

National Model Railroad Association

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Achievement Program

Model Railroad Engineer - Civil

The requirements for Model Railroad Engineer - Civil may look long and complicated, but they really are not. The reason that they are so long is to offer you more options for meeting the requirements.

Remember - don't read more into the requirements than is there.

To qualify for the Model Railroad Engineer - Civil certificate:

1. Prepare one original scale drawing of a model railroad track plan, identifying overall size, scale, track elevations, curve radii, and turnout sizes.

Before you start drawing your layout plan, look at requirements B & C to see what features you are going to want to incorporate in your track plan. Remember: you do not need to build everything on this plan, just the minimum required part of it. The plan should be neat and legible, but it does not have to be in ink.

You should also consider the requirements for Model Railroad Engineer - Electrical, and Chief Dispatcher when planning your layout - it is much easier to include the requirements in the planning stage than to go back and add them later.

This plan must include:

- A. Adequate terminal facilities for handling freight and/or passenger cars

This will vary, depending on the nature of your layout. Keep in mind that a railroad needs to have a reason to exist, other than to provide modelers and railfans something to look at! There needs to be someone that will pay for it to haul something from one place to another, be it lumber, coal, fruit, passengers, etc. (and usually more than one thing). Your plan and your layout should reflect this. Remember, you don't necessarily have to build these facilities, just include them in your plan. This is to show that you know what the design of a logical terminal facility would look like.

- B. Adequate terminal facilities for storage and service of motive power

This doesn't mean you need a turntable with a twenty stall roundhouse. For a small operation, a simple engine house with a fueling track may be sufficient. It should be consistent with the theme of the rest of your plan. Again, remember that you don't necessarily have to build these facilities, just show that you know how to plan one.

- C. A minimum of one mainline passing siding
- D. Four switching locations, not counting yards, interchanges, wyes, and reversing loops

These would typically be spurs for setting out or picking up cars. Again, each one should have a purpose.

- E. Provision for turning motive power (*except for switchbacks, trolley lines, etc.*)

A turntable, wye, or reverse loop, which actually changes the way that the motive power faces. Not just a loop of track that sends it back through the scene in a different direction on another track.

- F. Provision for simultaneous operation of at least two mainline trains in either direction.

Remember, you don't have to actually build this, just show it on the plan.

2. Construct and demonstrate, the satisfactory operation of a completed section of the model railroad and track work described in #1. Containing at least 25 linear feet in Z, N, or TT scale, or 50 linear feet in HO or S scale, or seventy five linear feet in O scale, or 100 linear feet in G or #1 scale, or other scales in proportional relationship to HO scale, with appropriate ballast, drainage facilities, and roadbed profile, which may contain spurs, yards, etc.

Notice that last part - 50 feet of track, not 50 feet of main line - all operational track counts. While there is some element of scenery (appearance) to the track work and ballasting, the greatest number of points come from Construction and Conformity. In other words, what you need to show is that you know how to build track following prototype practice.

The track work must have examples of six of the following features:

- Passing Siding
- Spur
- Crossover

A crossover is a diagonal track connecting two parallel tracks.

- Reversing Loop
- Wye
- Simple Ladder

A ladder should have a minimum of 3 tracks

- Compound Ladder
- Turntable
- Transfer Table
- Super Elevation

Banking the track and roadbed on a curve.

- Simple Overhead Wire - *A single overhead wire (such as on a trolley system)*
- Compound Overhead Wire (catenary)

One wire which carries the power, with another wire above to support it (such as on high-speed electrical lines)

- Scale Track

A track with a scale for weighing cars.

- Cog Railway Track
- Coal Dump Track

Could also be for dumping something besides coal

- Ash Pit
- Service Pit Track
- Grade Elevation

This is a lot simpler than it sounds: it's any change in the slope of the track, like at the top or bottom of a hill. It's to show that you can make the transition smoothly between grades.

- Other _____

3. Construct for Merit Judging, scratch built scale models of any three of the following, and demonstrate their satisfactory operation:

- Turnout

point or stub

- Crossover
- Double Crossover
- Single Slip Switch
- Double Slip Switch
- Crossing
- Gauntlet Track
- Gauntlet Turnout
- Dual Gauge Turnout
- Gauge Separation Turnout

Narrow gauge splitting off from dual gauge.

- Double Junction Turnout

One set of parallel tracks diverges from another.

- Three-Way Turnout
- Spring Switch
- Operating Switch in Overhead Wire
- Other _____

Commercial frogs are not permitted to be used in any of these items. These models may be built and demonstrated as part of the layout or separately.

Remember that these items do not need to be part of your layout - they don't even need to be the same scale or gauge. They don't even need to be part of a layout at all. You can build them on separate pieces of wood. They just have to be big enough and with enough track on either side to "...demonstrate their satisfactory operation." This means that a unit of motive power must be able to travel through them (along all the possible routes) under its own power. It is **NOT** sufficient to push or pull a car through by hand.

4. You must win a Merit Award (at least 87.5 points) with the items in section 3 above.

Notice that you only have to win a Merit Award with the items in section 3 - the trackwork items in section 2 don't have to be judged at all, except to demonstrate that they work. They must be available for examination by the judges, however.

5. You must submit a Statement of Qualification (SOQ - available from the Regional AP Manager) which includes the following:

- A. Attachment to the SOQ showing the track plan required in Section 1 above. The attachment should include:

- Identification of all scratch built features
- All commercial components used
- Materials used in building the model

(This is just a list of what was used - you don't have to try and figure out how much)

- B. Description of the track work features, methods of construction and identification of commercial components used in Section 3.

- C. Verification of the Merit Awards

(Photocopies of the certificates or signed judging forms.)

- D. Witness Certification showing that each of the above models meets all applicable NMRA standards.

Further Information

Contact National Achievement Program General Manager, Paul Richardson, MMR achiev@hq.nmra.org, or your Region or Division Achievement Program Manager for more information.

Also refer to the article "[Achievement Program Skills and Service Awards](#)", NMRA Bulletin, September 1992.

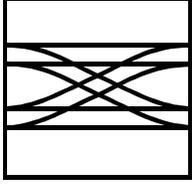
Forms available for this category:

- [SOQ Form: \(PDF\)](#)
- [Record and Validation form: \(PDF\)](#)
- [Judging Form: \(PDF\)](#)

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ACHIEVEMENT PROGRAM MODEL RAILROAD ENGINEER CIVIL 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:

1. One original scale drawing of a model railroad track plan identifying:

- | | | |
|-------------------------------------------|---------------------------------------------------|-------------------------------------------------------|
| <input type="checkbox"/> Overall Size | <input type="checkbox"/> Facilities Turnout Sizes | <input type="checkbox"/> Four Switching Locations |
| <input type="checkbox"/> Scale | <input type="checkbox"/> Terminal | <input type="checkbox"/> Turning of Motive Power |
| <input type="checkbox"/> Track Elevations | <input type="checkbox"/> Motive Power Storage | <input type="checkbox"/> Two Mainline Train Operation |
| <input type="checkbox"/> Curve Radii | <input type="checkbox"/> Mainline Passing Siding | |

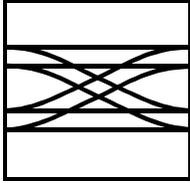
2. Construct and demonstrate the satisfactory operation of a completed section of the model railroad and track work described in Section 1. The section must contain at least 25 linear feet of track in Z, N, or TT scale, 50' in HO or S, 75' in O or 100' in G or #1, with appropriate ballast, drainage facilities and roadbed profile, and may contain spurs, yards, etc. Track work shall have examples of at least 6 of the following features:

- | | | |
|------------------------------------------|-------------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> Passing siding | <input type="checkbox"/> Turntable | <input type="checkbox"/> Coal Dump Track |
| <input type="checkbox"/> Spur | <input type="checkbox"/> Transfer Table | <input type="checkbox"/> Ash Pit |
| <input type="checkbox"/> Crossover | <input type="checkbox"/> Super Elevation | <input type="checkbox"/> Service Pit Track |
| <input type="checkbox"/> Reversing Loop | <input type="checkbox"/> Simple Overhead Wire | <input type="checkbox"/> Grade Elevation |
| <input type="checkbox"/> Wye | <input type="checkbox"/> Compound Overhead Wire | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Simple Ladder | <input type="checkbox"/> Scale Track | |
| <input type="checkbox"/> Compound Ladder | <input type="checkbox"/> Cog Railway Track | |

2. :

3. Construct for Merit Award Judging scratch built models of any three of the following.

- | | | |
|--------------------------------------------------|---------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> Turnout (Point or Stub) | <input type="checkbox"/> Crossing | <input type="checkbox"/> Double Junction Turnout |
| <input type="checkbox"/> Crossover | <input type="checkbox"/> Gauntlet Track | <input type="checkbox"/> Three-Way Turnout |
| <input type="checkbox"/> Double Crossover | <input type="checkbox"/> Gauntlet Turnout | <input type="checkbox"/> Spring Switch or |
| <input type="checkbox"/> Single Slip Switch | <input type="checkbox"/> Dual Gauge Turnout | <input type="checkbox"/> Operating Switch in overhead wire |
| <input type="checkbox"/> Double Slip Switch | <input type="checkbox"/> Gauge Separation Turnout | |



**ACHIEVEMENT PROGRAM
MODEL RAILROAD ENGINEER CIVIL
STATEMENT OF QUALIFICATIONS FORM
May 2006**

page 2 of 2

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.

