

Request for Quotation:  
2007Oct17

This project has two parts. We would prefer a vendor who can bid on the complete job, but please do give us a quotation for a subset of the work if that suits you better.

Also, we have some flexibility on tolerances, so please ask for leeway on some the specs if you need them.

Looking forward to hearing from you,  
-John Monnier (monnier@umich.edu)  
Univ. Michigan  
734-763-5822

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#### Part I: Fabrication of 16 prisms

See attached drawings (CAD file available on request) for the individual dimensions of each prism (no two are alike). The prisms are individually named:  
T1a,T1b,T1c,T1d,T2a,T2b,T2c,T2d,B1a,B1b,B1c,B1d,B2a,B2b,B2c,B2d

Please review the drawings before reading the following descriptions.

#### Common Specifications:

1. Bottom of piece is 10mm X 10mm square. All angles with respect to base are square.
2. The top surface is a planar cut out of a 10mm X 10mm X 10mm cube, while maintaining a vertex point 10mm above base square. Note that this top plane has an arbitrary orientation (requires 2 angles to specify). Currently, I've specified this angle by providing you the 4 lengths of the prism sides, however I can provide this information in another form upon request (i.e., two Euler angles).
3. The top, tilted surface needs to have a wavefront quality of  $\lambda/10$  P-V (632nm), extending right to the edges (the critical area is near the vertex point, which will be at the center of a pyramidal prism – see part II and the attached drawings). My design can tolerate some sagging or warp near the edge, if its small – please advise on how the optical quality is expected to degrade near the edges/corners. We require an interferograms of this top surface only, targeting the region near the vertex.
4. The other 5 surfaces do not need to be of 'optical' quality, but of sufficient quality for maintaining alignment during cementing and for mounting purpose (please specify the optical quality required for this in your quotation – I expect 10 to 20 waves at 632nm is fine).

5. Tolerances: The top tilted planar surface should be fabricated to within 0.1 degrees compared to the square bottom surface. This converts to +/- 20 microns on the edge lengths as I've specified on the drawings – HOWEVER strictly speaking I do not have absolute requirements on the prism side lengths but I DO on the angles of the top surfaces compared to the other 5 sides [this flexibility might be useful if you find it hard to meet the +/-20 micron spec on the lengths). Please advise if this specification is too difficult to meet and what tolerance you can meet. I am happy to discuss my application in more detail.

6. Other specs: Scratch-Dig 20-10 (10-5 preferred if not a cost driver)

7. Substrate Material: not specified – these prisms will be used in reflection after coating with silver (see Part II). BK7 or Fused Silica would be fine.

8. Number: one of each

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Part II: Assembly of 16 prisms into 4 pyramidal prisms and application of reflective coating (silver +overcoat)

Please see attached CAD drawings for the assembly directions of the individual prisms.

After fabrication of the 16 prisms in Part I, these prisms are grouped into 4 sets of 4. Each prism has on vertical edge that is 10mm and this will be the common vertex for the pyramid (see attached drawing for a clear graphical illustration of how the individual prism pieces should be assembled).

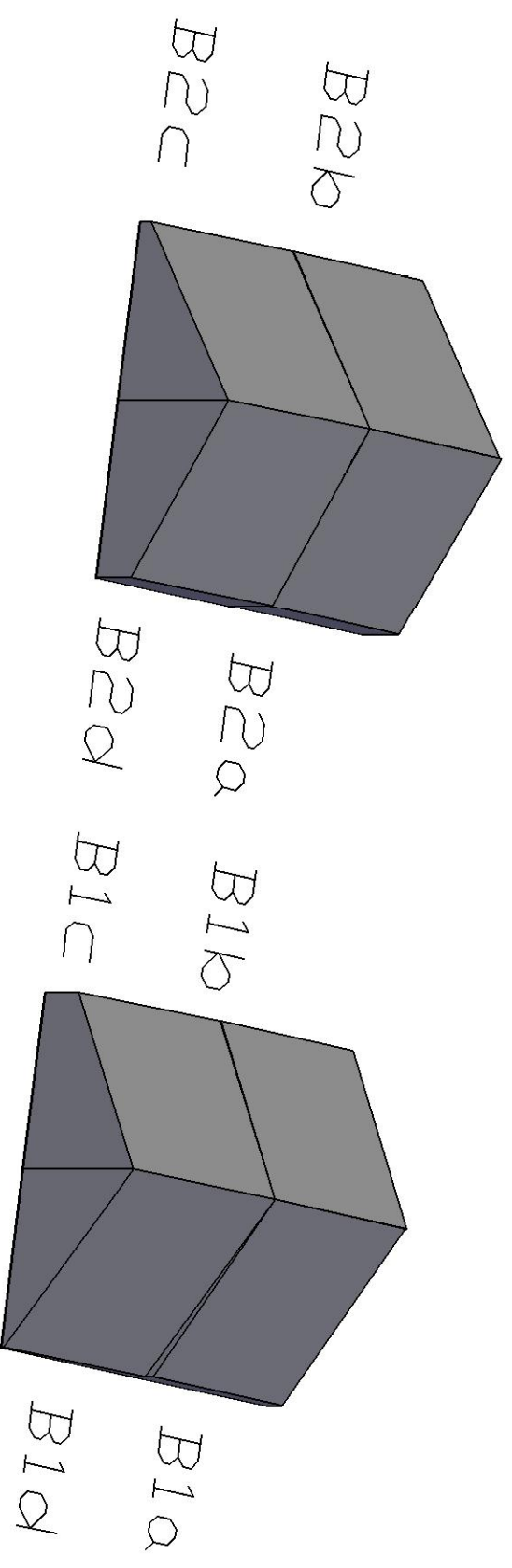
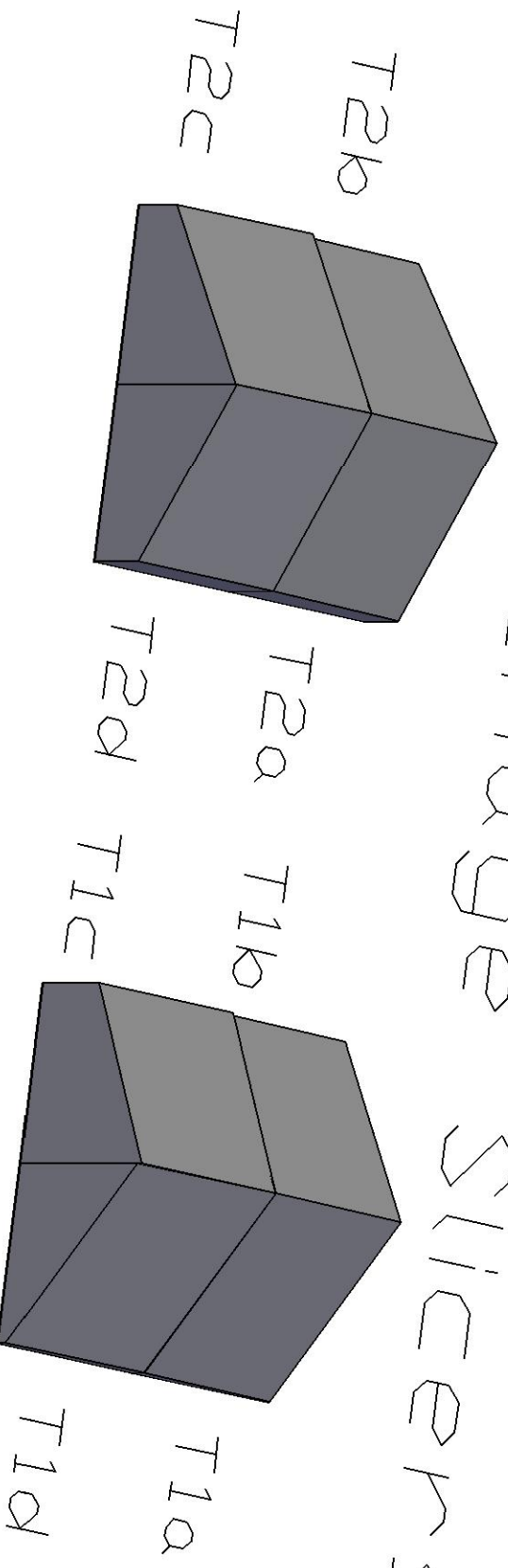
There are two major specifications for assembly:

