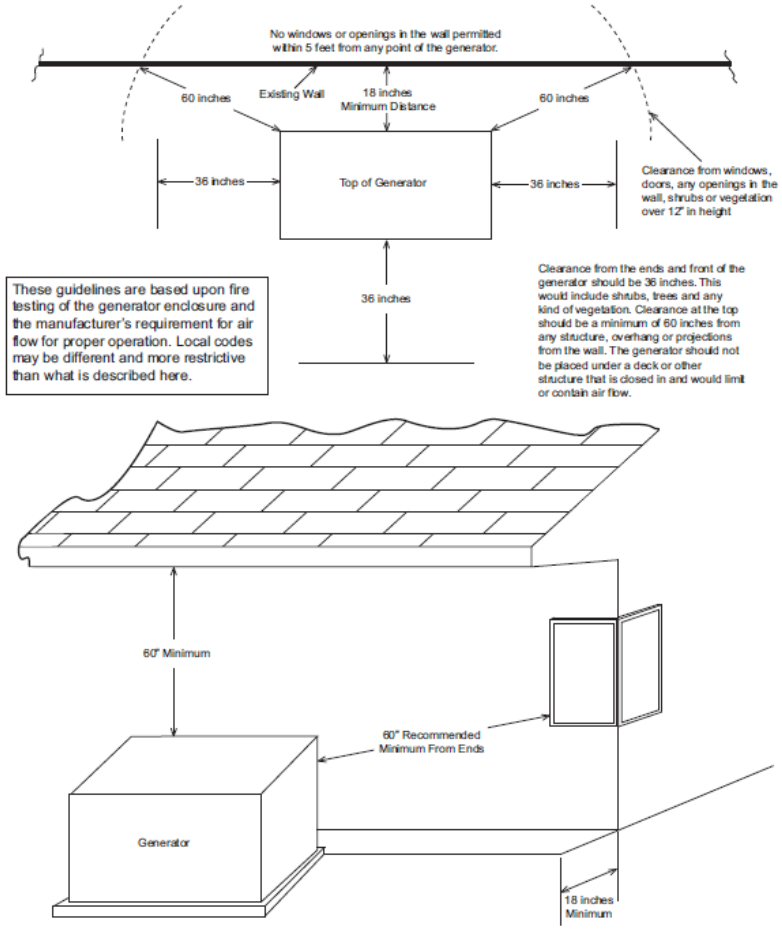
Answer:

Yes. While R303.4.1 provides a generally applied separation distance, Section M1301.1 identifies the 2003 International Mechanical Code as the governing code for "… systems and equipment not addressed by this code …", Section 915, of the 2003 International Mechanical Code, states that NFPA 37 and the manufacturer's instructions will govern the installation.

Generators for Building Inspectors

General Information

Figure 1.10 – Installation Guidelines



These guidelines are based upon fire testing of the generator enclosure and the manufacturer's requirement for air flow for proper operation. Local codes may be different and more restrictive than what is described here.

Generac distances

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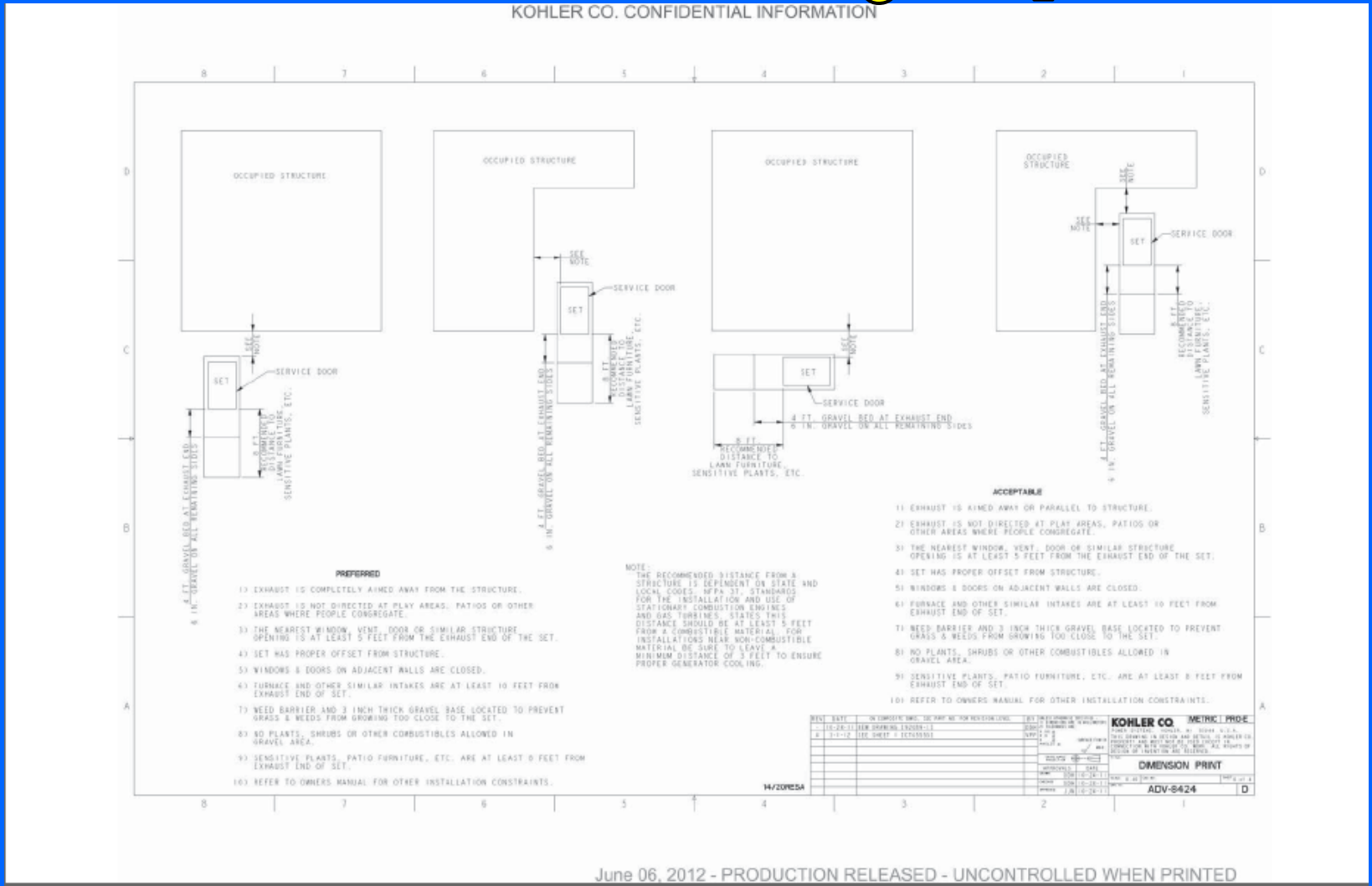

Kohler distances

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✓ Signage Requirements

2005 NEC® - Section 702.8 Signs *(CT Supplement)*

- **A sign shall be placed at the *service-entrance equipment*, *at the meter location*, *and on any equipment up to the service equipment indicating type and location of on-site optional standby power source*…..**

Generators for Building Inspectors

Generator Hazards

- Carbon monoxide hazards
- Electrical hazards
- Fire hazards

Generator Hazards

Carbon monoxide hazards

- ✓ ***ALWAYS follow the manufacturer's instructions***
- ✓ ***NEVER** use a generator inside your home, basement, garage, or any other partially enclosed area*
- ✓ ***ALWAYS** run generators outside of the building, away from doors, and vents*
- ✓ ***Install a carbon monoxide detector in your home and check the batteries twice a year***

Generator Location

Before installing generator, consult with homeowner and convey the following guidelines which may affect the desired installation location.

Install generator outdoors in an area which will not accumulate deadly exhaust gas. DO NOT install generator where exhaust gas could accumulate and enter inside or be drawn into a potentially occupied building. Ensure exhaust gas is kept away from any windows, doors, ventilation intakes or other openings that can allow exhaust gas to collect in a confined area. Prevailing winds and air currents should be taken into consideration when positioning generator.

⚠ WARNING Running engine gives off carbon monoxide, an odorless, colorless, poison gas. Breathing carbon monoxide can cause headache, fatigue, dizziness, vomiting, confusion, seizures, nausea, fainting or death.

- Operate generator ONLY outdoors.
- Install a battery operated carbon monoxide alarm near the bedrooms.
- Keep exhaust gas from entering a confined area through windows, doors, ventilation intakes, or other openings.

⚠ WARNING Exhaust heat/gases can ignite combustibles or structures causing a fire.

- DO NOT install the generator closer than 5 feet (1.5m) from any combustibles or structures with combustible walls having a fire resistance rating of less than 1 hour.

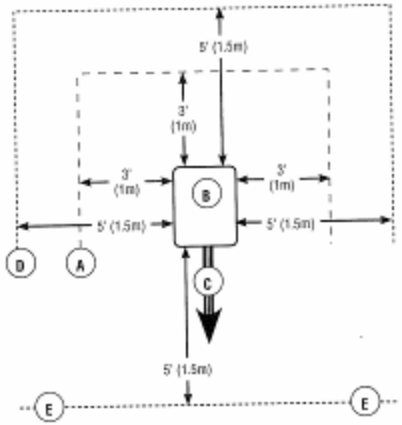
General Location Guidelines

- Install the unit outdoors ONLY.
- Place the unit in a prepared location that is flat and has provisions for water drainage.
- Install the unit in a location where sump pump discharge, rain gutter down spouts, roof run-off, landscape irrigation, or water sprinklers will not flood the unit or spray the enclosure and enter any air inlet our outlet openings.
- Install the unit where it will not affect or obstruct any services (including covered, concealed and underground), such as telephone, electric, fuel, irrigation, air conditioning, and so forth.
- Install the unit where air inlet and outlet openings will not become obstructed by leaves, grass, snow, etc. If prevailing winds will cause blowing or drifting, you may need to construct a windbreak to protect the unit.
- Install the generator as close as possible to the transfer switch and fuel supply to reduce the length of wiring, conduit, and piping.

Laws or local codes may regulate the distance to the fuel supply.

The minimum (**MIN**) clearances from aerial view of generator (**B**) to combustible (**D**), and non-combustible (**A**) materials are shown below.

- These distances are provided to give generator location guidance relative ONLY to combustibles, generator cooling, and maintenance.
- The minimum distances in the figure are as shown. All four sides of the generator cannot be enclosed or restricted, even if the minimum distances are maintained. DO NOT connect (**A**) and/or (**D**) to (**E**)
- A roof cannot be used.
- Exhaust (**C**) must not be allowed to accumulate.



A Non-Combustible material with Fire Resistant Rating of 1 hour or greater

B Home Standby Generator

C Engine Exhaust

D Combustible Material or Structure with a Fire Resistance Rating of less than 1 hour.

*E Any structure or material. DO NOT connect (**A**) and/or (**D**) to (**E**).*

Briggs and Stratton

Generator Hazards

Electrical hazards

- ✓ ***ALWAYS follow the manufacturer's instructions***
- ✓ ***Plug appliances directly into the generator or use 3 prong heavy-duty outdoor rated extension cords***
- ✓ ***NEVER "backfeed" your home from your generator by plugging the generator cord into your homes dryer outlet***
- ✓ ***Have a properly licensed Electrical Contractor install your generator and transfer equipment, with permits***

Generator Hazards

Fire hazards

- ✓ ***ALWAYS follow the manufacturer's instructions***
- ✓ ***NEVER refuel your generator while it is running, or is hot. Shut it off and let it cool down before you refuel it***
- ✓ ***Store fuel away from your generator and any other ignition source***
- ✓ ***NEVER run your generator inside your home, and yes in the garage is considered inside your home***

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Can I plug my generator into my dryer outlet and *"backfeed"* my panel ?

