Skin Collimator Creation

A skin collimator is an optional device for each electron treatment beam. Here the user can create and edit skin collimators for the selected beam as well as edit values for an existing collimator. From within the Electron Beam Task you may add a skin collimator to a beam by clicking the "Add One" button from within the Skin Collimator Block.
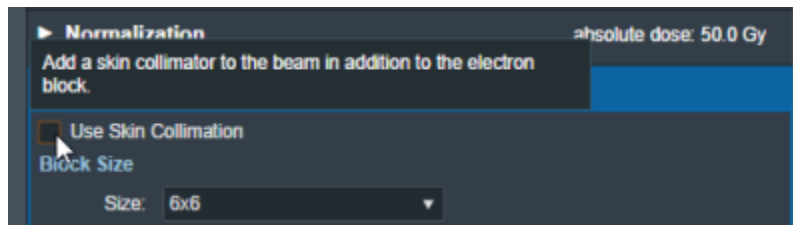

Fig. 1: Skin Collimator Block

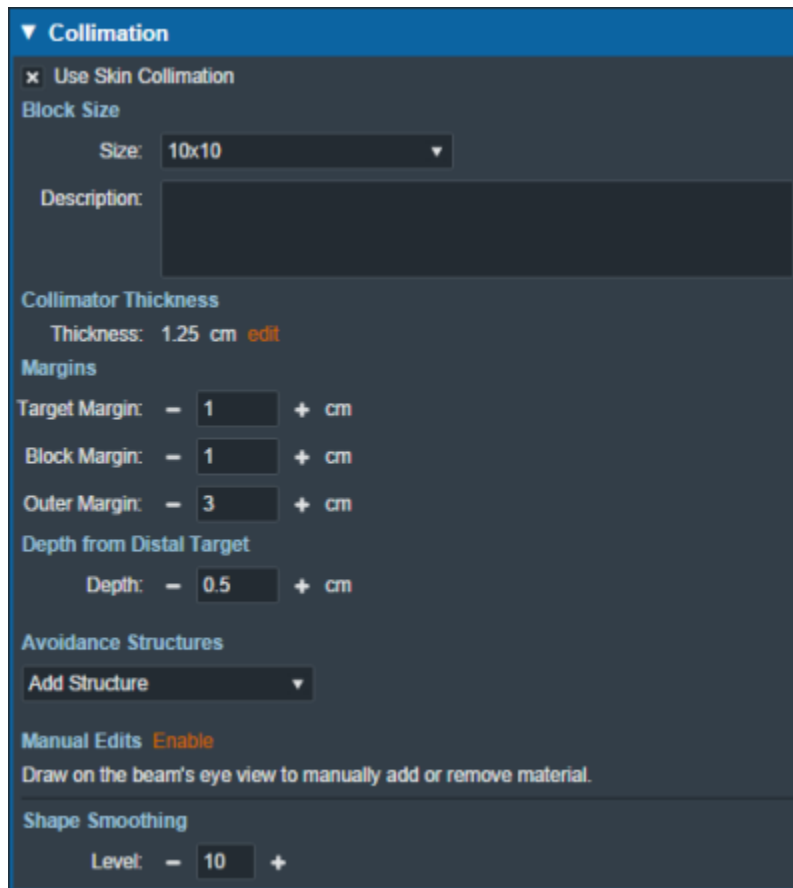**Note: when using a skin collimator and a bolus:**

While a skin collimator can be added to any beam and used with any bolus, it is recommended that they are only used with an Optimized Thickness bolus. Only the Optimized Bolus will have its shape updated to correctly account for a skin collimator. All other bolus types will require the user to review and ensure there is no fitment interference between the skin collimator, bolus, and patient surface.

Collimator Thickness

- **Thickness:** The value (in cm) of the thickness of the skin collimator from the surface of the patient external structure.