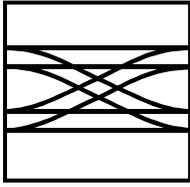
NAME: _____ SIGNATURE: _____ Date: _____

Region Cert #: _____

Approval by AP National Executive Vice-Chair

NAME: _____ SIGNATURE: _____ Date: _____

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ACHIEVEMENT PROGRAM

MODEL RAILROAD ENGINEER CIVIL

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: _____

It is hereby certified that the Civil options described below, built or installed, on one or more model railroads by the above named NMRA member, have been personally examined by two or more judges appointed by the Region or Division AP Chair; that the items are either scratchbuilt or super-detailed or are commercial items properly installed, have been adjusted to be operational and meet all applicable NMRA Standards.

1. One original scale drawing of a model railroad track plan identifying:

- | | | |
|-------------------------------------------|---------------------------------------------------|-------------------------------------------------------|
| <input type="checkbox"/> Overall Size | <input type="checkbox"/> Facilities Turnout Sizes | <input type="checkbox"/> Four Switching Locations |
| <input type="checkbox"/> Scale | <input type="checkbox"/> Terminal | <input type="checkbox"/> Turning of Motive Power |
| <input type="checkbox"/> Track Elevations | <input type="checkbox"/> Motive Power Storage | <input type="checkbox"/> Two Mainline Train Operation |
| <input type="checkbox"/> Curve Radii | <input type="checkbox"/> Mainline Passing Siding | |

2. Construct and demonstrate the satisfactory operation of a completed section of the model railroad and trackwork described in Section 1. The section must contain at least 25 linear feet of track in Z, N, or TT scale, 50' in HO or S, 75' in O or 100' in G or #1, with appropriate ballast, drainage facilities and roadbed profile, and may contain spurs, yards, etc. Trackwork shall have examples of at least **SIX** of the following features:

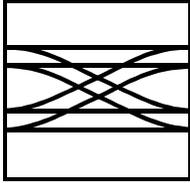
- | | | |
|------------------------------------------|-------------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> Passing siding | <input type="checkbox"/> Turntable | <input type="checkbox"/> Coal Dump Track |
| <input type="checkbox"/> Spur | <input type="checkbox"/> Transfer Table | <input type="checkbox"/> Ash Pit |
| <input type="checkbox"/> Crossover | <input type="checkbox"/> Super Elevation | <input type="checkbox"/> Service Pit Track |
| <input type="checkbox"/> Reversing Loop | <input type="checkbox"/> Simple Overhead Wire | <input type="checkbox"/> Grade Elevation |
| <input type="checkbox"/> Wye | <input type="checkbox"/> Compound Overhead Wire | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Simple Ladder | <input type="checkbox"/> Scale Track | |
| <input type="checkbox"/> Compound Ladder | <input type="checkbox"/> Cog Railway Track | |

3. Construct for Merit Award Judging scratchbuilt models of any three of the following.

- | | | |
|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Turnout (Point or Stub) | <input type="checkbox"/> Crossing | <input type="checkbox"/> Double Junction Turnout |
| <input type="checkbox"/> Crossover | <input type="checkbox"/> Gauntlet Track | <input type="checkbox"/> Three-Way Turnout |
| <input type="checkbox"/> Double Crossover | <input type="checkbox"/> Gauntlet Turnout | <input type="checkbox"/> Spring Switch or |
| <input type="checkbox"/> Single Slip Switch | <input type="checkbox"/> Dual Gauge Turnout | <input type="checkbox"/> Operating Switch |
| <input type="checkbox"/> Double Slip Switch | <input type="checkbox"/> Gauge Separation Turnout | in overhead wire |

JUDGE'S NAME	SIGNATURE	NMRA #

REGIONAL AP CHAIR: _____ REGION: _____ DATE: _____



ACHIEVEMENT PROGRAM MODEL RAILROAD ENGINEER CIVIL JUDGING FORM May 2006

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

Member's Name: _____

NMRA #: _____

Date Submitted: _____

Region: _____

It is hereby certified that the three scratchbuilt models of railroad track work built by the above named NMRA member, have been personally examined by two or more judges appointed by the Region AP Chair. That all track work operated satisfactorily, meets all applicable NMRA Standards, and that each of the three scratchbuilt items of track work has earned a minimum score of 87.5 points and has been awarded a Merit Award.

MERIT AWARD SCORING SCHEDULE

CONSTRUCTION	DESCRIPTION	POINTS	SCORE
CONSTRUCTION	Workmanship: The difficulty or complexity of what the modeler has attempted and how well the model was constructed.	0-40	
DETAIL	Quality and Amount. How much detail has the modeler added or incorporated and how complex was the detailing job?	0-20	
CONFORMITY	Prototype Practice. How well has the modeler reproduced the prototype?	0-30	
FINISH & LETTERING	Appearance. The complexity, accuracy, or completeness of finish and lettering and the quality and skill of its application.	0-10	
SCRATCHBUILDING	How much did the modeler build from scratch and how difficult was the scratchbuilding. Commercial frogs not allowed but commercial individual rail (not Flex-track), ties and spikes are.	0-25	
		Total	

JUDGE'S NAME	SIGNATURE	NMRA #

REGIONAL AP CHAIR: _____ REGION: _____ DATE: _____