Figure 1 Top ACD

tileThickness = 10 mm

topTileXEdgeExtra_l

side tiles

topOverlap 15 mm

ribbonGap 2.5 mm

sideOverlap 30 mm

ribbonOverlap= 15 mm

connector

topTileSupportStandoff

X

topTileXEdge_l

topTileXEdge_l

topTileXMid_l

topTileXMid_l

topTileXCentral_l

Ribbon continues to the bottom of the 4th ACD side row

tileCentralThickness 12 mm

ribbonThickness = 4.5 mm

towersTotalX =1495.5 mm

support structure ACDTopCoreThickness + 2 * ACDFaceThickness

ACDTKRStayClear 25.8 mm

TKR wall

side support ACDSideCorethickness + 2* ACDFaceThickness

Enclosing volume for side tiles
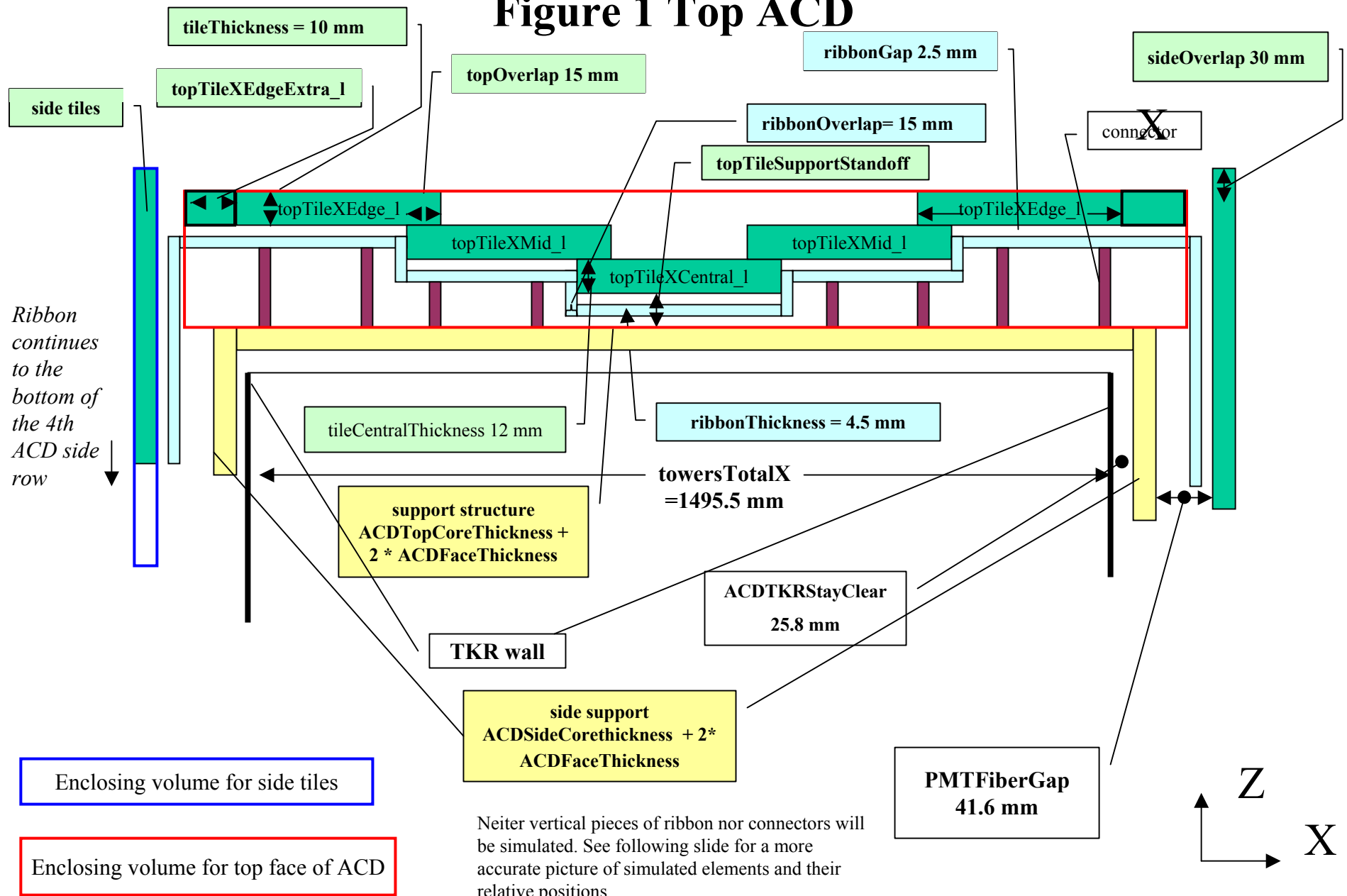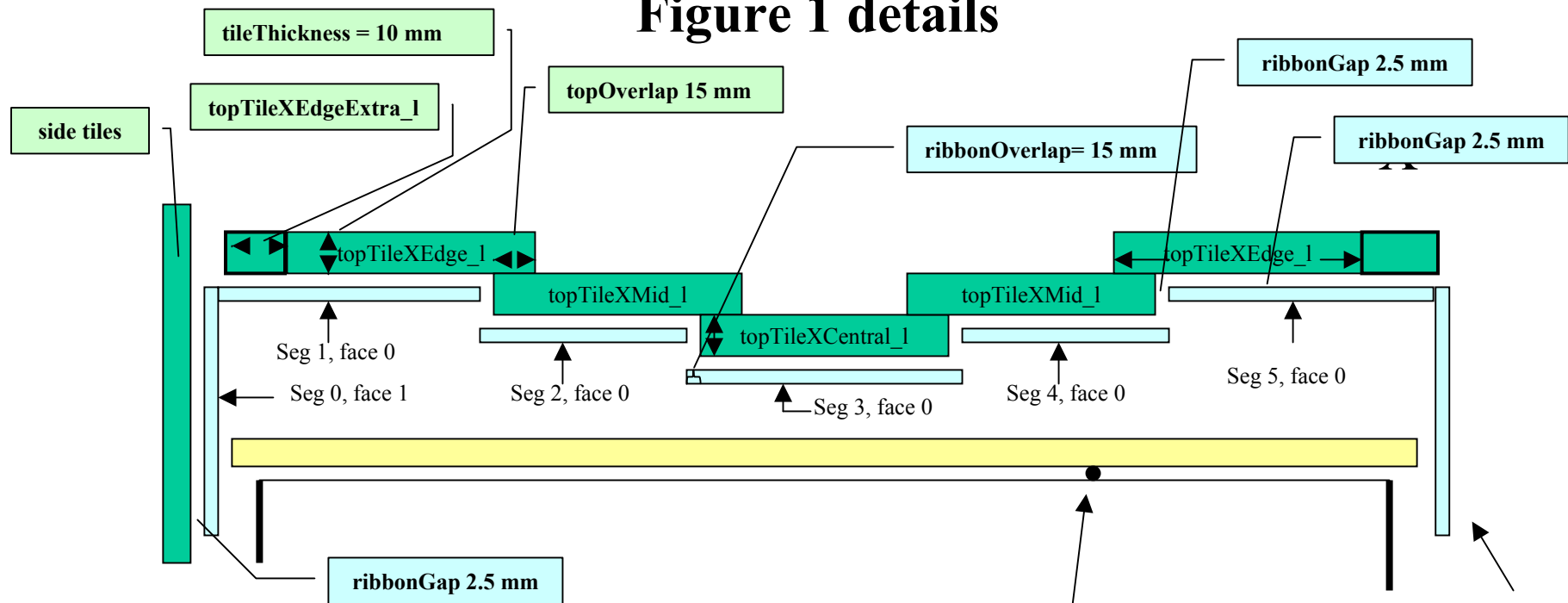
PMTFiberGap 41.6 mm