Note: The app will automatically recalculate and display changes to the skin collimator as the thickness is edited.
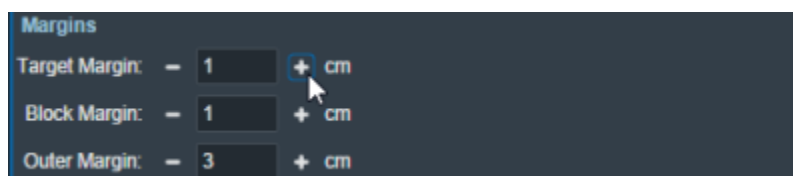
Fig. 2: Skin collimator controls

Margins

- **Target Margin:** The value (in cm) of the margin around the target structure as projected to isocenter. A negative margin can be used to specify a contraction around the beam target while positive values will cause an expansion.
- **Outer Margin:** The value (in cm) of the margin between the skin collimator opening shape and the outer shape of the collimator as projected to isocenter. A negative margin can be used to specify a contraction of the outer skin collimator shape while positive values will cause an expansion.

Note: The app will automatically recalculate and display changes to the skin collimator as the margins are edited.

Fig. 3: Skin collimator margins

Depth from Distal Target

- **Depth:** The value (in cm) of the depth from the distal side of the beam target that is used when calculating the skin collimator 3D shape. Adjusting this value can help improve the skin collimator shape in some situations.

Note: The app will automatically recalculate and display changes to the skin collimator as the depth from distal target is edited.
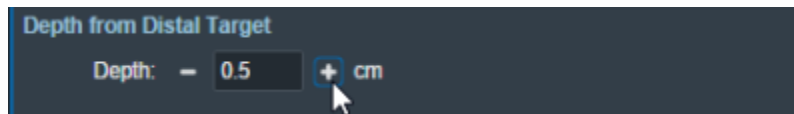

Fig. 4: Skin collimator depth from distal target

Collimator Avoidance Structures

Using controls that are shared with electron blocks, the user may select one or more structures in the structure list here to add as an Avoidance Structure. Avoidance structures will decrease the skin collimator opening to remove all areas within the projection of the structure.
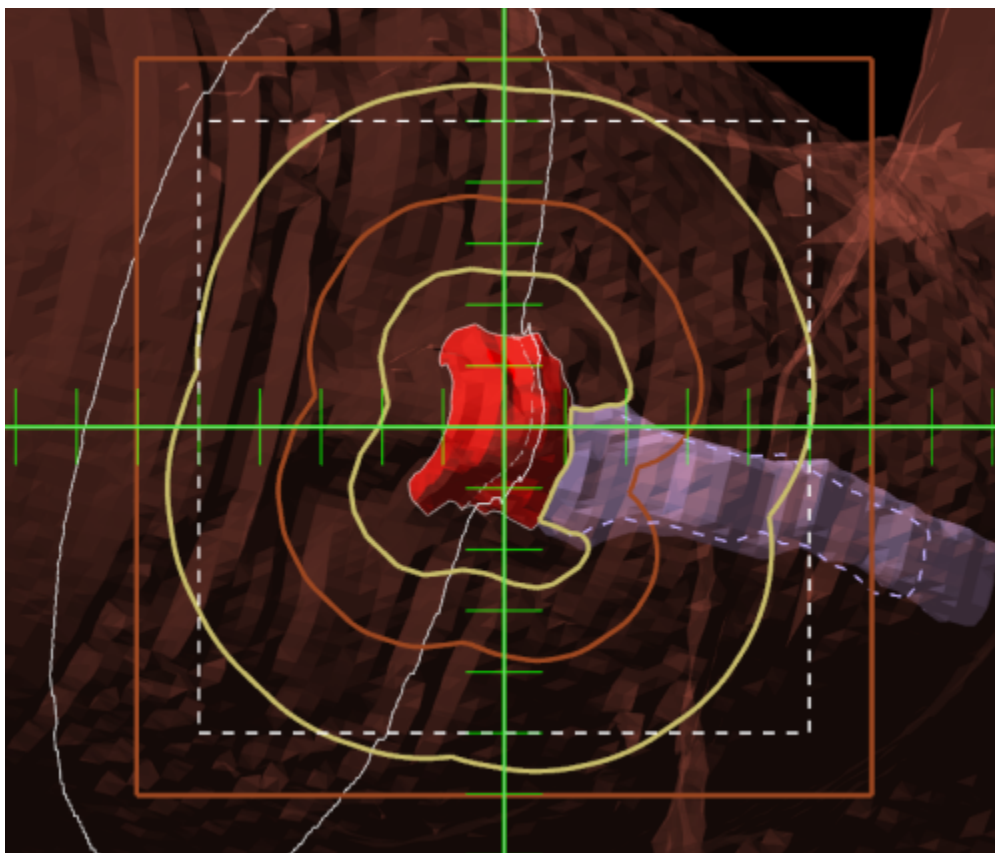