1. The relative angles of the tilted planar surfaces should be maintained at 0.1 degs tolerance. I expect that simply cementing the common faces together will maintain this level of tolerance but advise me if you foresee a difficulty.
2. The common vertex point should be aligned within 20 microns (ie. The top of each of the 4 individual prisms should meet in the center to within this tolerance).

My understanding is that the above specification can be met if the prisms are made to the tolerancing in part I, but please advise if you expect problems with aligning the 4 pieces together during cementing.

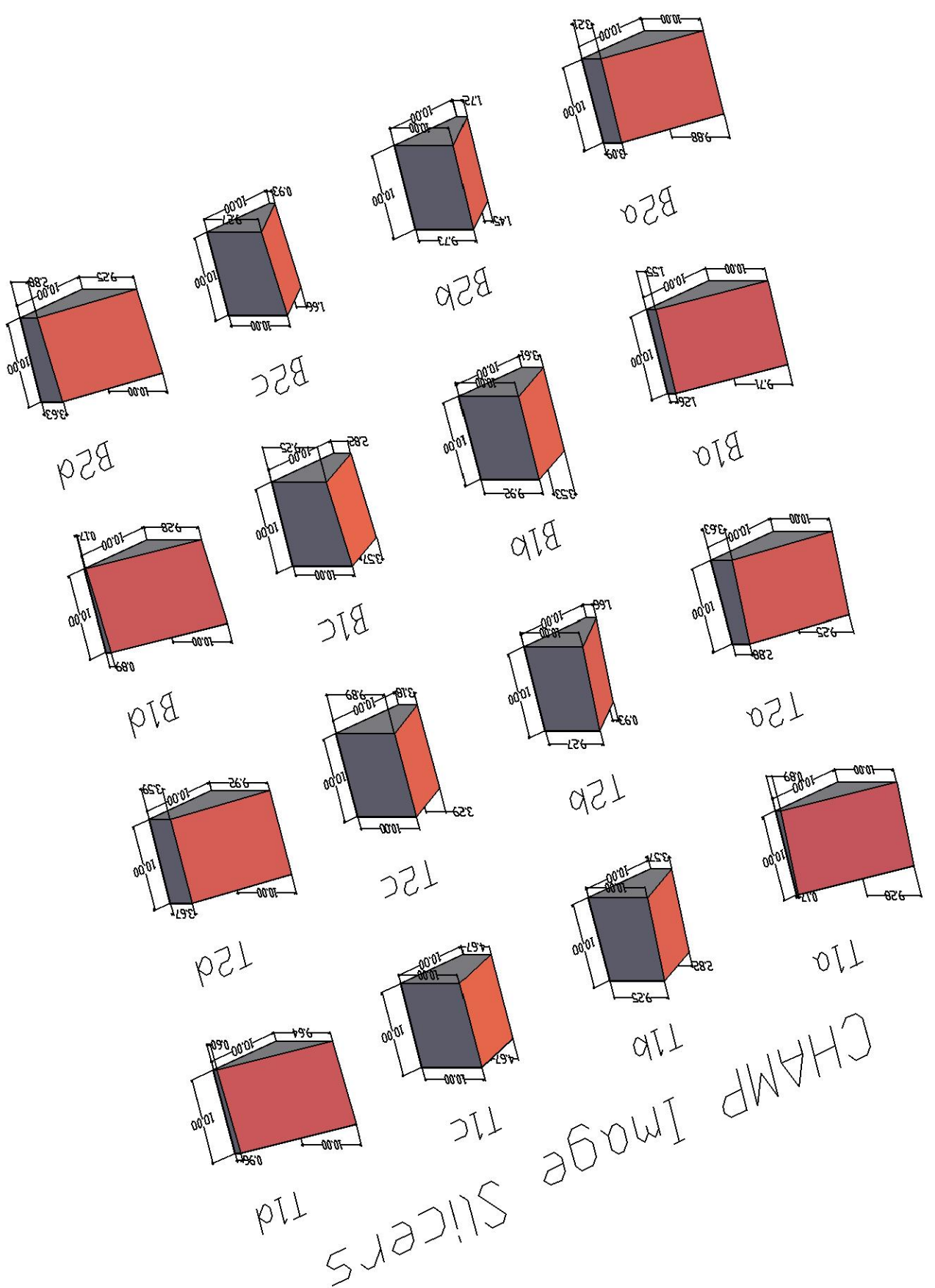
Lastly, the top surfaces (pointy side of pyramid) needs to have a reflective coating applied, preferably silver +overcoat.