Z

X

Enclosing volume for top face of ACD

Neiter vertical pieces of ribbon nor connectors will be simulated. See following slide for a more accurate picture of simulated elements and their relative positions.

4 November 2002

ACD Simulated Geometry

Not to Scale

1

Figure 1 details

tileThickness = 10 mm

topTileXEdgeExtra_l

topOverlap 15 mm

ribbonGap 2.5 mm

side tiles

ribbonOverlap= 15 mm

ribbonGap 2.5 mm

topTileXEdge_l

topTileXEdge_l

topTileXMid_l

topTileXMid_l

topTileXCentral_l

Seg 1, face 0

Seg 0, face 1

Seg 2, face 0

Seg 3, face 0

Seg 4, face 0

Seg 5, face 0

ribbonGap 2.5 mm

TKRACDSupportGap = 45mm
Needed to increase from old number
of 10 mm to avoid overlap of ACD
and grid.

Seg 0, face 3

Some constants:

topTileXCentral_l   (primary) 334 mm

topTileXMid_l   (primary) 338 mm

topTileXEdge_l (primary)   300 mm

topTileXEdgeExtra_l   (derived, computed so that tile almost extends to side tile; gap = ribbon thickness + ribbon Gap)

topTileXEdgeTotal_l (derived, sum of previous 2)

topTileSupportStandoff (primary) 25.4; distance from bottom edge of central tiles (col 2) and top of support

Vertical ribbon pieces are not simulated. Ribbons extend beyond corresponding tile's edge by ribbonOverlap, except for edgemost ribbons, which go only as far as tile. Transvers gap between ribbon and adjacent tile is ribbonGap, same as vertical gap between tile and ribbon below.