No

A cord end that is used to back feed power *must be* the female end. Male plugs with exposed prongs present a serious safety hazard

406.6(D)

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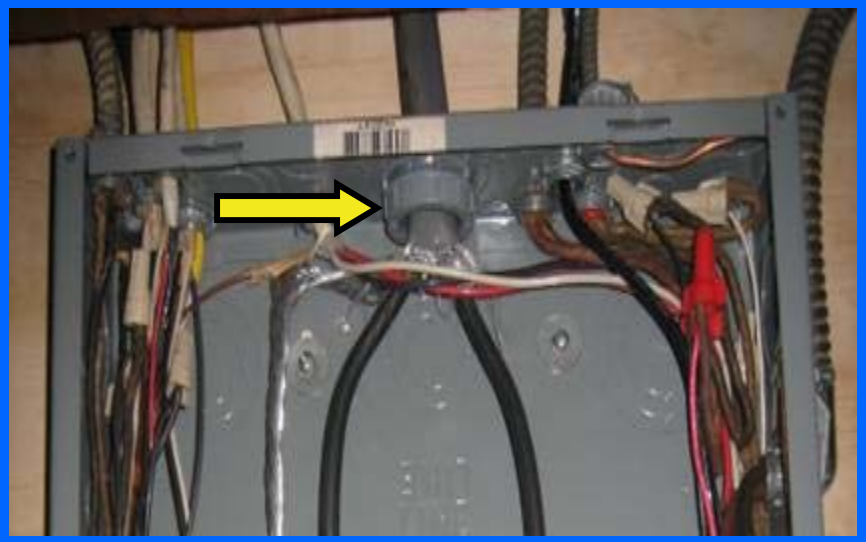
Are bushings *required* on SEU connectors if larger than #4 conductors are used ?

NO

The requirement for bushings applies only to *raceways containing* conductors or *cables* that terminate in a box, cabinet, or enclosure



300.4(F)

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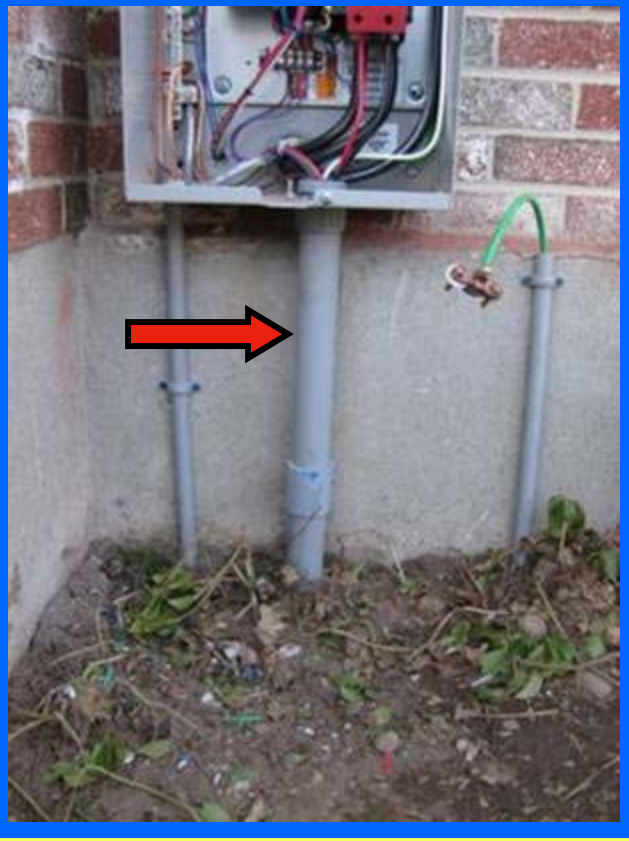
Are expansion fittings required for conduits emerging from grade ?

YES

Where raceways, or cables are subject to movement by settlement or frost… they shall be arranged so as to prevent damage

300.5(J)



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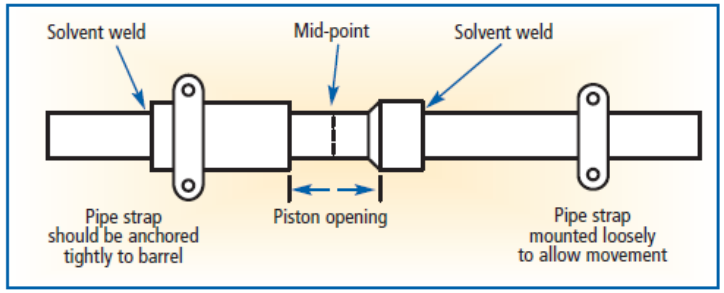
Proper Position

Expansion fittings are usually installed in a horizontal position. However, if they must be put in a vertical application, the open end should be securely fastened in the down position. The expansion fitting must be installed close to the top of the run with the barrel pointing down, so that rain water does not enter into the opening. The lower end of the conduit run should be secured at the bottom. This will result in an upward movement due to the length change caused by temperature variations.



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Where in the *Code* is the *10 foot rule* for service conductors located ?

????

There is no 10 foot rule in the *Code*.
The service disconnect must be located either outside of the building or inside *nearest the point of entrance* Of the service conductors

230.70(A)(1)

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Can a transfer switch be installed between the utility meter and the main breaker panel ?

YES - IF

The transfer switch is listed as being *"suitable for use as service equipment"*. If it is not listed as such it cannot be installed ahead of the main breaker

230.82, 230.66

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✓ Transfer Switches "ahead" of the main

2005 NEC® - Section 230.82 Equipment Connected to the Supply Side of the Service Disconnect

- **Only the following equipment *shall be permitted* to be connected on the supply side of the service disconnect**
  - Cable limiters…
  - Meters and meter sockets…
  - Meter disconnect switches…
  - Instrument transformers (current and voltage)…
  - Taps for load management devices…
  - PV systems, fuel cells…
  - Control circuits for power-operable service disconnecting means…
  - Ground Fault protection systems and t.v.s.s's…..

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✓ Transfer Switches "ahead" of the main

2005 NEC® - Section 230.66 Service Equipment Marking

- **Service equipment rated at 600 volts or less *shall be marked* to identify it as being suitable for use as service equipment.**

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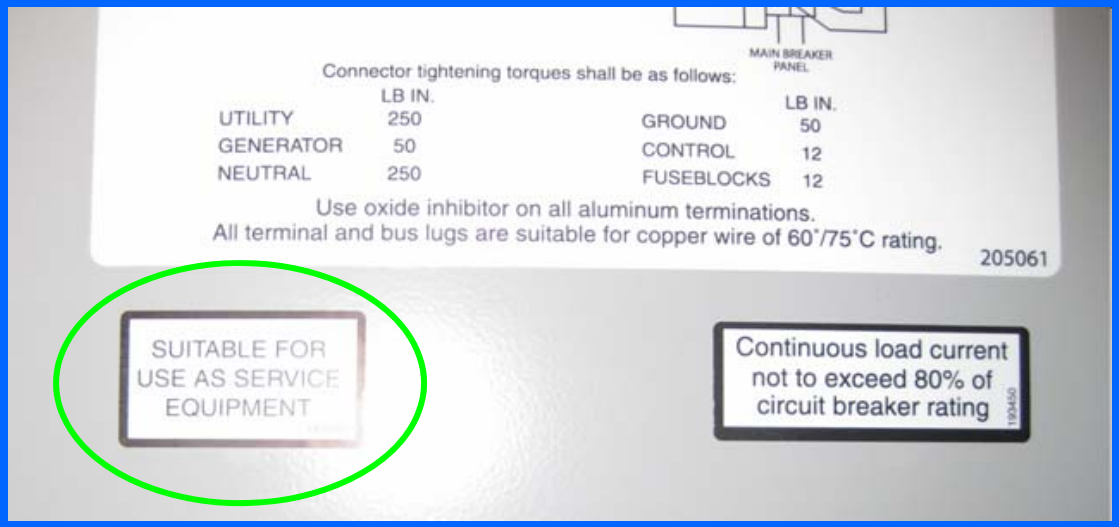
Transfer switches connected ahead of the service disconnecting means *must be* "service rated"



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230.70 General – Service - Disconnecting Means

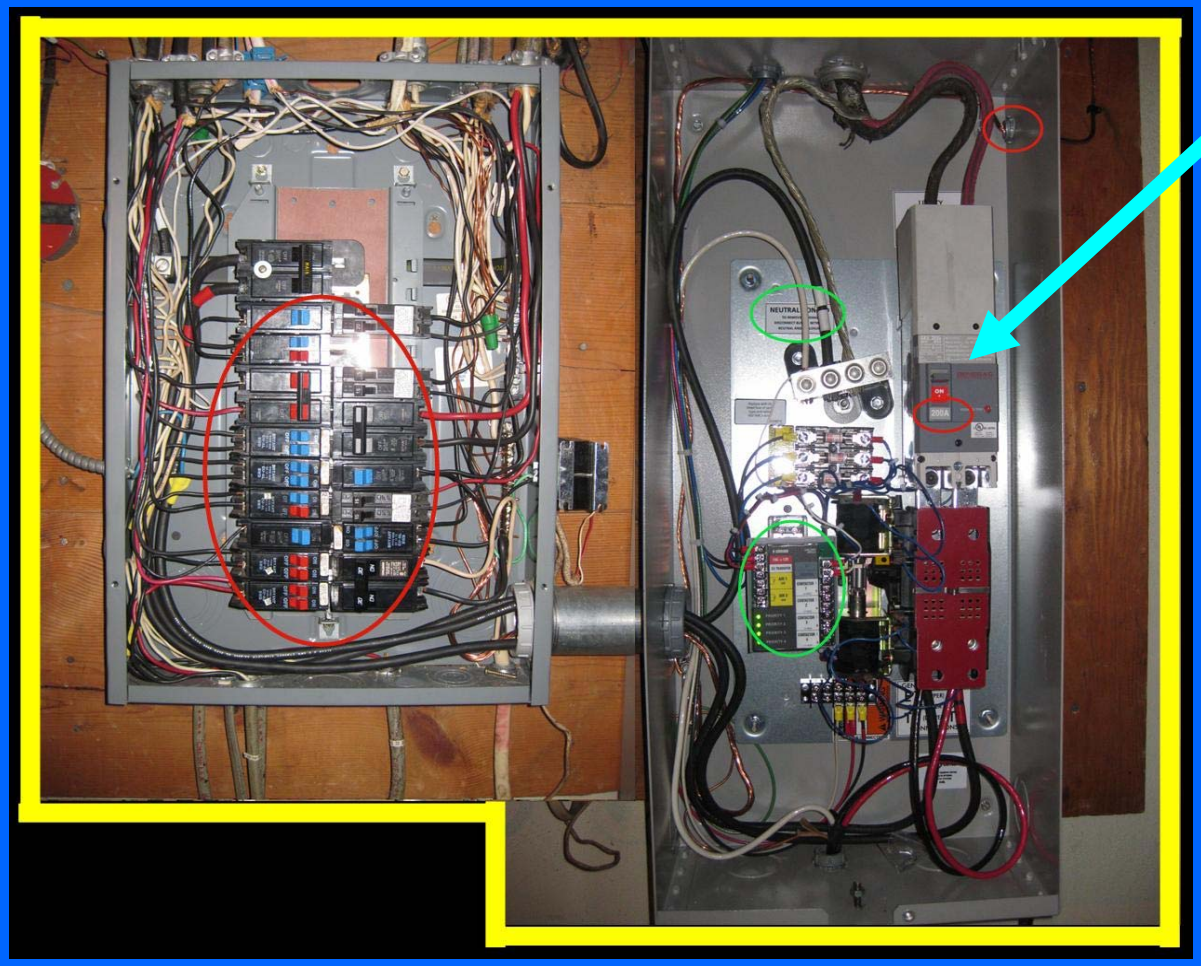
- **Means *shall be provided* to disconnect all conductors in a building or structure from the service entrance conductors**

