DISCLAIMER

SRC Technical Notes are informal memos intended for internal communication and documentation of work in progress. These notes are not necessarily definitive and have not undergone a pre-publication review. If you rely on this note for purposes other than its intended use, you assume all risk associated with such use.
1. GENERAL CONSIDERATIONS

1.a. Function. This mirror will be used in a 4 meter Normal Incidence Monochromator (NIM) undulator beamline under construction at the Synchrotron Radiation Center.

1.b. Scope of Work. The vendor shall provide all of the materials, fixtures, and labor required to fabricate the mirror specified in this document.

2. OPTICAL SURFACE

2.a. The optical surface is 75 x 15 mm (L x W).

2.b. The surface shall be spherical with a radius of curvature of 8317 ± 0.5 mm.

2.c. The optical surface shall be coated with a silicon film 30 nanometers thick.

2.d. RMS slope error on the optical surface shall be less than or equal to 0.35 arcsec in both the meridian and sagittal directions.

2.e. RMS surface micro-roughness on the optical surface shall be less than or equal to 0.5 nanometer.

2.f. The requirements on slope error and surface micro-roughness apply to the coated optical element over the entire optical surface.

2.g. The spherical radius, slope error and surface micro-roughness shall be measured prior to delivery. The bidder shall describe in his bid submittal the measuring technique that he intends to use to verify these parameters. The results of these measurements shall be sent to SRC along with the mirror.

3. MIRROR BLANK

3.a. The blank material shall be silicon carbide, silicon or fused silica.

3.b. The nominal blank size will be 85 x 30 x 30 mm (L x W x H) as shown on SRC drawing 5346B003.

3.c. The optical surface will be centered on the 85 x 30 mm (L x W) surface of the blank as shown on SRC drawing 5346B003.
3.d. Unless otherwise shown all dimensions have a tolerance of ± 0.4 mm.

3.e. All non-optical surfaces must be ground to within 0.025 mm (TIR).

4. FABRICATION

4.a. This mirror will be used in an ultrahigh vacuum environment and must comply with the applicable sections of SRC Technical Note #99.

5. SHIPPING

5.a. All handling of the mirror after final cleaning and coating must be compatible with standard clean room practices.

5.b. Talcum powder free clean room gloves must be used when handling the mirror.

5.c. Oil, finger prints, dust and other contaminants must be kept off of the mirror.

5.d. Hermetically sealed packaging shall be used during shipping to protect the mirror from dust and contamination.

5.e. The mirror shall be held securely in its shipping container to prevent chafing that could damage the mirror and/or generate contaminating particles.

6. SUBMITTALS

6.a. Bidders must submit with their quotation the following information:

6.a.1. Examples of previous work on mirrors which demonstrate the bidder’s capability to fabricate the mirror specified in this document.

6.a.2. Name and phone number of two references that bidder has supplied mirrors to that may be contacted by SRC.

6.a.3. Any exceptions or variations to statements, dimensions, tolerances in this document or SRC drawing 5346B003.

7. SPECIAL CONDITIONS

7.a. SRC reserves the right to visit the bidders facility before awarding a contract.

7.b. SRC reserves the right to inspect the mirror during fabrication.