



ACHIEVEMENT PROGRAM MODEL RAILROAD ENGINEER ELECTRICAL RECORD AND VALIDATION FORM May 2006

PLEASE ATTACH THIS FORM TO A COMPLETED STATEMENT OF QUALIFICATIONS (SOQ) FORM.

Member's Name: _____

NMRA #: _____

Date Submitted: _____

Region: _____

To qualify for this certificate you must:

1. Construct and demonstrate on your own or a 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:

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|--|---|
| ☐ DC Power – 5 blocks that can be controlled independently | ☐ One passing siding |
| ☐ DCC/TMCC/Other Power – gaps, switches, phase for troubleshooting | ☐ One reverse loop |
| ☐ Wye | ☐ Turntable |
| ☐ Facilities for storing of at least two unused motive power units. | ☐ Transfer table. |
| ☐ 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:

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|---|---|--|
| ☐ Turnout | ☐ Single slip switch | ☐ Gauntlet turnout |
| ☐ Crossing | ☐ Gauge separation turnout | ☐ Spring switch |
| ☐ Crossover | ☐ Double junction turnout | ☐ Operating switch in overhead wire |
| ☐ Double crossover | ☐ Three way turnout | |

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

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|--|---|---|
| ☐ Electrical turnout position | ☐ Two-way block signaling | ☐ Sound system |
| ☐ Track occupancy | ☐ Operating overhead wire | ☐ Signaling system |
| ☐ Cab control | ☐ Computer control | ☐ CTC system |
| ☐ Engine terminal | ☐ Animated displays | ☐ Onboard video system |
| ☐ Two turnout junctions | ☐ Layout lighting displays | ☐ Computerized block detection |
| ☐ High-frequency lighting | ☐ Command Control Receiver | ☐ Computerized operation |
| ☐ Electronic throttle | ☐ Command Control Throttle Buss Line | ☐ Computer to railroad interface |
| ☐ Grade crossing | | ☐ 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.
5. Prepare schematic drawings identifying the wiring and components of the six items in Requirements 2 & 3.
6. 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 #

REGIONAL AP CHAIR: _____ REGION: _____ DATE: _____