230.91 Location – Service - Overcurrent Protection

- **The service overcurrent device *shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto***

Generators for Building Inspectors

“Service Disconnecting Means” and “Service Overcurrent Device”



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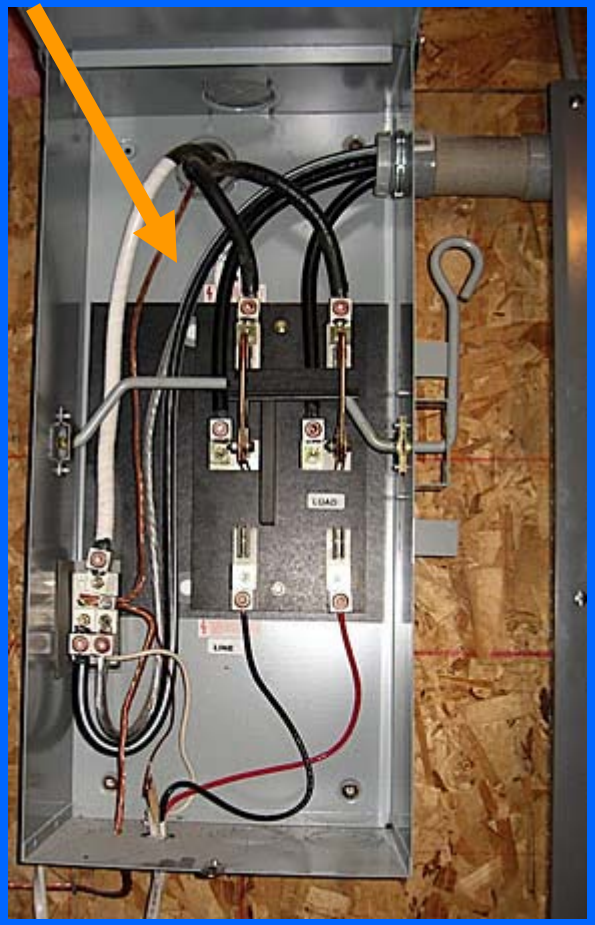
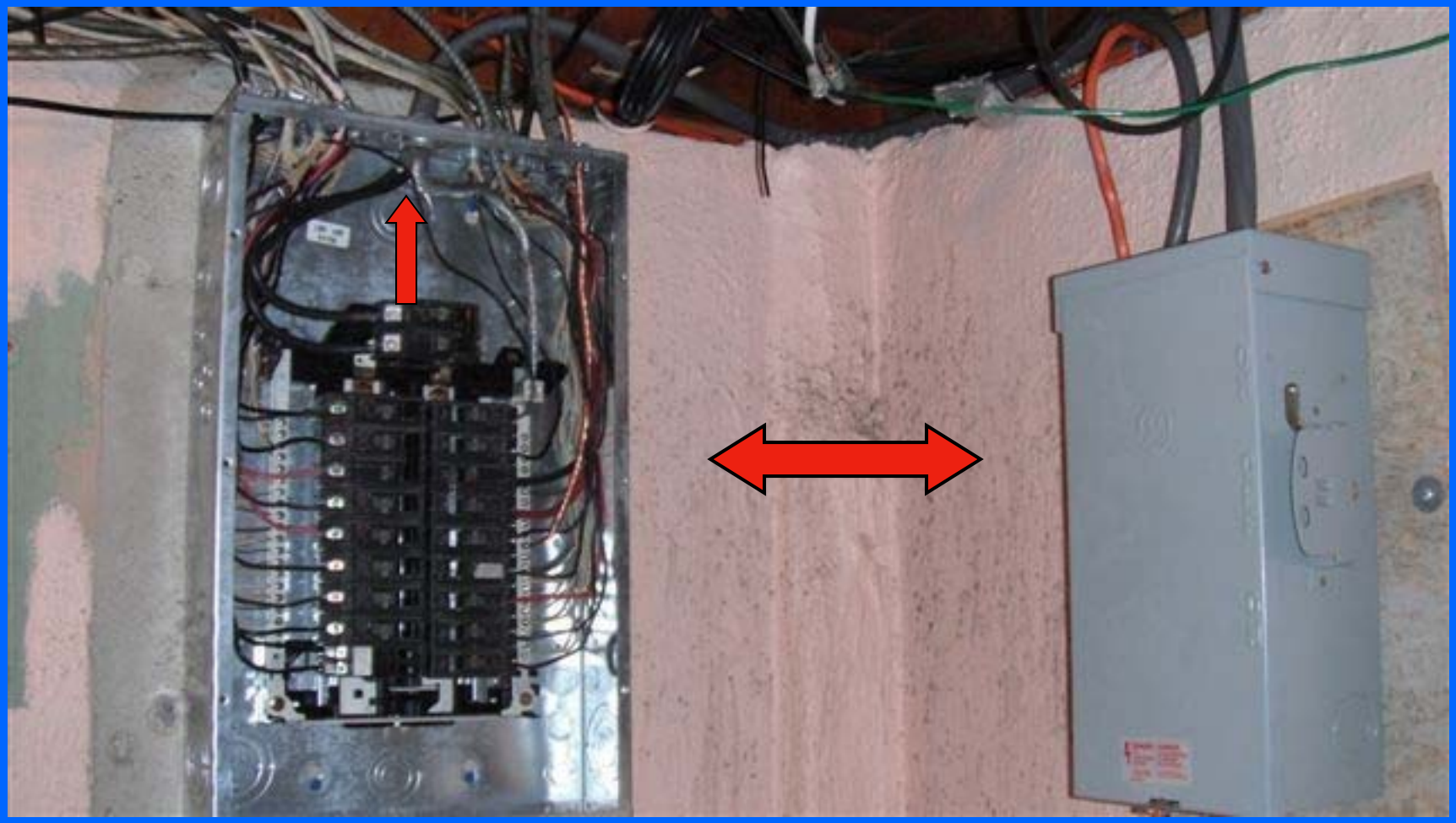
"Service Disconnecting Means"



"Service Overcurrent Device"

Generators for Building Inspectors

Generators for Building Inspectors



Generators for Building Inspectors

250.24(A) Service Grounding Connection

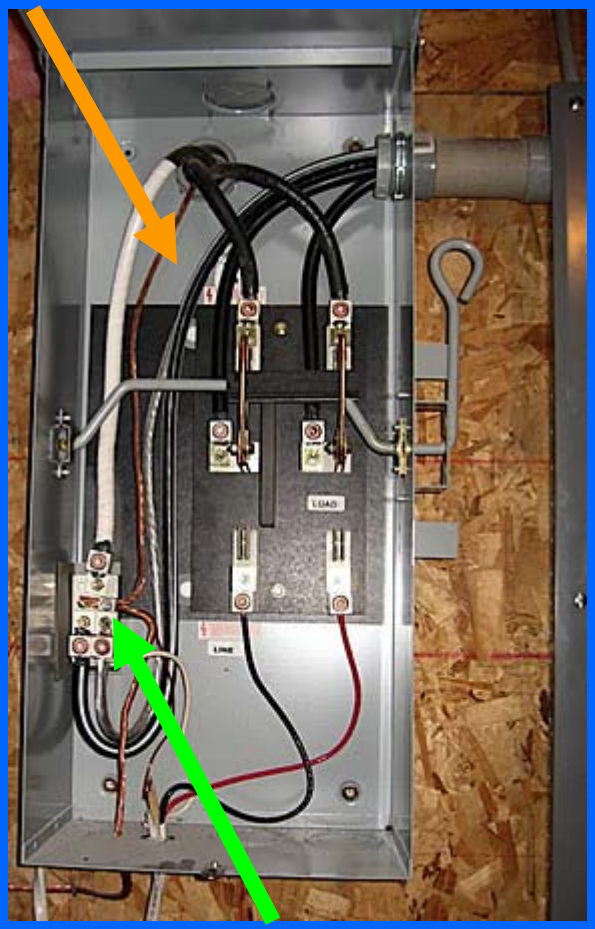
- **A premise wiring system….shall have a grounding electrode conductor connected to the grounded service conductor at each service…**

250.24(A)(1) General

- ***The connection shall be made at any accessible point from the load end of the service drop to, and including, the terminal or bus to which the grounded service conductor is connected at the service disconnecting means***

Generators for Building Inspectors

"Service Disconnecting Means"



"Service Overcurrent Device"

Generators for Building Inspectors

STATE BUILDING CODE INTERPRETATION NO. I-16-12

June 28, 2012

The following is in response to your request for formal interpretation dated June 25, 2012.

Scenario:

"An electrician installs a new first point of disconnect (in this case an automatic transfer switch or a manual transfer switch) ahead of what was the first point of disconnect (200 amp main service panel). After the new first point of disconnect, the electrician treats the old main service panel as a sub panel and converts this to a four wire separating the grounds and neutrals. The existing service had a grounding conductor going to one ground rod and no bond on the cold water pipe or an undersized bond on the cold water pipe."

Question:

"Based on the information above, is the electrician responsible to bring grounding and bonding of the service up to today's code? In other words, would the electrician be responsible to add an additional ground rod at a minimum of 6 feet apart using a minimum of a #6 copper grounding conductor and bond the cold water pipe with a #4 copper or could the electrician leave the existing single ground rod and the cold water pipe with no bond or undersized bond?"

Answer:

Based on the fact that a new transfer switch has been installed ahead of the existing service disconnect, the grounding and bonding would have to comply with the 2005 National Electrical Code portion of the 2005 State Building Code.

