

**ROYAL & SUNALLIANCE**  
ENGINEERING INSURANCE & LOSS  
CONTROL SERVICES

**MAST**  
RISK MANAGEMENT

## Checking Electrical Rooms

1. Any unusual odors in electrical rooms should be checked out immediately. It usually means there is overheating somewhere in the panels. Electrical insulation that is overheated will give off an odor that is very noticeable.
2. In order to keep main disconnect switches and circuit breakers in good operational condition it is recommended they be exercised annually.
3. Transformers should be checked to insure air intake grills are clean and that there are no objects stored around the transformers that can block the cooling air supply. Transformers generate heat and this heat must be removed or the insulation will breakdown causing eventual failure of the transformer.
4. All electrical rooms should be locked and entry restricted to school custodial and maintenance staff, or other authorized persons.
5. Electrical rooms should not be used for storage purposes. Stored material will restrict access to the electrical panels in the event of emergency and may restrict air supply to transformers. If materials are not stored in electrical rooms it also will discourage entry by unauthorized persons.
6. When checking electrical rooms a hand can be put on the various circuit breaker and switch panels. If any are hot to the touch it is an indication that overheating may be occurring and this should be checked immediately.
7. Any unusual sounds from transformers or electrical switchgear should be investigated.
8. Electrical rooms containing transformers are usually ventilated to remove the heat generated by these transformers. Inadequate ventilation will cause high ambient temperatures to occur in the electrical rooms and may cause the transformers to overheat.

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Other considerations for checking electrical panels and transformers as part of the pm (preventative maintenance) program would be:

1. Thermographic scanning of the electrical switchgear and transformers, especially in larger regional schools that are supplied with 600 volt 3 phase power.
2. Electrical panels and switchgear in smaller schools could be checked annually by an electrician. This would include opening up the panels, visually checking for hot spots, and tightening of cable connections.

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An example of the problems that can occur if electrical panels are not maintained and checked is shown below. These photos are of fused disconnect on a 600 amp/600 volt main electrical service for a retail store. One 60 amp fused disconnect overheated and the insulation eventually started on fire. The fire spread up to the panels above before it was eventually put out by the Fire Department. The cause is thought to have been a loose connection at the fuse holder in the disconnect switch. The repair costs amounted to about \$100,000 and the store was closed for 2 days.