# CHAMP Image Slicers



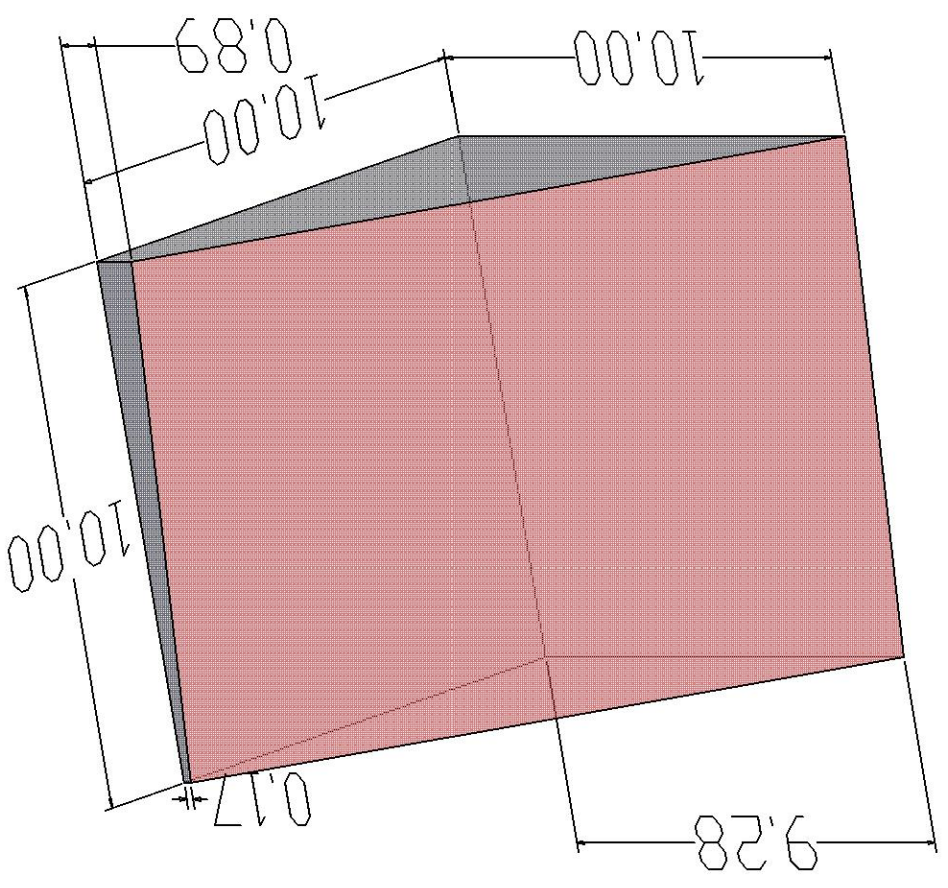
Monnier (Michigan) Prism Order:

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CHAMP Image Slicers

# Monnier (Michigan) Dimensions

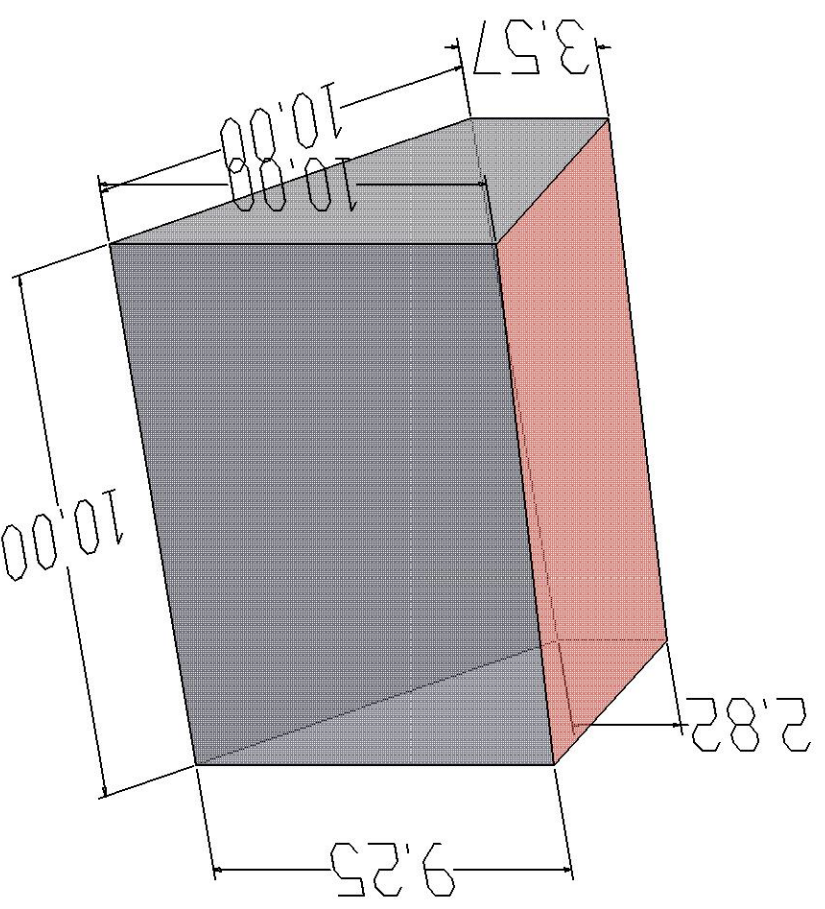


T  
1  
Q

all dimensions in millimeters

all angles with base square 90deg

# Monnier (Michigan) Dimensions



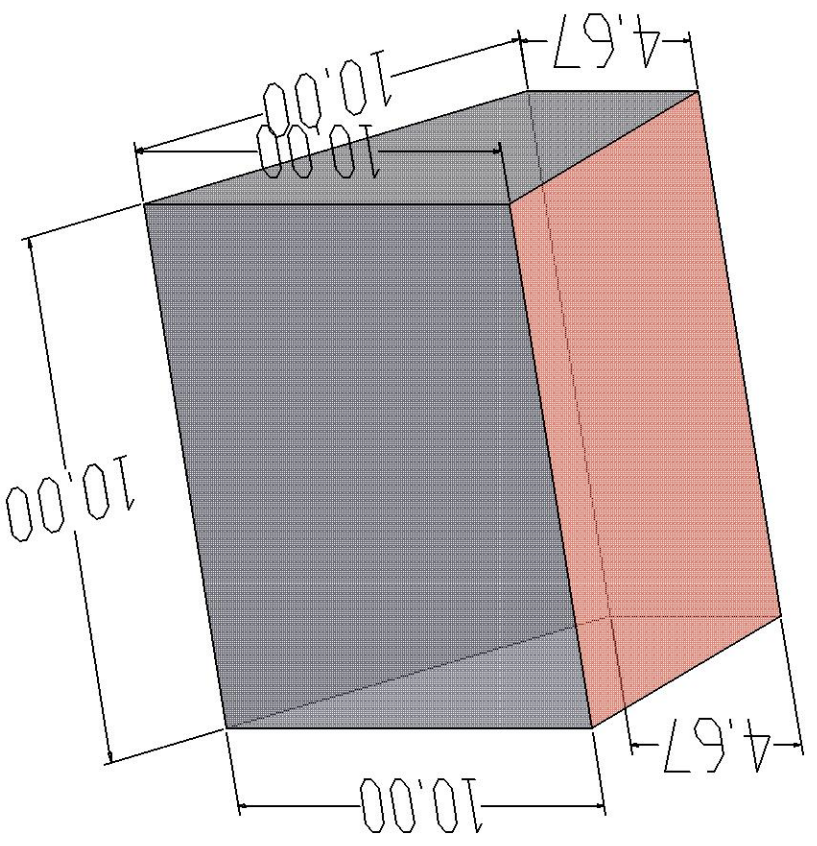
TIB

all dimensions in millimeters

all angles with base square 90deg



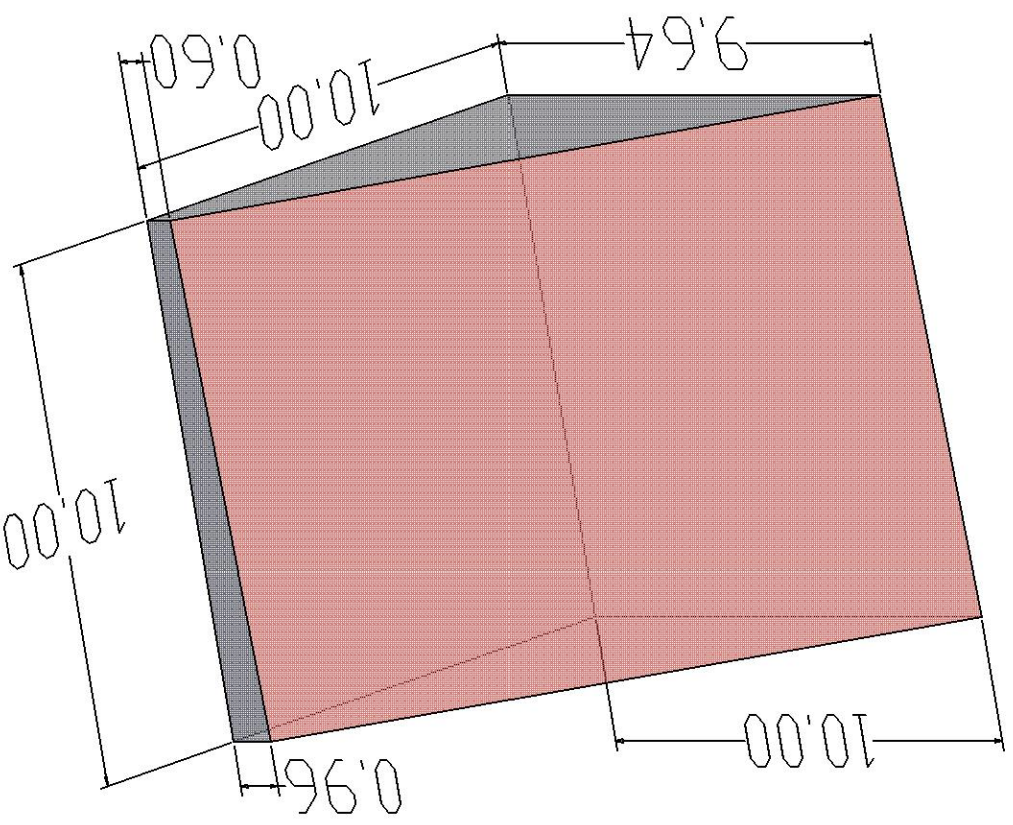
# Mornier (Michigan) Dimensions



TIC

all dimensions in millimeters  
all angles with base square 90deg

# Monnier (Michigan) Dimensions



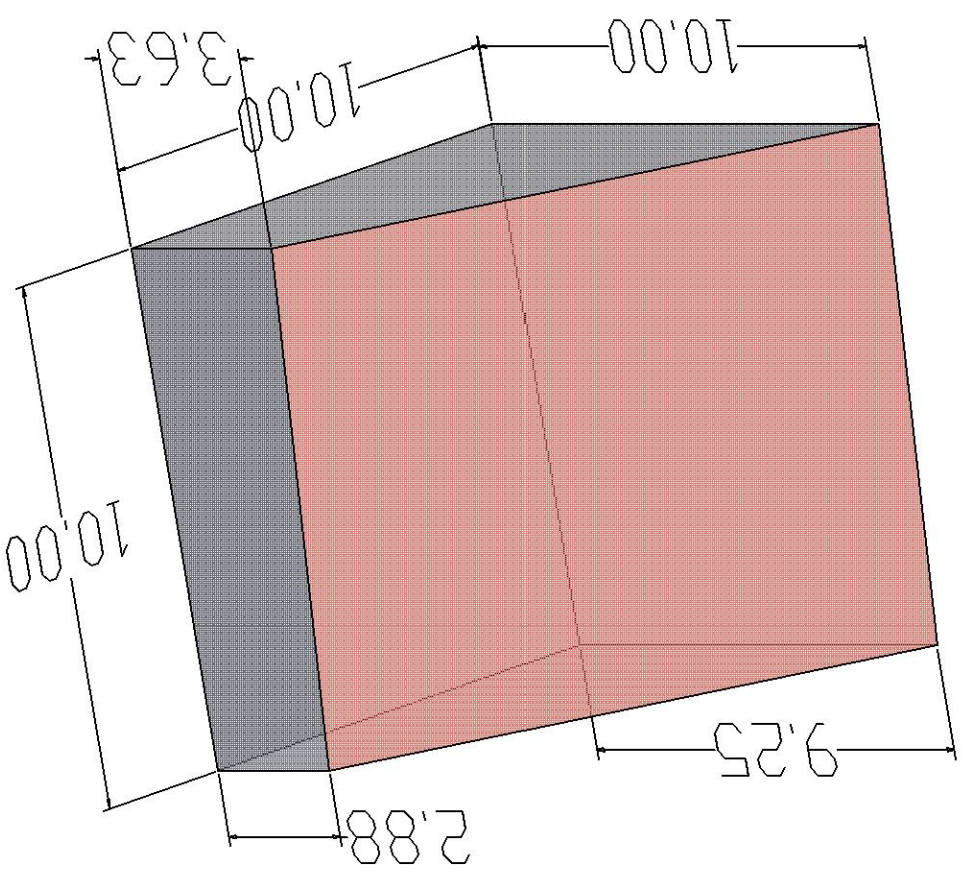
TIA

all dimensions in millimeters

all angles with base square 90deg



# Monnier (Michigan) Dimensions

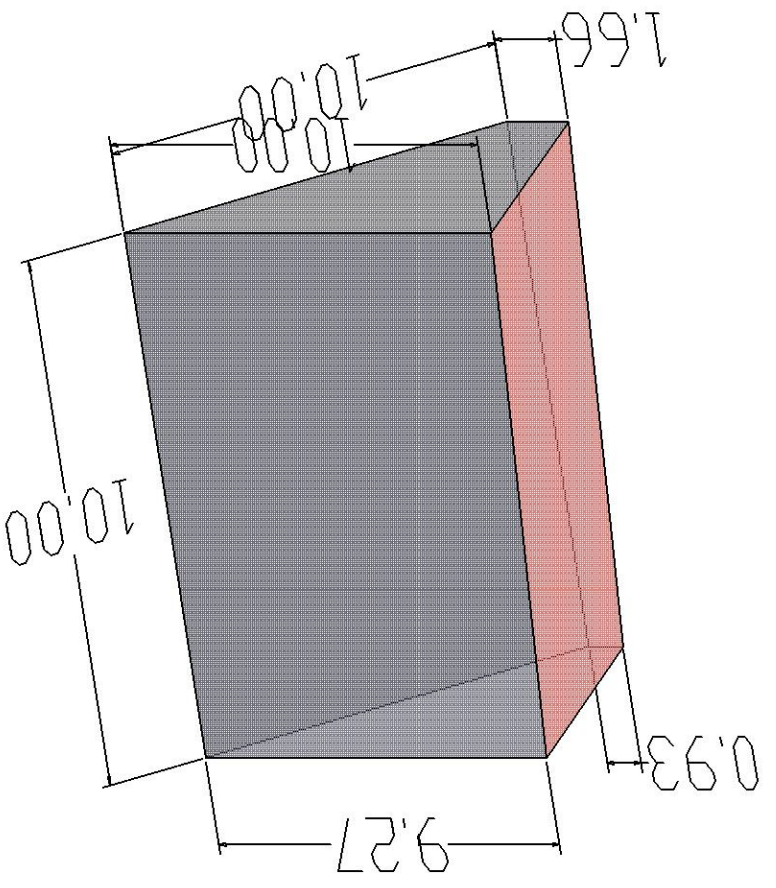


T20

all dimensions in millimeters

all angles with base square 90deg

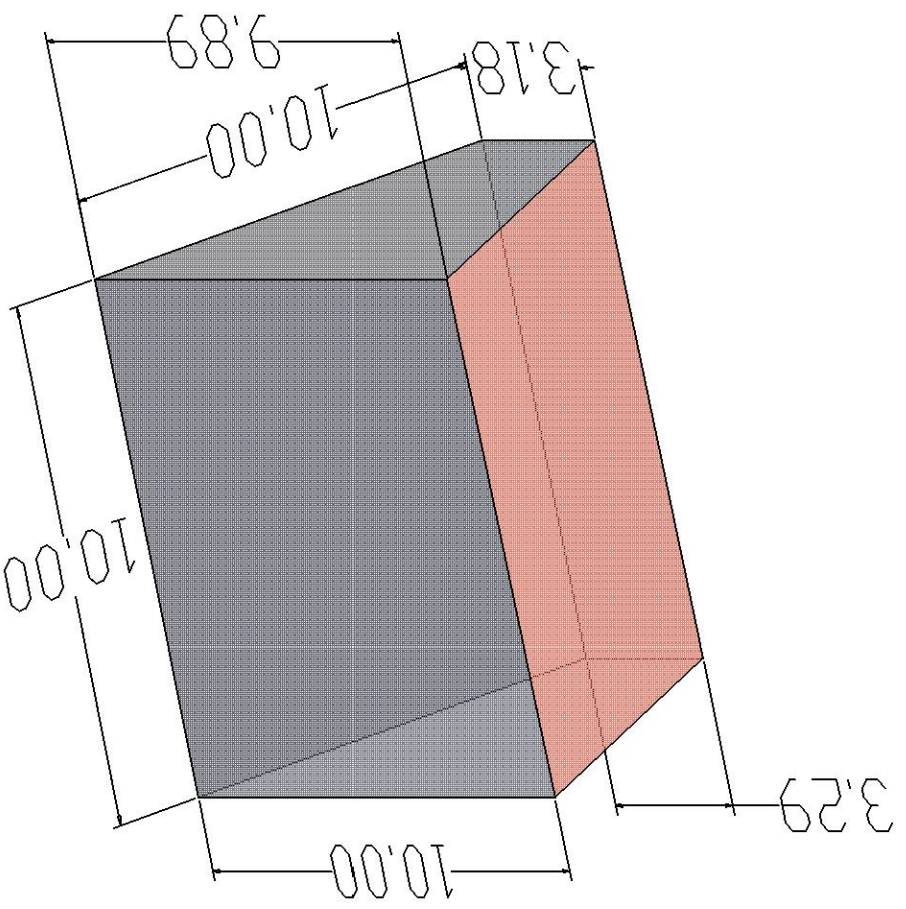
# Mornier (Michigan) Dimensions



T  
28

all dimensions in millimeters  
all angles with base square 90deg

# Mornier (Michigan) Dimensions



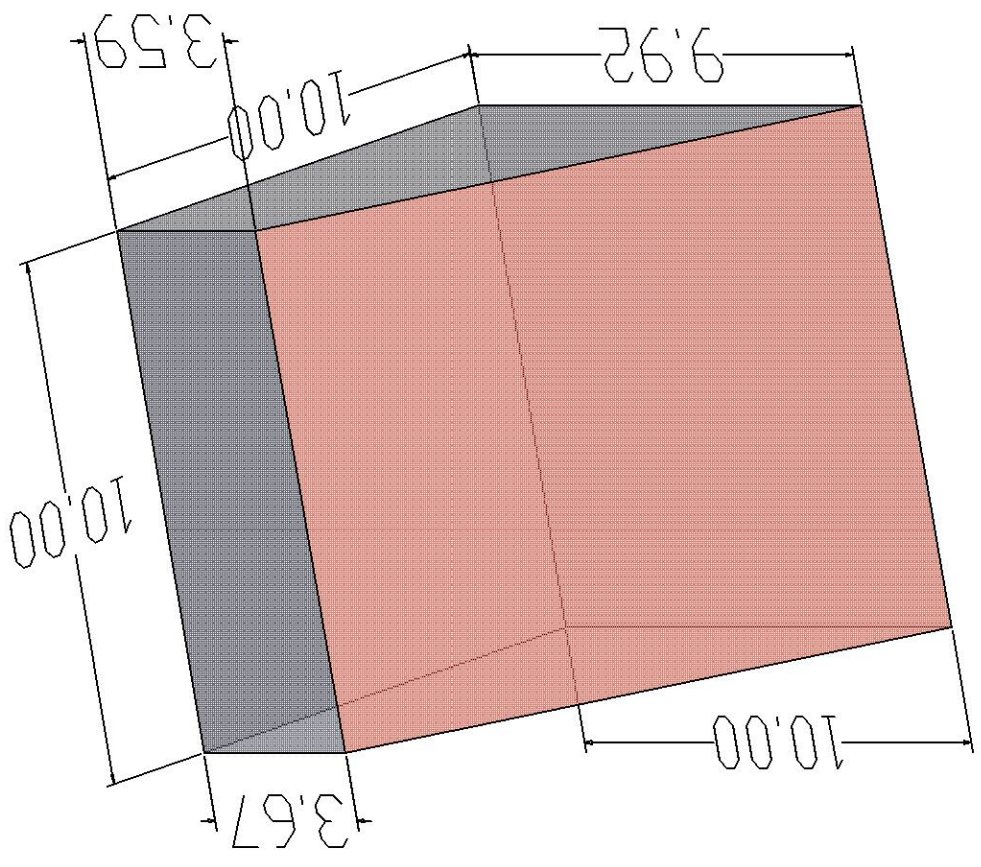
T2C

all dimensions in millimeters

all angles with base square 90deg



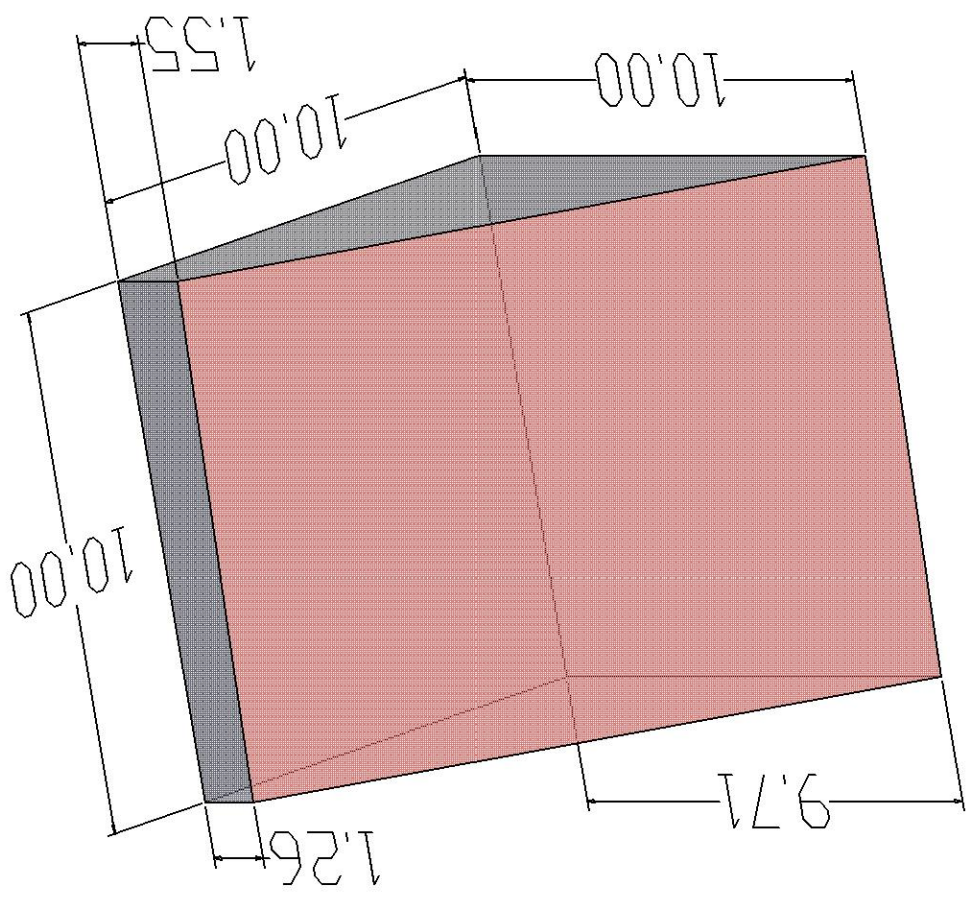
# Monnier (Michigan) Dimensions



T20

all dimensions in millimeters  
all angles with base square 90deg

# Mornier (Michigan) Dimensions

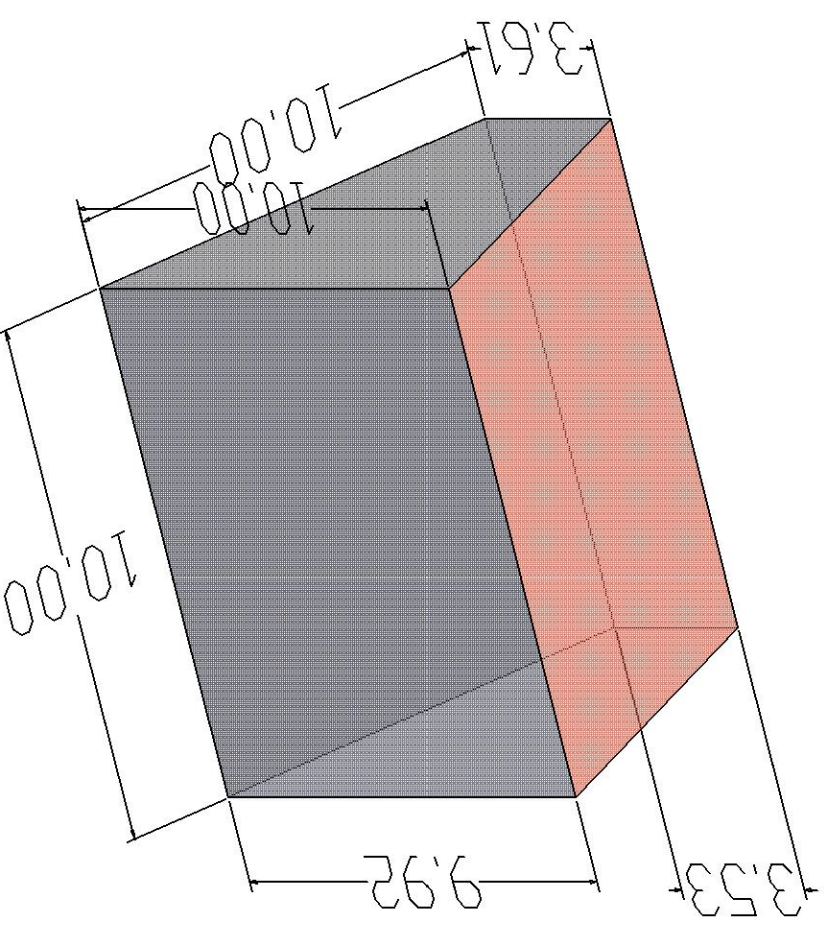


B1a

all dimensions in millimeters  
all angles with base square 90deg



# Mornier (Michigan) Dimensions

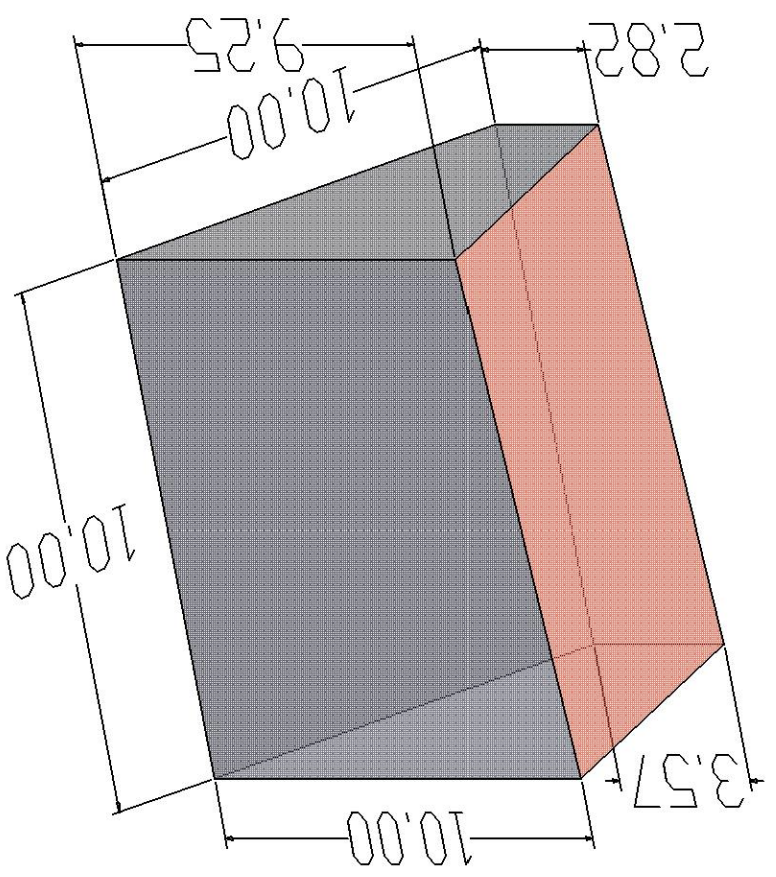


BIB

all dimensions in millimeters

all angles with base square 90deg

# Mornier (Michigan) Dimensions

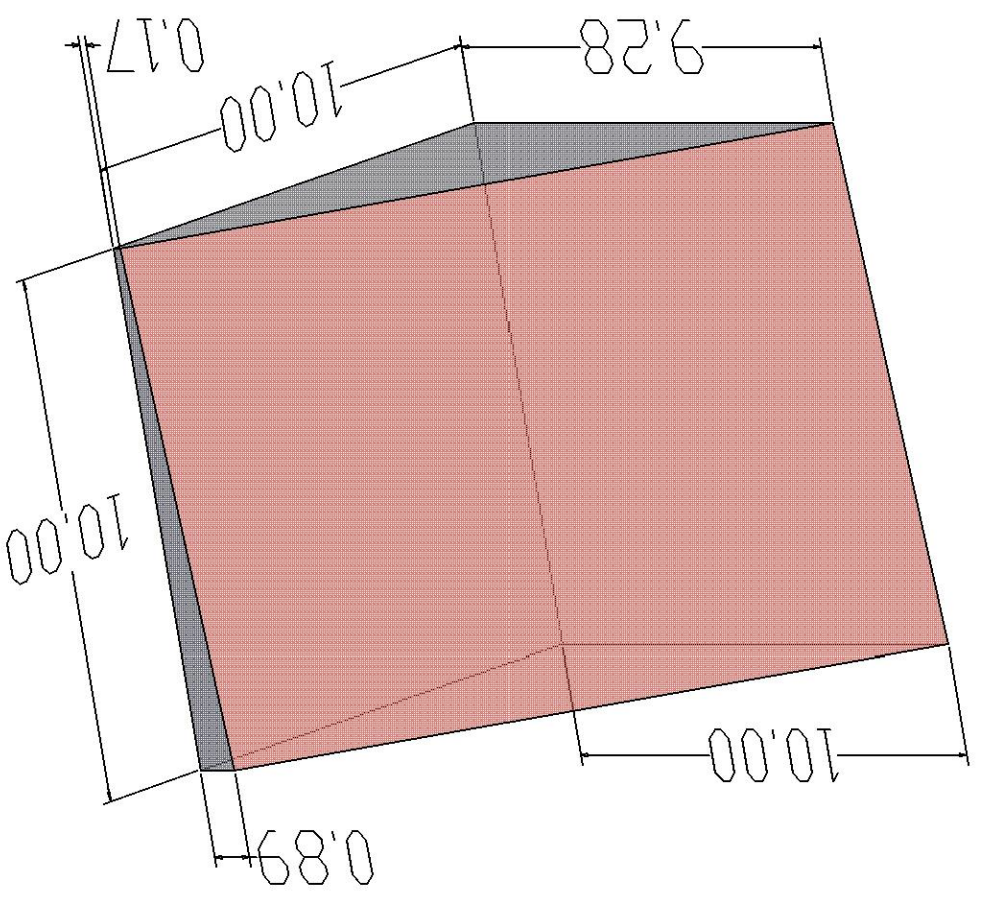


BIC

all dimensions in millimeters

all angles with base square 90degs

# Monnier (Michigan) Dimensions



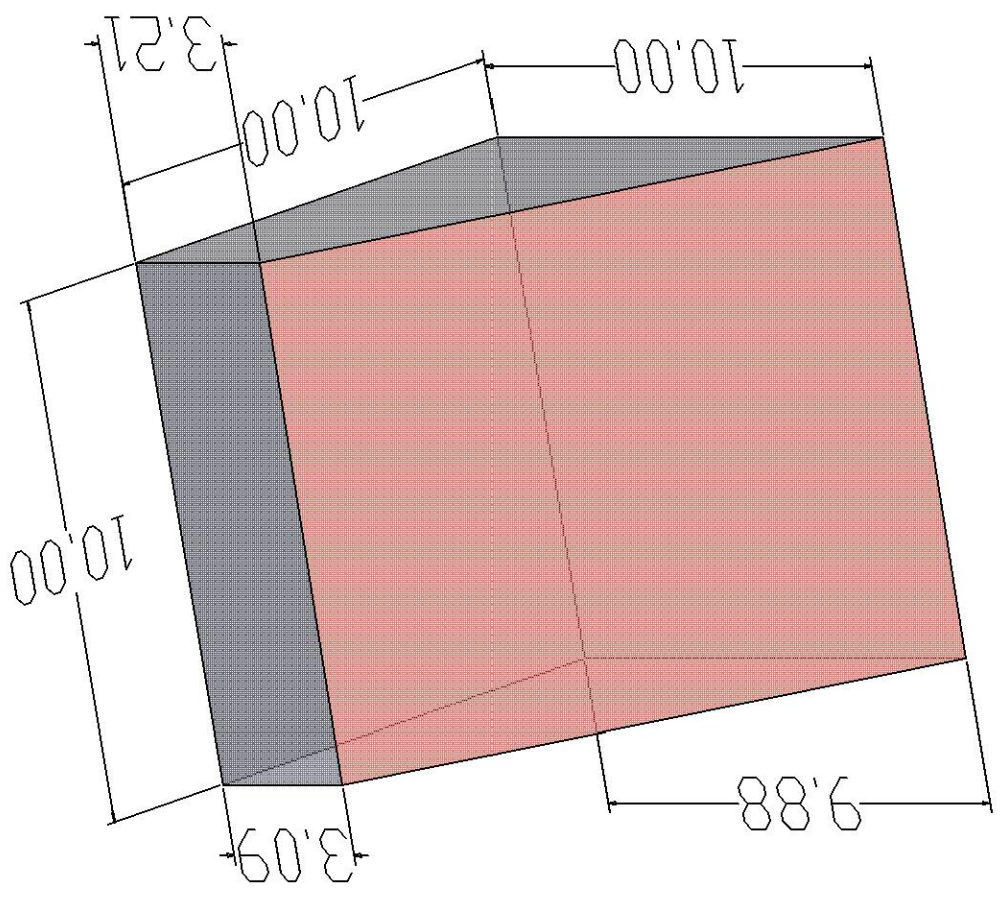
BID

all dimensions in millimeters

all angles with base square 90deg



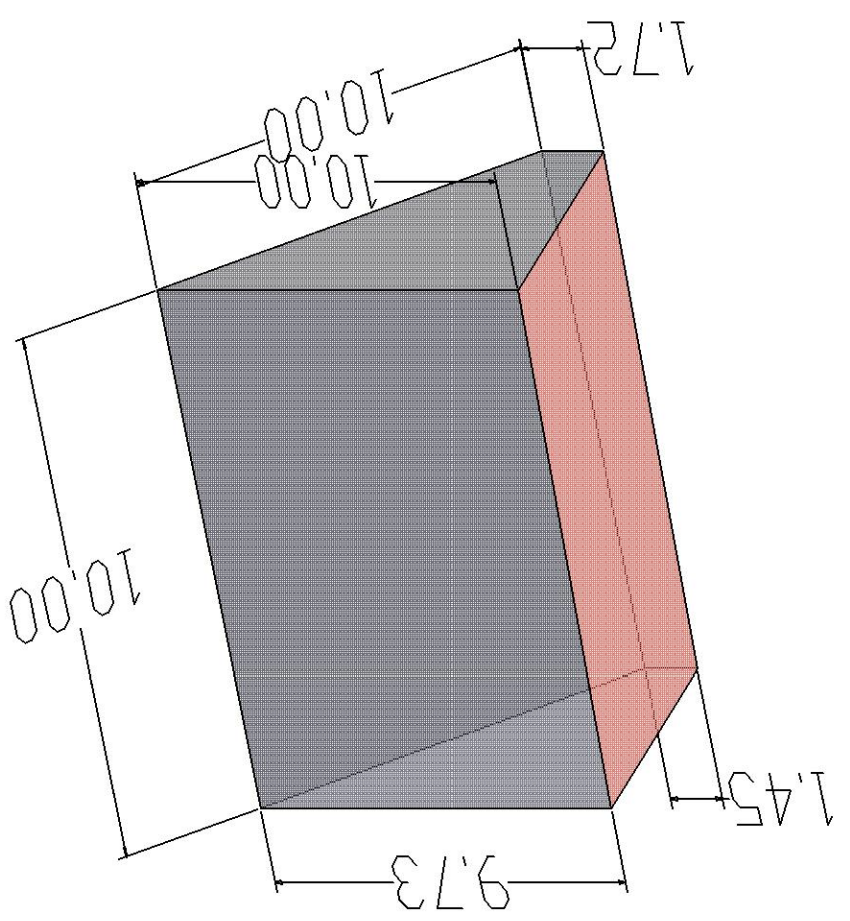
# Monnier (Michigan) Dimensions



B20

all dimensions in millimeters  
all angles with base square 90deg

# Mornier (Michigan) Dimensions

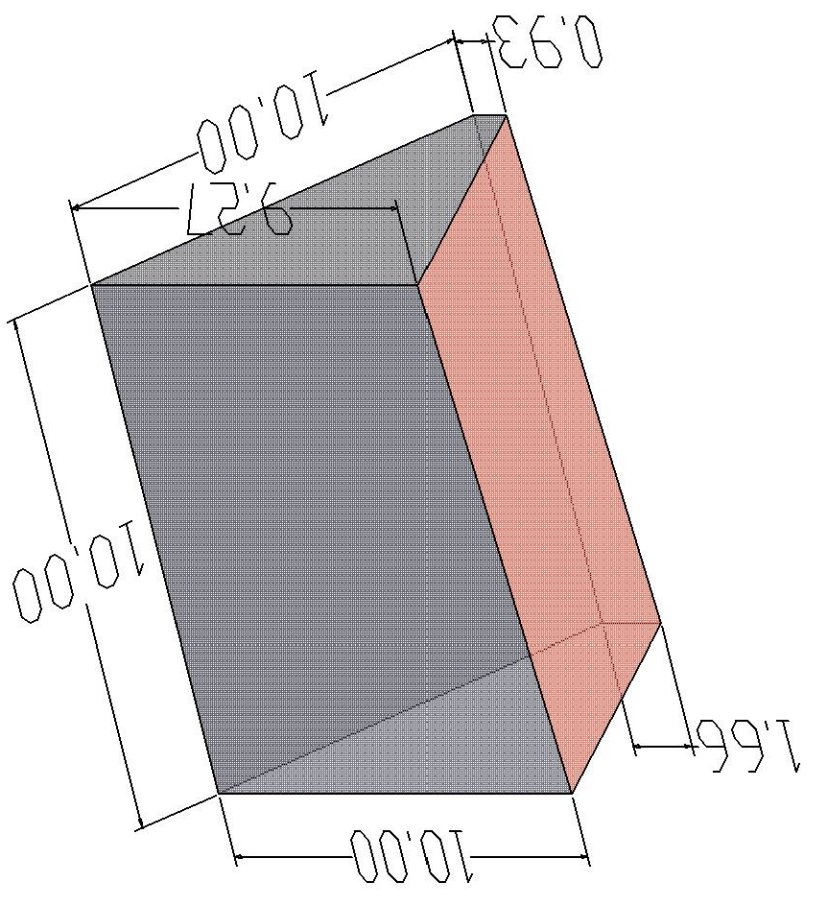


BB2/B

all dimensions in millimeters  
all angles with base square 90deg



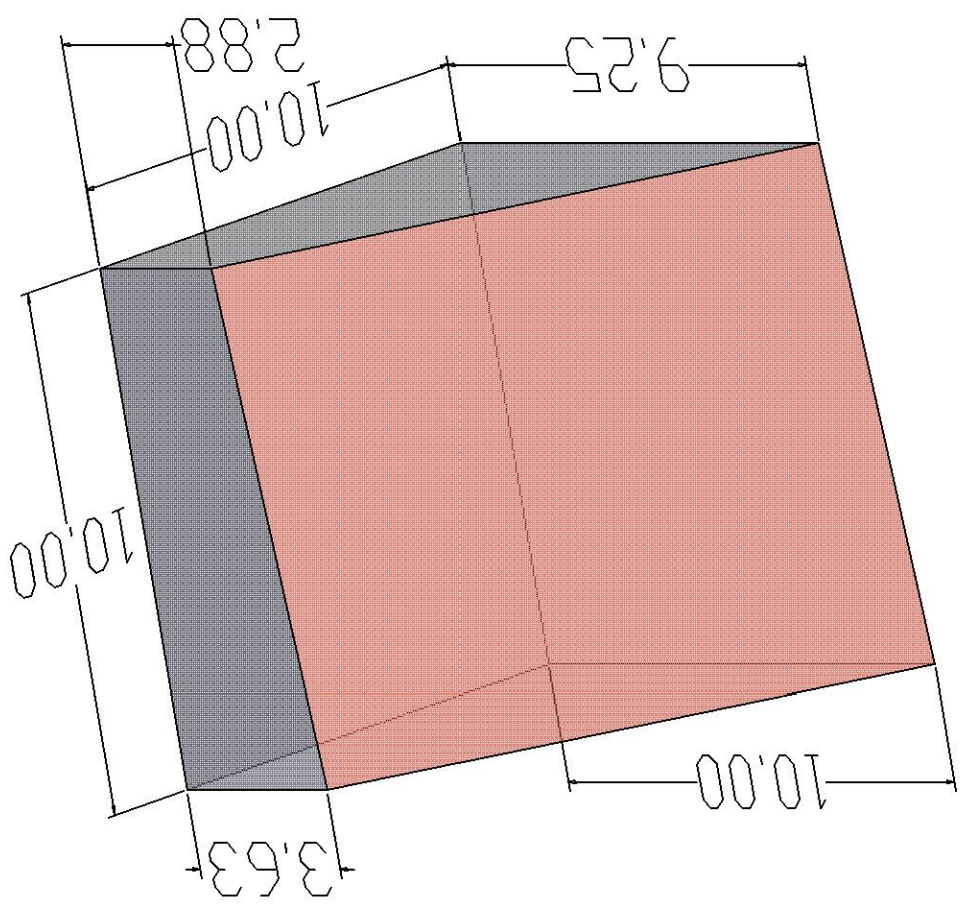
# Monnier (Michigan) Dimensions



B2C

all dimensions in millimeters  
all angles with base square 90deg

# Mornier (Michigan) Dimensions



B224

all dimensions in millimeters  
all angles with base square 90deg