Generator Installation Inspection 1

Generators for Building Inspectors

Generators for Building Inspectors

Generators for Building Inspectors

Generator with automatic transfer switch installed *AFTER* the main breaker

Generators for Building Inspectors

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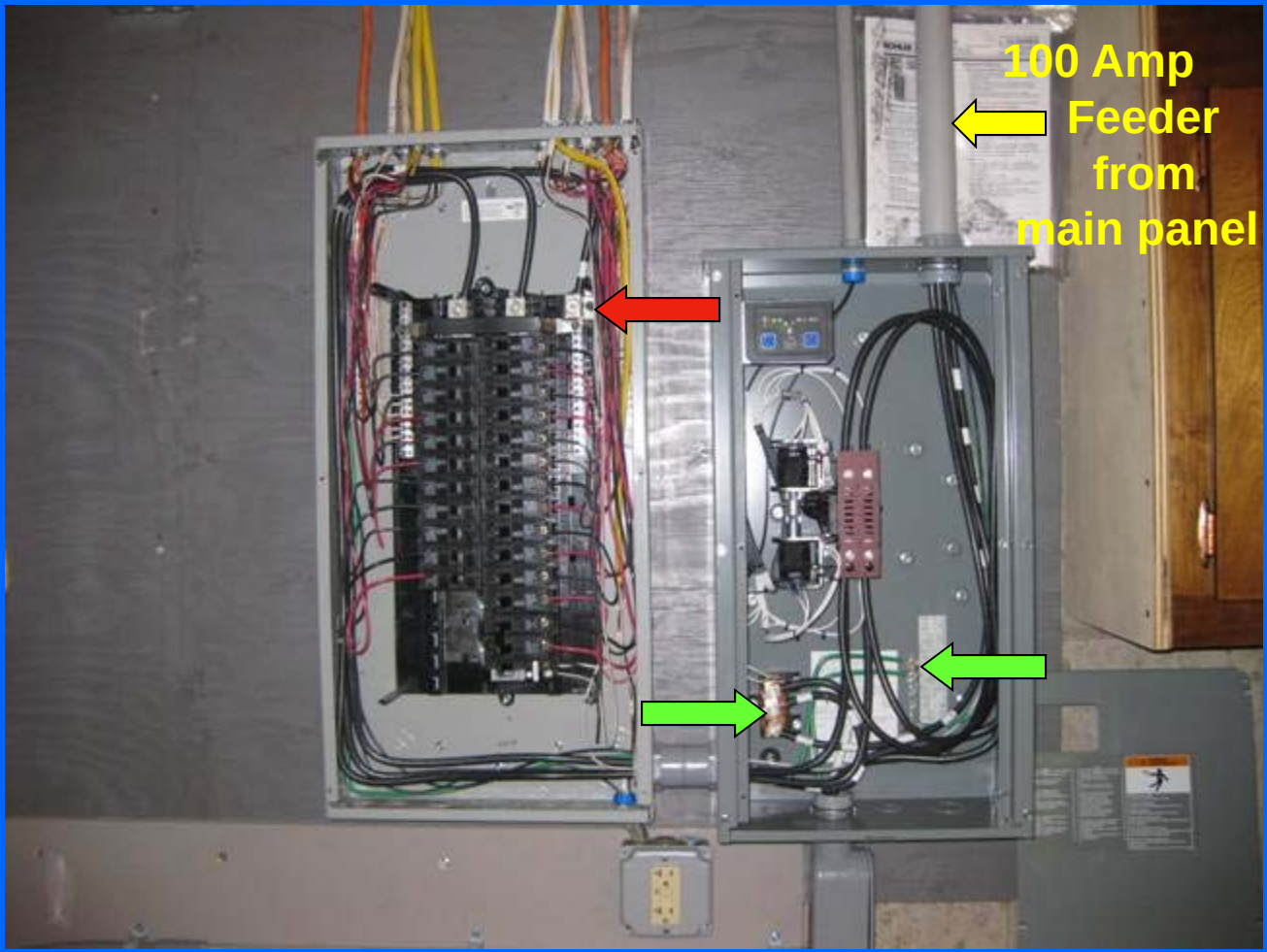

Generator Installation Inspection 2

Generators for Building Inspectors

Generator with automatic transfer switch installed *AFTER* the main breaker

Generators for Building Inspectors

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Generators for Building Inspectors

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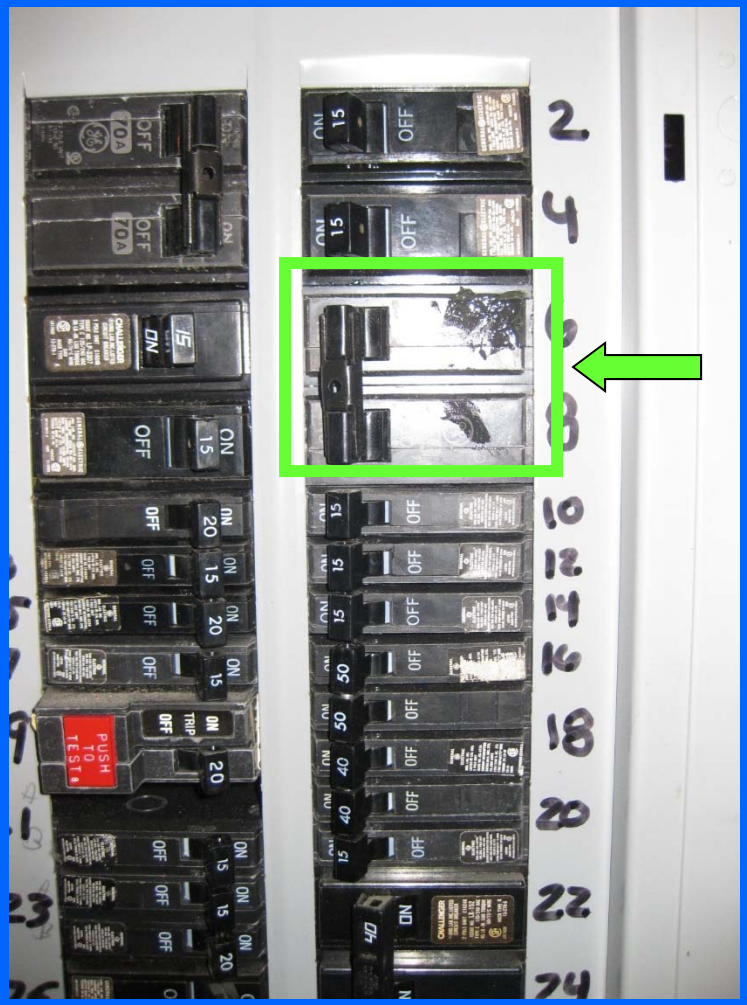

Generators for Building Inspectors

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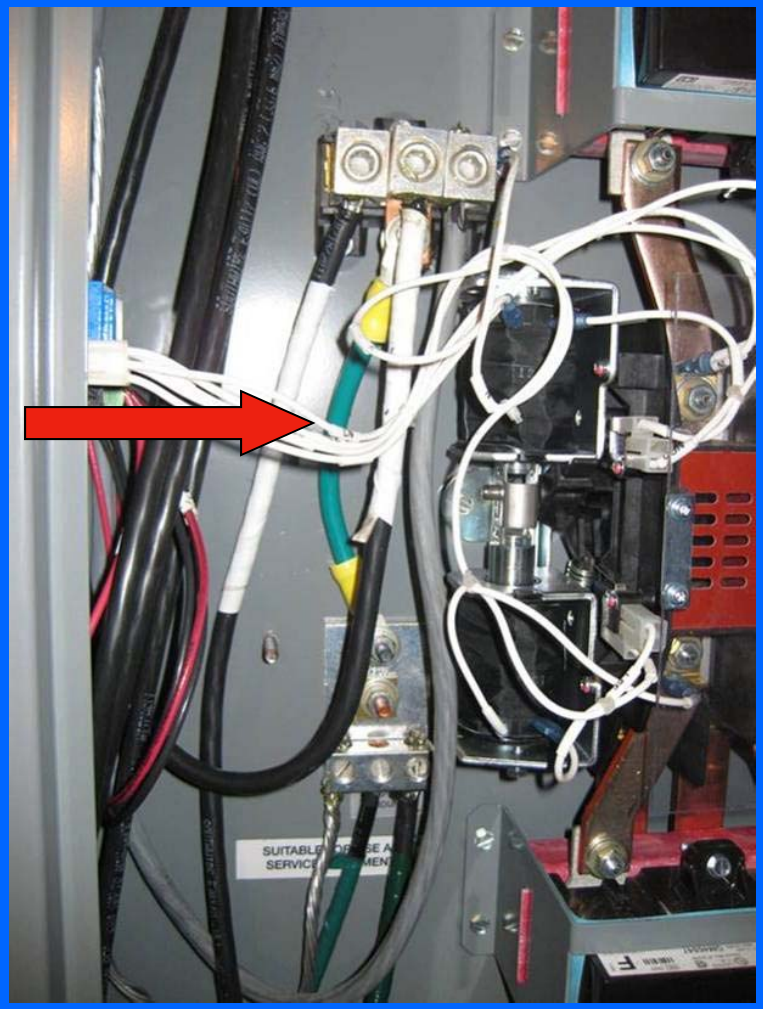

Generators for Building Inspectors

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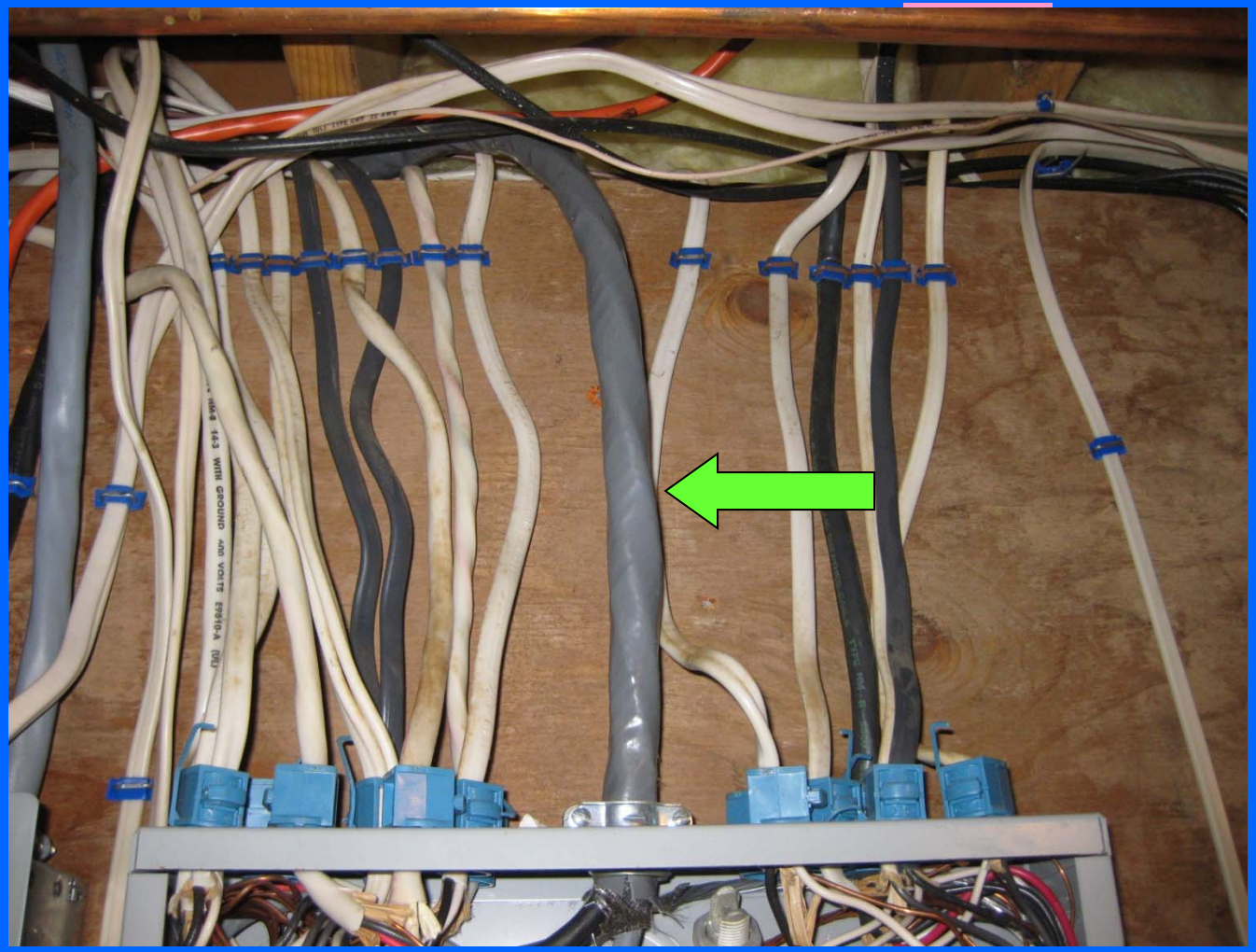

Generators for Building Inspectors

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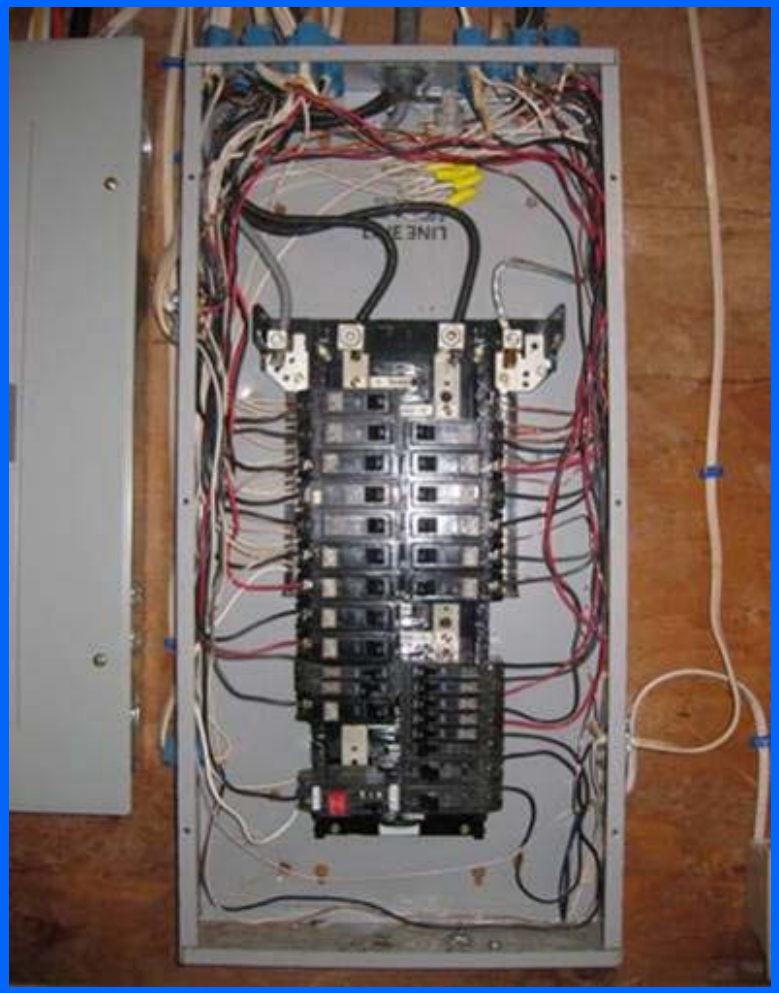

Generator Installation Inspection 3

Generators for Building Inspectors

Generator with automatic transfer switch installed *BEFORE* the main breaker

Generators for Building Inspectors

Generator with automatic transfer switch installed *BEFORE* the main breaker

Generators for Building Inspectors

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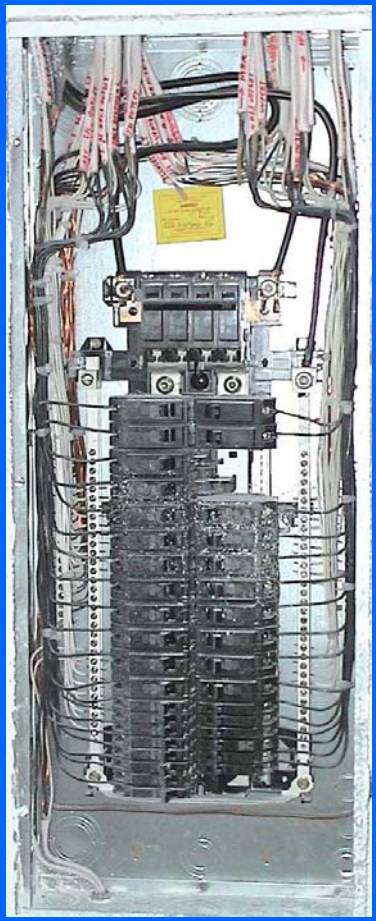

Generator Installation Inspection 4

Generators for Building Inspectors

Generator with automatic transfer switch installed *BEFORE* the main breaker

Generators for Building Inspectors

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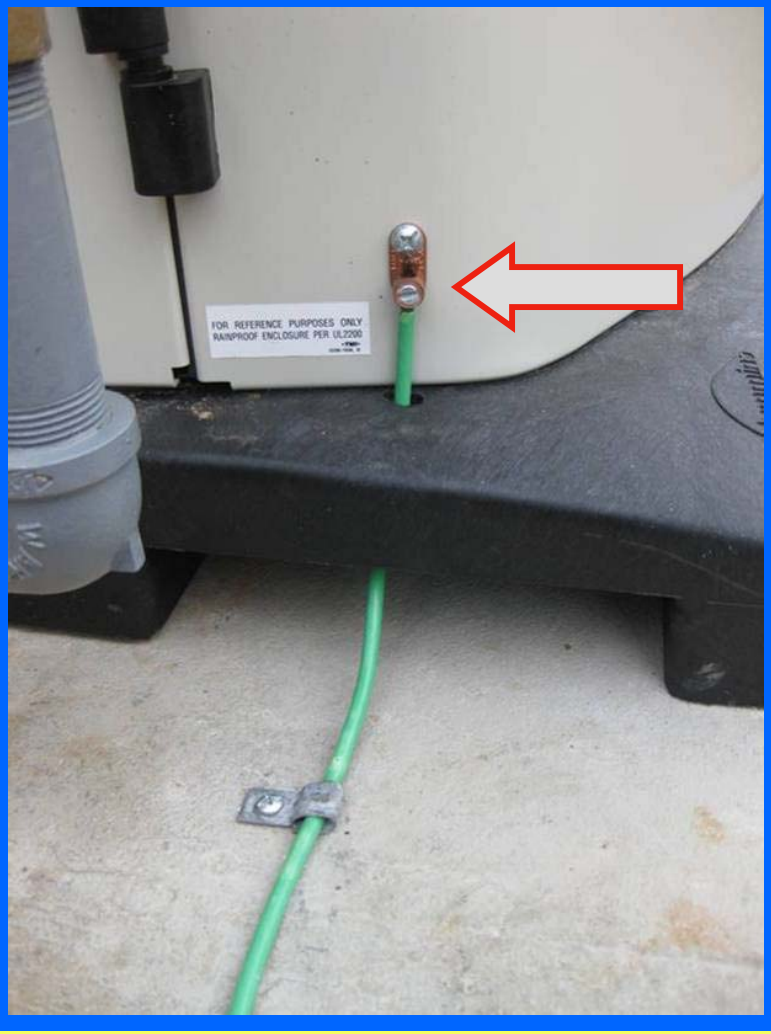
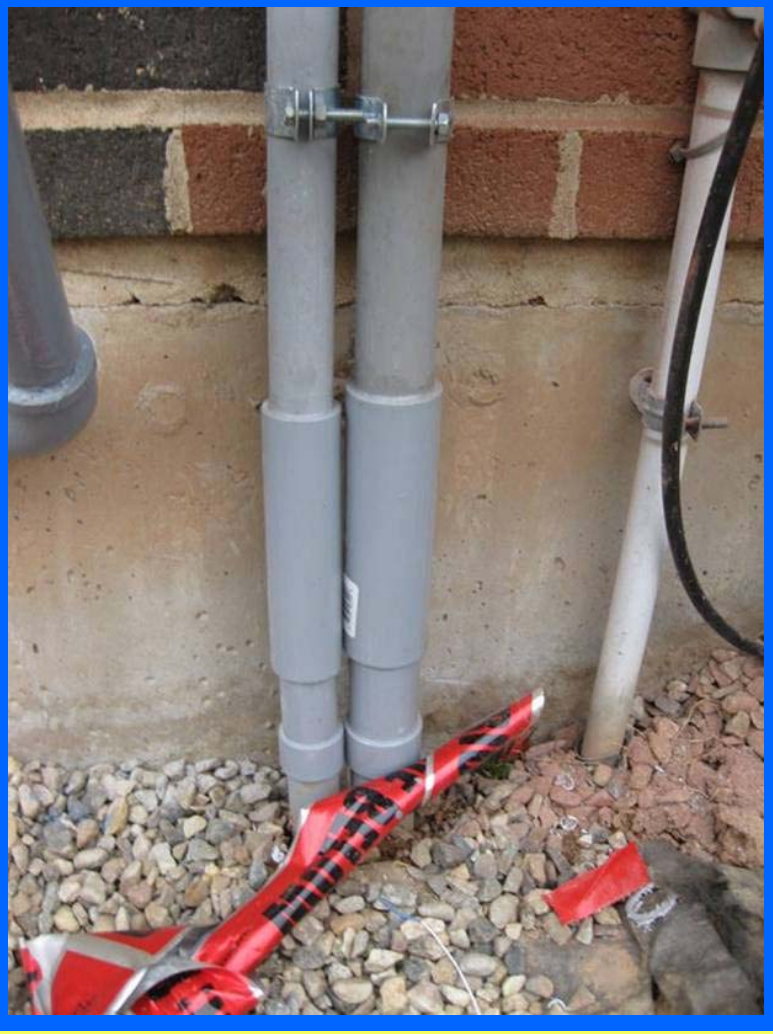
Generators for Building Inspectors

Generator with automatic transfer switch installed *BEFORE* the main breaker



Generators for Building Inspectors

Generator with automatic transfer switch installed *BEFORE* the main breaker



Generators for Building Inspectors

Generator with automatic transfer switch installed *BEFORE* the main breaker

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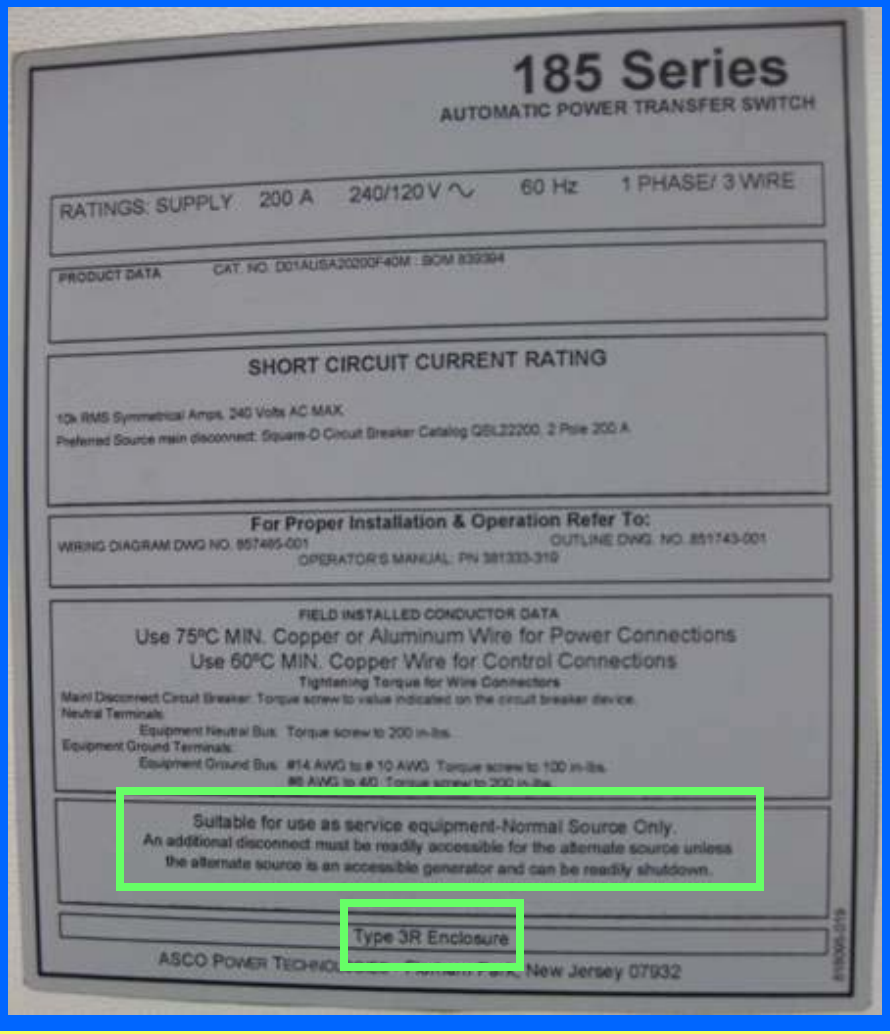

Generators for Building Inspectors

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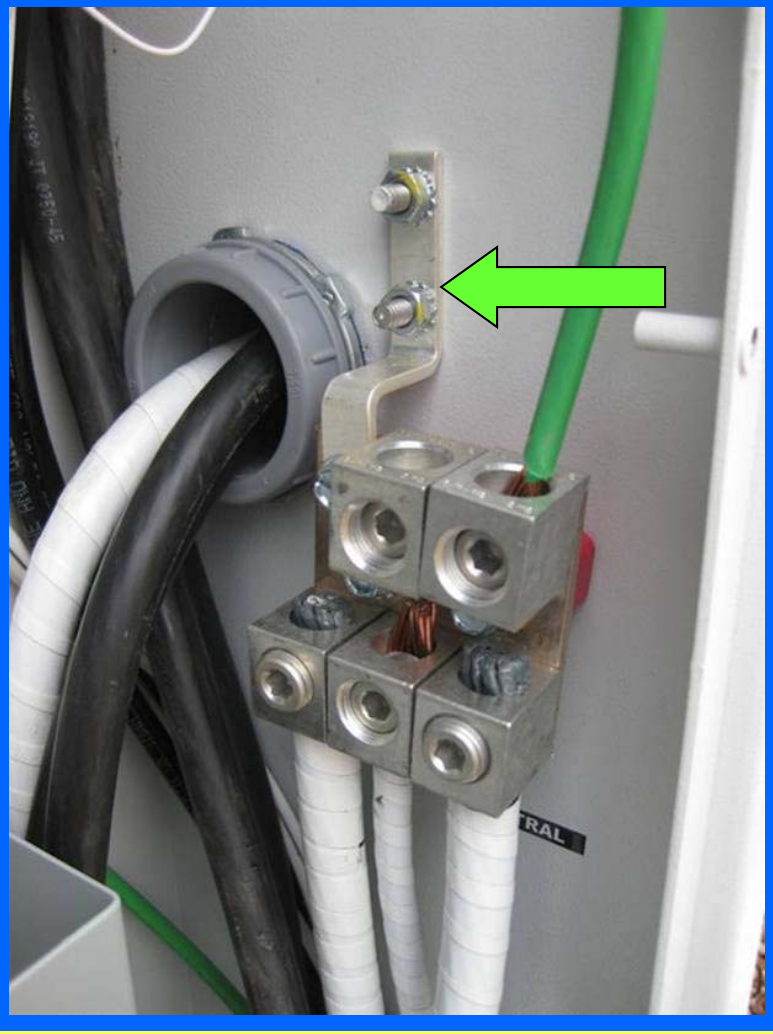

Generators for Building Inspectors

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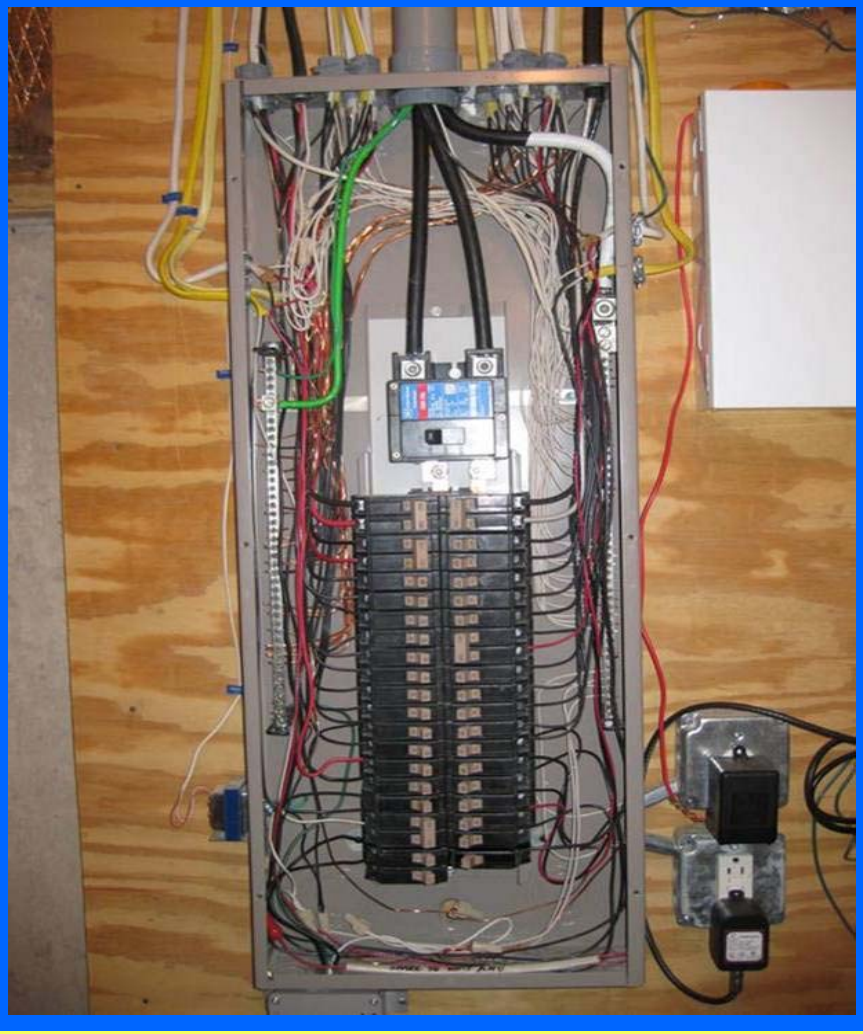

Generators for Building Inspectors

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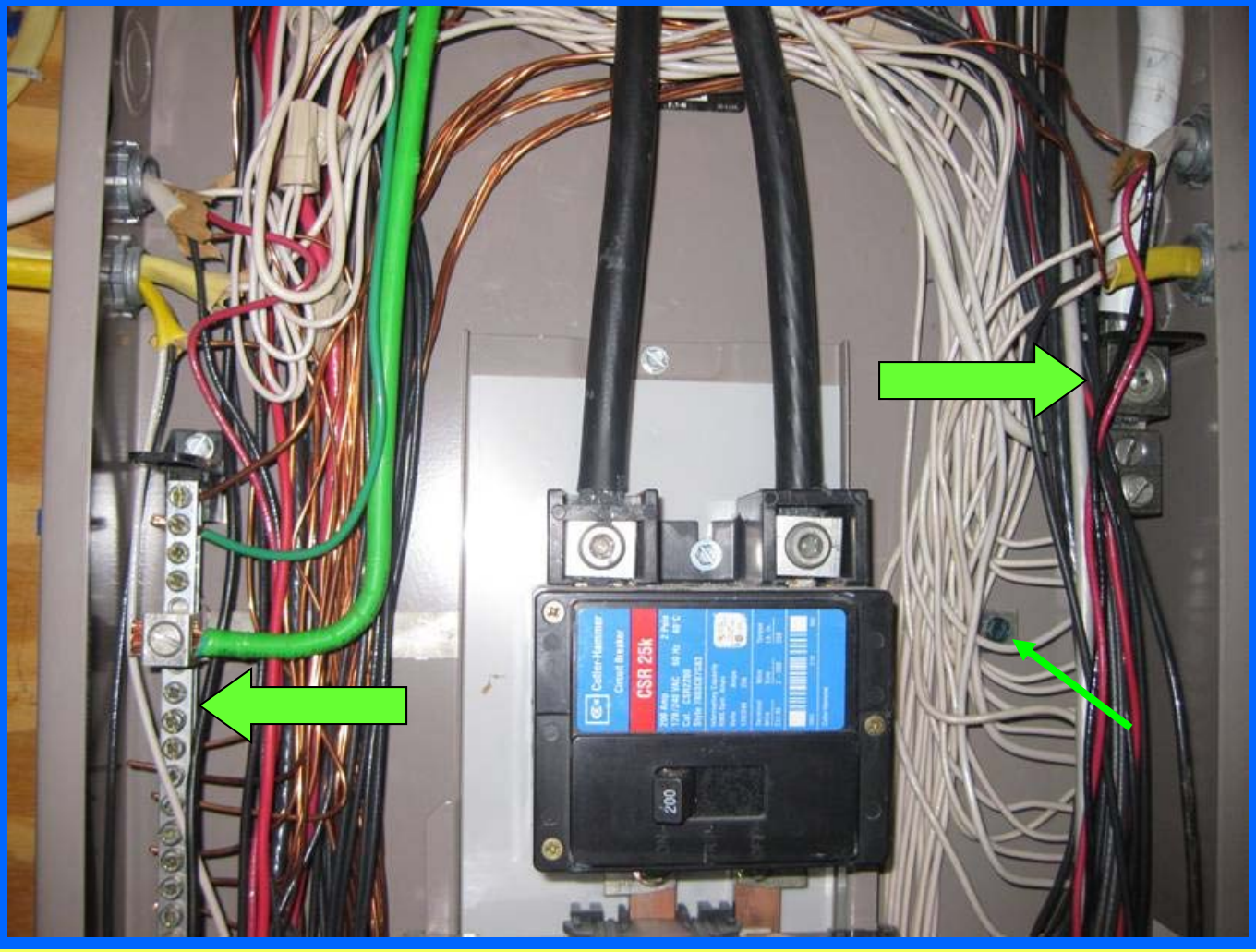
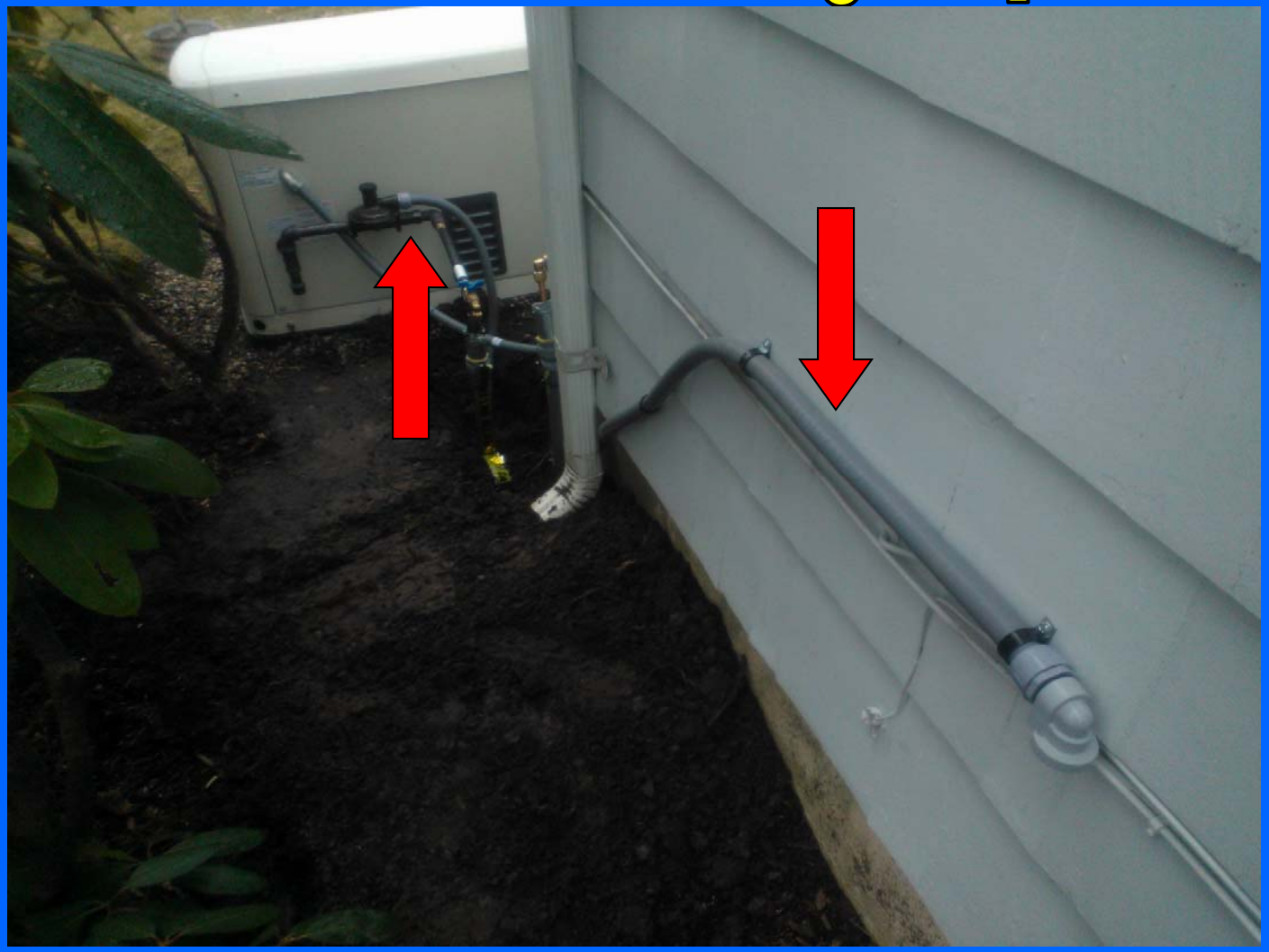