Fig. 5: Skin collimator with avoidance structure

Collimator Manual Edits

By default manual editing of the block shape it disabled, but a user can elect to enable the ability to manually change the skin collimator opening shape in a manner that is identical to Manually Editing the electron block opening shape.
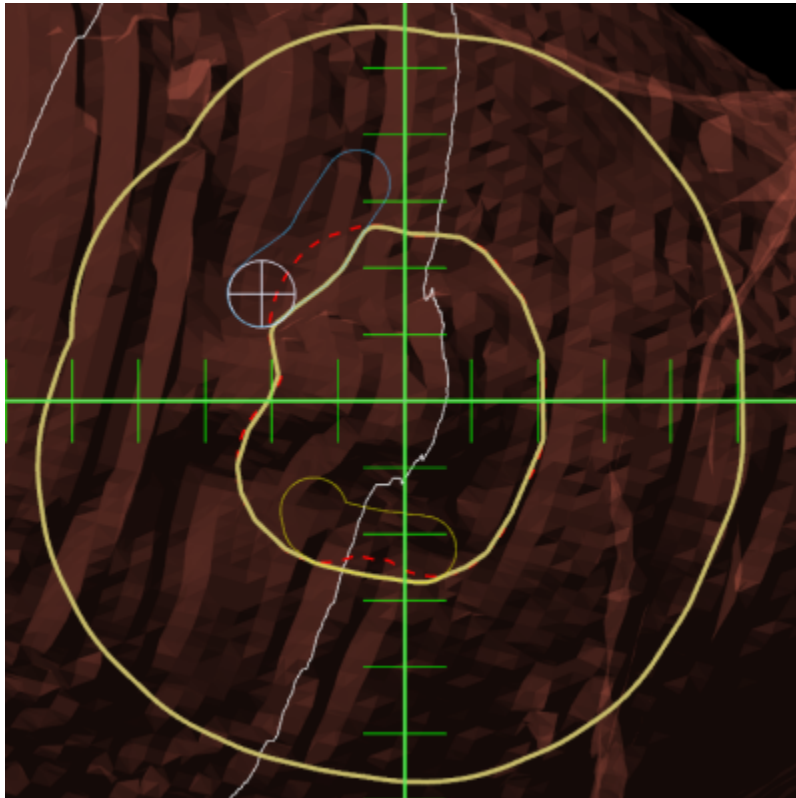

Fig. 6: Skin collimator manual edits

Collimator Shape Smoothing

- **Level:** Sets the level of smoothing applied to the skin collimator opening shape.

Note: The app will automatically recalculate and display changes to the skin collimator based on the set smoothing level.
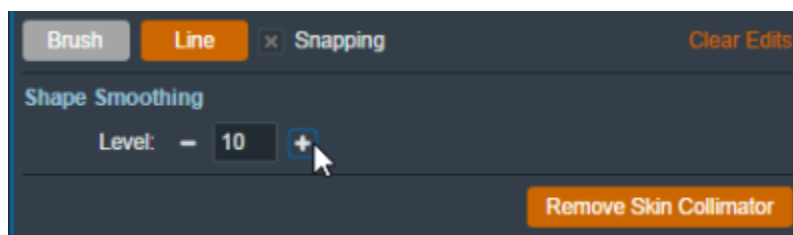

Fig. 7: Setting the smoothing level for the skin collimator

From: