A medical physics resident in radiation oncology at the University of Michigan will be expected to demonstrate the following competencies associated with shielding. Listed below are the minimum standards.
Contents Outline

Knowledge Factors
- List of reading assignments
- Shielding

Practical Factors
- Shielding calculations

Knowledge Factors – List of reading assignment
1. NUREG-1556, “Consolidated guidance about material licenses.”
**Knowledge Factors – Shielding**

Read and demonstrate an understanding of the relevant, shielding related NCRP report. Demonstrate an understanding of structural shielding designs and the key parameters necessary to perform a shielding calculation.

**Signature / Date**

Demonstrate an understanding of the shielding requirements for the maze and door of a high-energy photon room.

**Signature / Date**

Demonstrate an understanding of the advantages and disadvantages of various materials that may be used for shielding.

**Signature / Date**

Demonstrate an understanding of how procedures such as IMRT, SBRT, and TBI may impact shielding parameters

**Signature / Date**

Demonstrate an understanding of state/provincial licensing of x-ray producing devices.

**Signature / Date**

Demonstrate an understanding of licensing issues (NUREG-1556).

**Signature / Date**

Discuss and demonstrate an understanding of a linac head wrap.

**Signature / Date**

Read and demonstrate an understanding of NCRP report 155.

**Signature / Date**

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**Practical Factors – Shielding**

Perform a brachytherapy shielding calculation.

**Signature / Date**

Perform linac room shielding calculation.

**Signature / Date**

Perform CT room shielding calculation. Discuss the significance of isodose distribution plots for CT units.

**Signature / Date**

Perform a linac radiation room survey.

**Signature / Date**

Prepare a shielding report summarizing the design, calculations, and survey results for a high energy linear accelerator vault.

**Signature / Date**

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Updated May 3, 2016 (JIP/DAR)