Generator Installation Pictures

Generators for Building Inspectors

Generators for Building Inspectors



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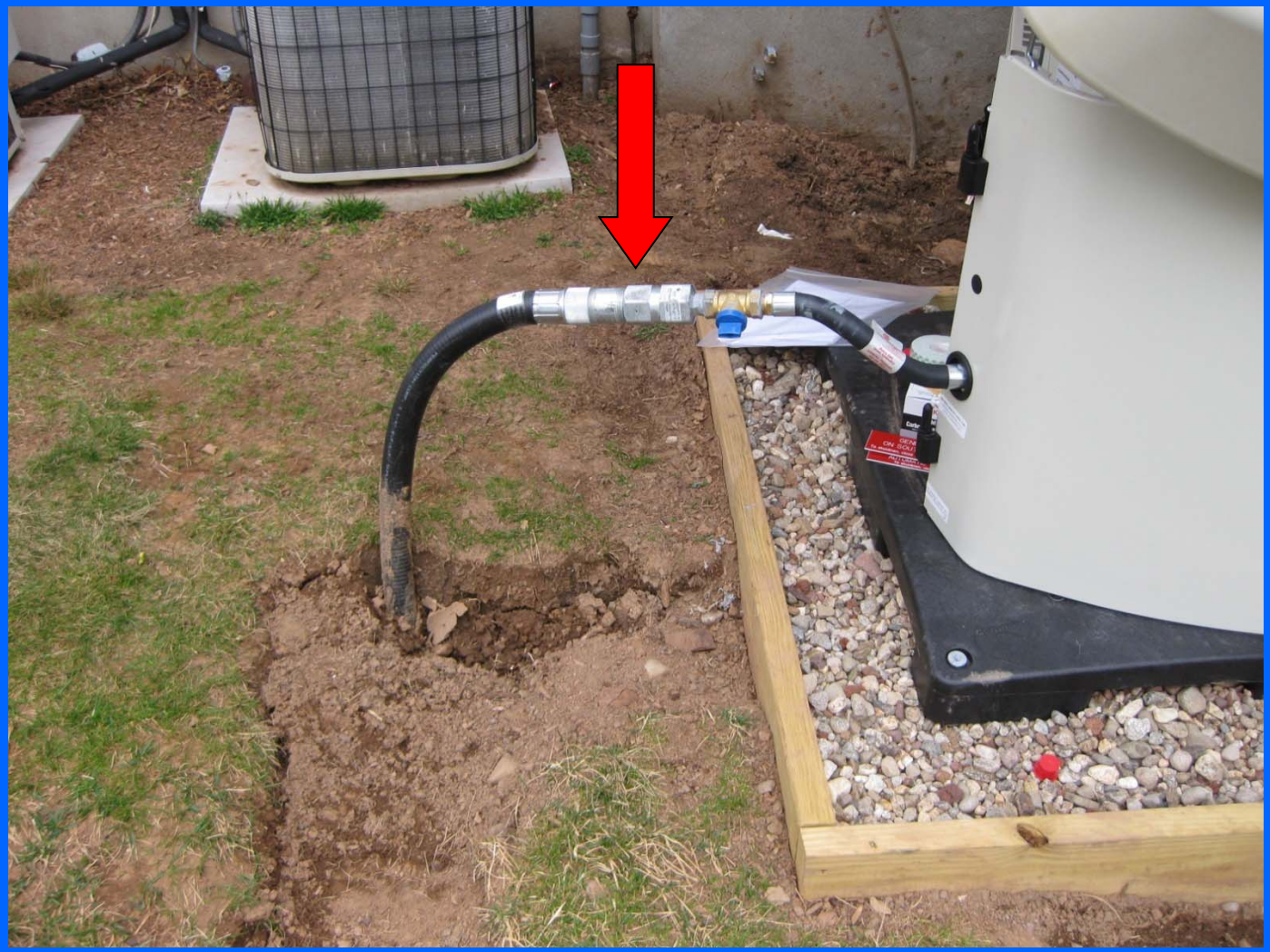

Generators for Building Inspectors

Generators for Building Inspectors

Generator's
Source of ignition

STATE OF CONNECTICUT
DEPARTMENT OF CONSTRUCTION SERVICES
OFFICE OF STATE FIRE MARSHAL

February 24, 2012

Mr. R. White
Service Technician
Arrow Gas
P.O. Box 1168
Waterbury, CT 06721-1168

Dear Mr. White:

In response to your correspondence dated December 16, 2011, regarding a formal interpretation of code, pertaining to regulator vent clearance from sources of ignition; 6.8.1.7.of NFPA 58 2008 Edition LPG code.

The Connecticut General Statutes, 29-331. *Regulations concerning Liquefied Petroleum Gas and Liquefied Natural Gas*, deals with the installation of LP-Gas systems to include tanks, piping and associated equipment. Under the Connecticut regulation 29-331-4, the National Fire Protection Association NFPA 58/1995 edition, *Standard for the Storage and Handling of Liquefied Petroleum Gasses* with Connecticut amendments, is known as the Connecticut Liquefied Petroleum Gas and Liquefied Natural Gas Code.

Under the regulations, the State Fire Marshal is the authority having jurisdiction regarding the proper administration, application, interpretation, and modification of the requirements contained within this code. The Local Fire Marshal or Building Official shall make the initial determination concerning compliance with this code except as stated otherwise in the wording of a section.

After careful review of the codes pertaining to engines/generators being sources of ignition, and after correspondence with Denise Beach, Senior Engineer, National Fire Protection Association, we have concluded that engines on generators are sources of ignition.

With regards to the issue you mentioned in your correspondence to this office, the 1995 edition of NFPA 58 is adopted in the state therefore the regulator installation requirements are found in Section 3-2.6.5 and states the following:

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The point of discharge from the required pressure relief device on regulating equipment installed outside of buildings in fixed piping systems shall be located not less than 3ft horizontally away from any building opening below the level of such discharge, and not beneath any building unless this space is well ventilated to the outside and is not enclosed for more than 50 percent of its perimeter. The point of discharge shall also be located not less than 5 ft in any direction away from any sources of ignition, openings into direct-vent (sealed combustion systems) appliances, or mechanical ventilation intakes.

The "point of discharge" from the regulator is the issue not the location of the regulator.

The issue of remotely locating the regulator vent was addressed in more specifics starting with the 2004 edition of NFPA 58.

