

# ACHIEVEMENT PROGRAM MODEL RAILROAD ENGINEER ELECTRICAL STATEMENT OF QUALIFICATIONS FORM May 2006

page 1 of 2

Member's Name: \_\_\_\_\_ NMRA #: \_\_\_\_\_ Exp: \_\_\_\_\_

Street: \_\_\_\_\_ City: \_\_\_\_\_ State/Prov: \_\_\_\_\_

ZIP/PC: \_\_\_\_\_ Country: \_\_\_\_\_ NMRA Region: \_\_\_\_\_

Date Submitted: \_\_\_\_\_ E-Mail: \_\_\_\_\_ Phone: \_\_\_\_\_

### To qualify for this certificate you must:

Construct and demonstrate on own or club layout, the satisfactory operation of an electrical control system on a model railroad capable of simultaneous and independent control of two mainline trains in either direction, and containing at least:

- For conventional DC wiring (non-command-control), five electrical blocks that can be controlled independently. For command control wiring (DCC, TMCC, and others), sufficient gaps and switches to maintain polarity, phase if needed, and troubleshooting.
- One mainline passing siding
- One of the following: reversing loop, wye, turntable, or transfer table
- Facilities for storing of at least two unused motive power units.
- One yard with a minimum of three tracks and a switching lead independent of the mainline.
- One power supply with protective devices (short indicator and/or circuit breaker) to ensure safe operation.

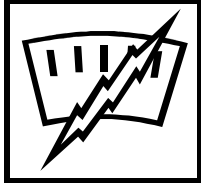
2. Wire and demonstrate the electrical operation of at least three of the following items:

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Turnout          | <input type="checkbox"/> Single slip switch       | <input type="checkbox"/> Gauntlet turnout                  |
| <input type="checkbox"/> Crossing         | <input type="checkbox"/> Gauge separation turnout | <input type="checkbox"/> Spring switch                     |
| <input type="checkbox"/> Crossover        | <input type="checkbox"/> Double junction turnout  | <input type="checkbox"/> Operating switch in overhead wire |
| <input type="checkbox"/> Double crossover | <input type="checkbox"/> Three way turnout        |  |

3. Wire and demonstrate the satisfactory electrical operation of at least three of the following features:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Electrical turnout position | <input type="checkbox"/> Two-way block signaling            | <input type="checkbox"/> Sound system                   |
| <input type="checkbox"/> Track occupancy             | <input type="checkbox"/> Operating overhead wire            | <input type="checkbox"/> Signaling system               |
| <input type="checkbox"/> Cab control                 | <input type="checkbox"/> Computer control                   | <input type="checkbox"/> CTC system                     |
| <input type="checkbox"/> Engine terminal             | <input type="checkbox"/> Animated displays                  | <input type="checkbox"/> Onboard video system           |
| <input type="checkbox"/> Two turnout junctions       | <input type="checkbox"/> Layout lighting displays           | <input type="checkbox"/> Computerized block detection   |
| <input type="checkbox"/> High-frequency lighting     | <input type="checkbox"/> Command Control Receiver           | <input type="checkbox"/> Computerized operation         |
| <input type="checkbox"/> Electronic throttle         | <input type="checkbox"/> Command Control Throttle Buss Line | <input type="checkbox"/> Computer to railroad interface |
| <input type="checkbox"/> Grade crossing              |   | <input type="checkbox"/> Other _____                    |

4. Prepare a schematic drawing of the propulsion circuitry of the model railroad in Section 1 showing the gaps, blocks, feeders, speed and direction control, electrical switches and power supplies. Prepare schematic drawings identifying the wiring and components of the six items in Requirements 2 & 3.



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page 2 of 2

5. Submit a completed Statement of Qualifications (SOQ) which shall include the following:

- Attachment showing the track plan required in Requirement 1.
- Description of the track work features, method of construction and identification of commercial components used in 2 & 3.
- The signed witness certification form showing that each of the above items are operational and meet all applicable NMRA Standards.

JUDGE'S NAME	SIGNATURE	NMRA #

### Member's Statement and Agreement:

I certify that I have completed all of the requirements for this Certificate of Achievement as listed above and that I will agree to assist other members in this subject whenever possible, whether or not they are participants in the Achievement Program.

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

### Certification of Regional Achievement Program Chair

As the NMRA Regional Achievement Program Chair of the \_\_\_\_\_, I certify that I have examined this SOQ and, having compared it to the stated requirements for this certificate, I am satisfied that the stated requirements have been met.

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

Region Cert #: \_\_\_\_\_

### Approval by AP National Executive Vice-Chair

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

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