The current edition of NFPA 58 2011 Edition Section 6.8.1.8 establishes the criteria and is as follows;

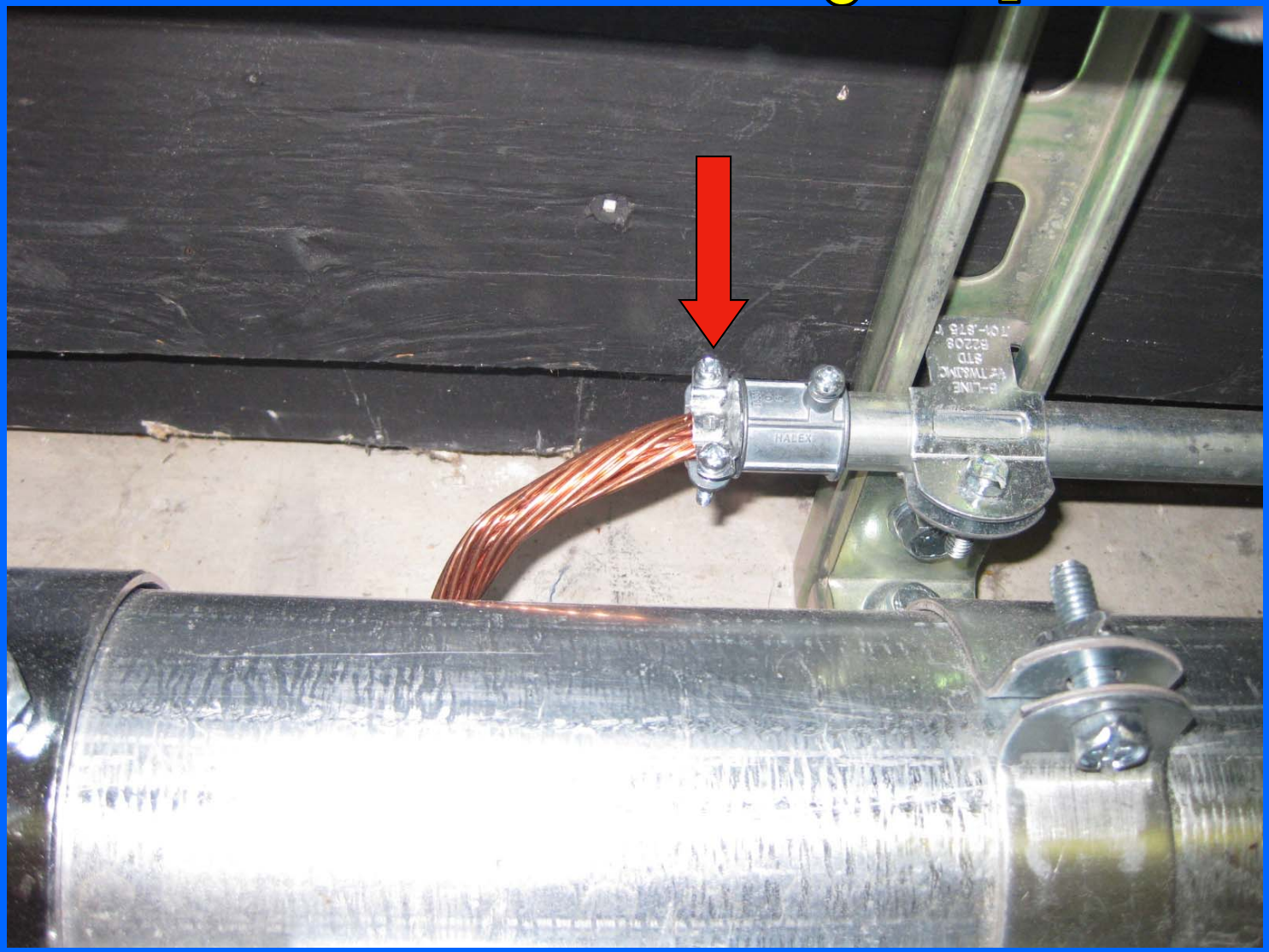
6.8.1.8 Where a vent line is used to comply with the point of discharge requirements, it shall comply with 6.8.1.8(A)(1) through 6.8.1.8(A)(7).

(A) The discharge from the required pressure relief device of a second stage regulator, other than a line pressure regulator, installed inside of buildings in fixed piping systems shall comply with the following:

(1) The discharge shall be directly vented with supported piping to the outside air.
(2) The vent line shall be at least the same nominal pipe size as the regulator vent connection pipe size.
(3) Where there is more than one regulator at a location, either each regulator shall have a separate vent to the outside or the vent lines shall be manifolded in accordance with accepted engineering practices to minimize back pressure in the event of high vent discharge.
(4) The material of the vent line shall comply with 5.8.3.
(5) The discharge outlet shall be located not less than 3 ft horizontally away from any building opening below the level of such discharge.
(6) The discharge outlet shall also be located not less than 5 ft in any direction away from any source of ignition, openings into direct vent appliances, or mechanical ventilation air intakes.
(7) The discharge outlet shall be designed, installed, or protected from blockage so it will not be affected by the elements (freezing rain, sleet, snow, ice, mud, or debris) or insects.

Generators for Building Inspectors

Generators for Building Inspectors



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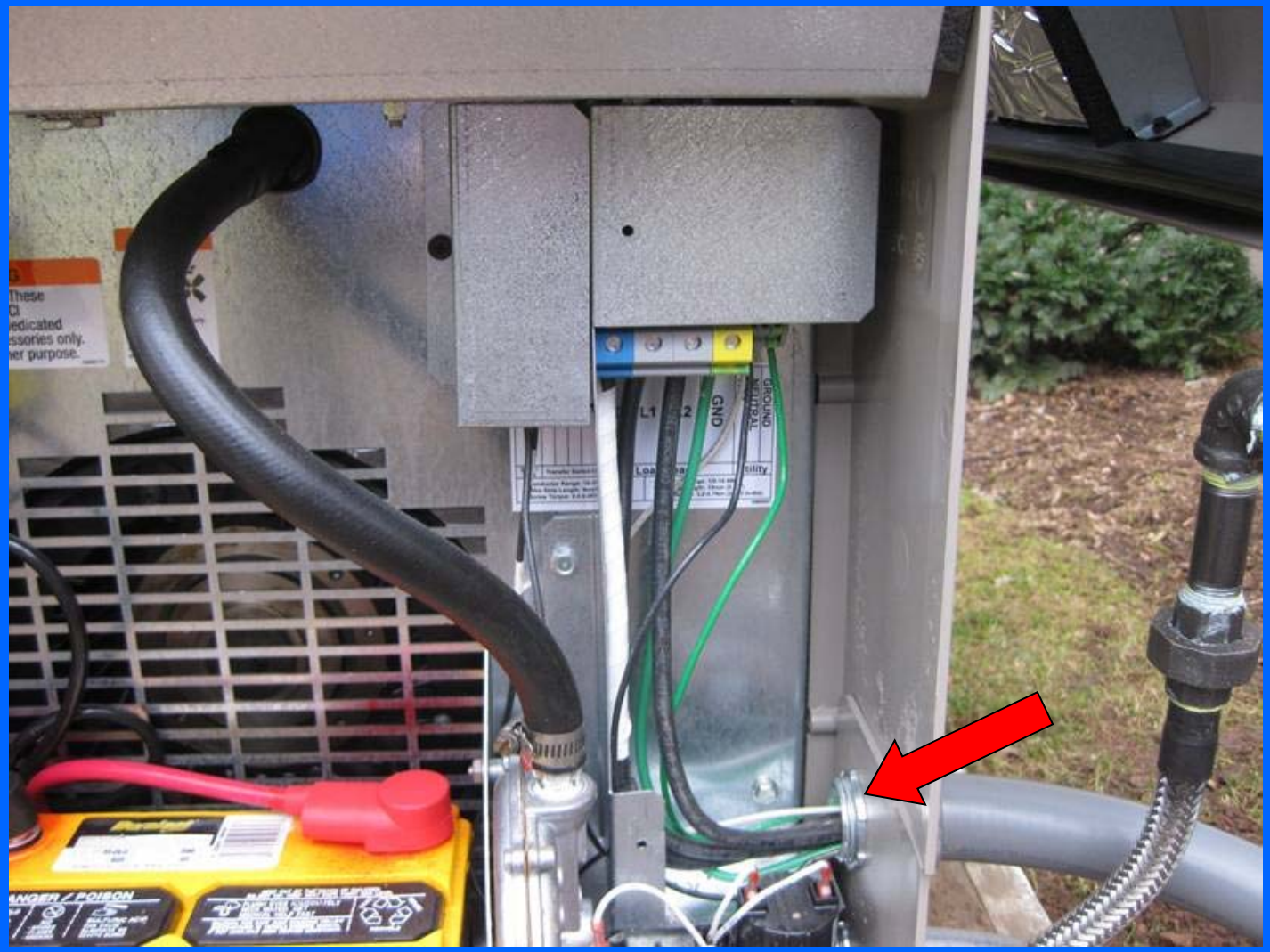

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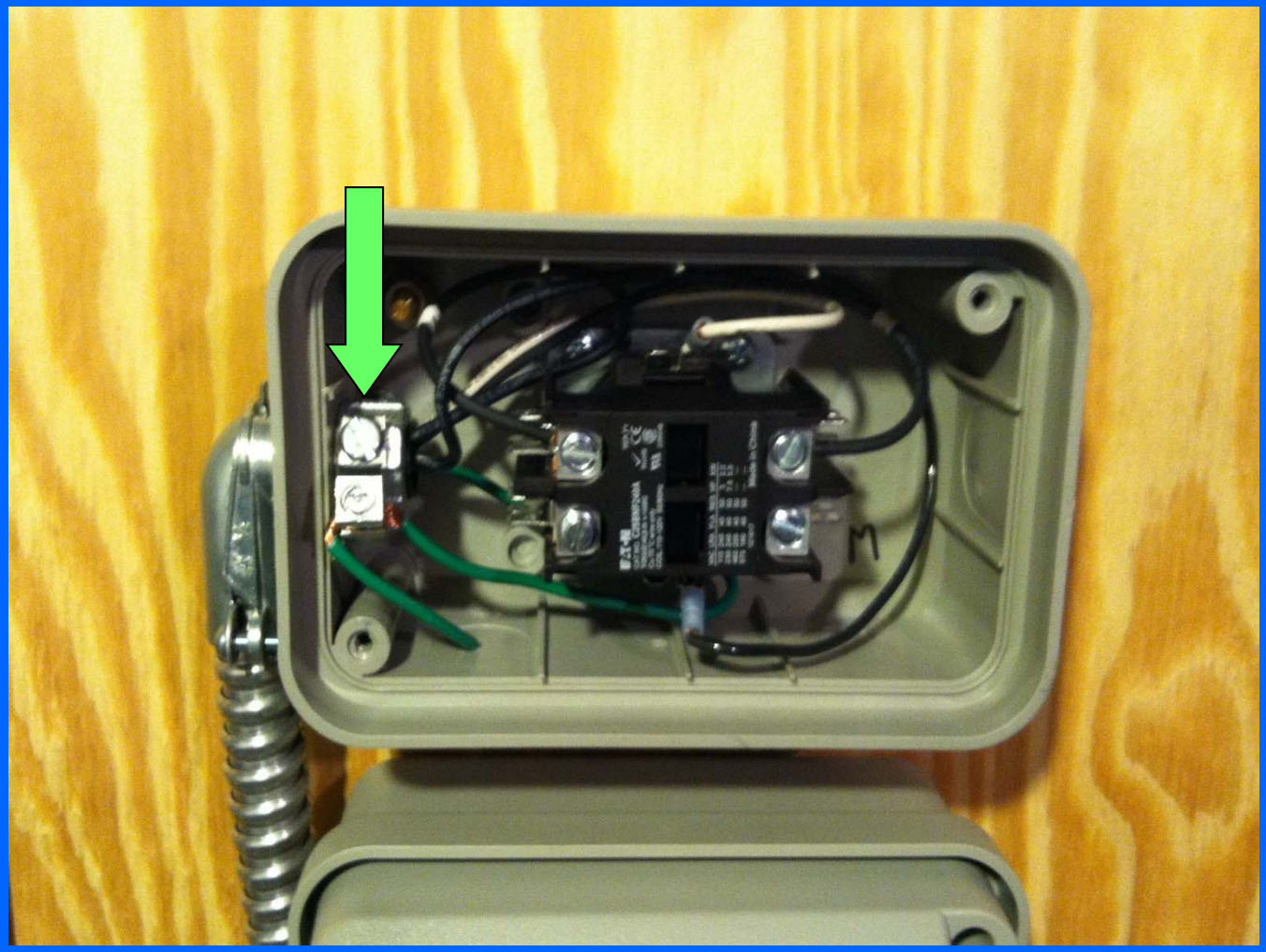

Generators for Building Inspectors

Thank you

"Okay, folks, that's a wrap!"