Assume gap of 10 mm between top of towers and lower face of top support. Side support structures not shown.
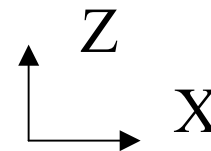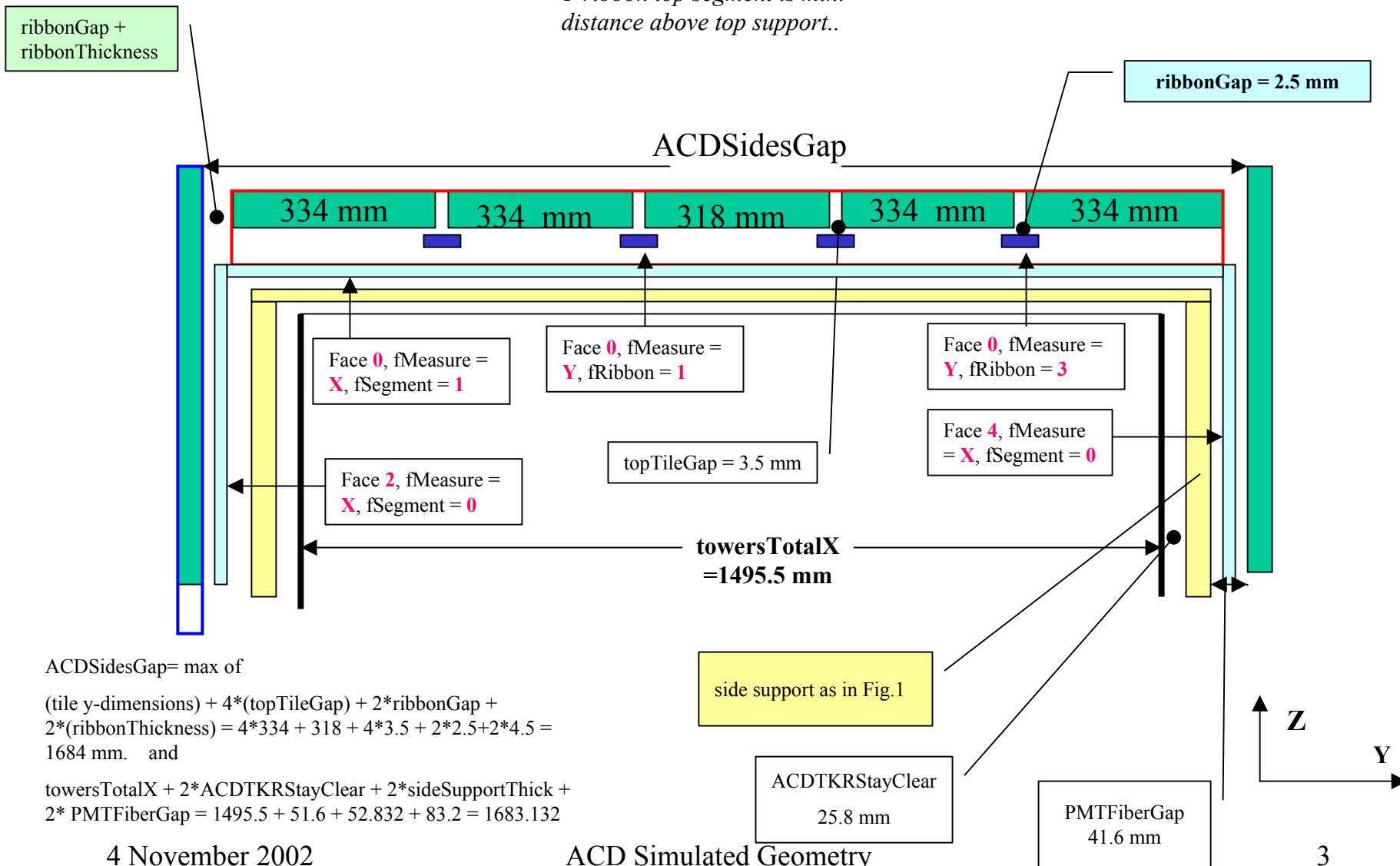
Not to Scale

Z
X

Figure 2 Top Tiles

Y-ribbon top segment is min.
distance above top support..

ribbonGap +
ribbonThickness

ribbonGap = 2.5 mm

ACDSidesGap

| 334 mm | 334 mm | 318 mm | 334 mm | 334 mm |

Face **0**, fMeasure = **X**, fSegment = **1**

Face **0**, fMeasure = **Y**, fRibbon = **1**

Face **0**, fMeasure = **Y**, fRibbon = **3**

Face **4**, fMeasure = **X**, fSegment = **0**

Face **2**, fMeasure = **X**, fSegment = **0**

topTileGap = 3.5 mm

towersTotalX =1495.5 mm

ACDSidesGap= max of

(tile y-dimensions) + 4*(topTileGap) + 2*ribbonGap + 2*(ribbonThickness) = 4*334 + 318 + 4*3.5 + 2*2.5+2*4.5 = 1684 mm.   and

towersTotalX + 2*ACDTKRStayClear + 2*sideSupportThick + 2* PMTFiberGap = 1495.5 + 51.6 + 52.832 + 83.2 = 1683.132

side support as in Fig.1

ACDTKRStayClear
25.8 mm

PMTFiberGap
41.6 mm

Z

Y

4 November 2002

ACD Simulated Geometry

3

Not to Scale

Side Tiles

sideHorizontalGap = 3 mm

Z

X

344 mm   334 mm   322 mm   334 mm   344 mm

Row 0

331 mm

sideVerticalGap = 0 mm
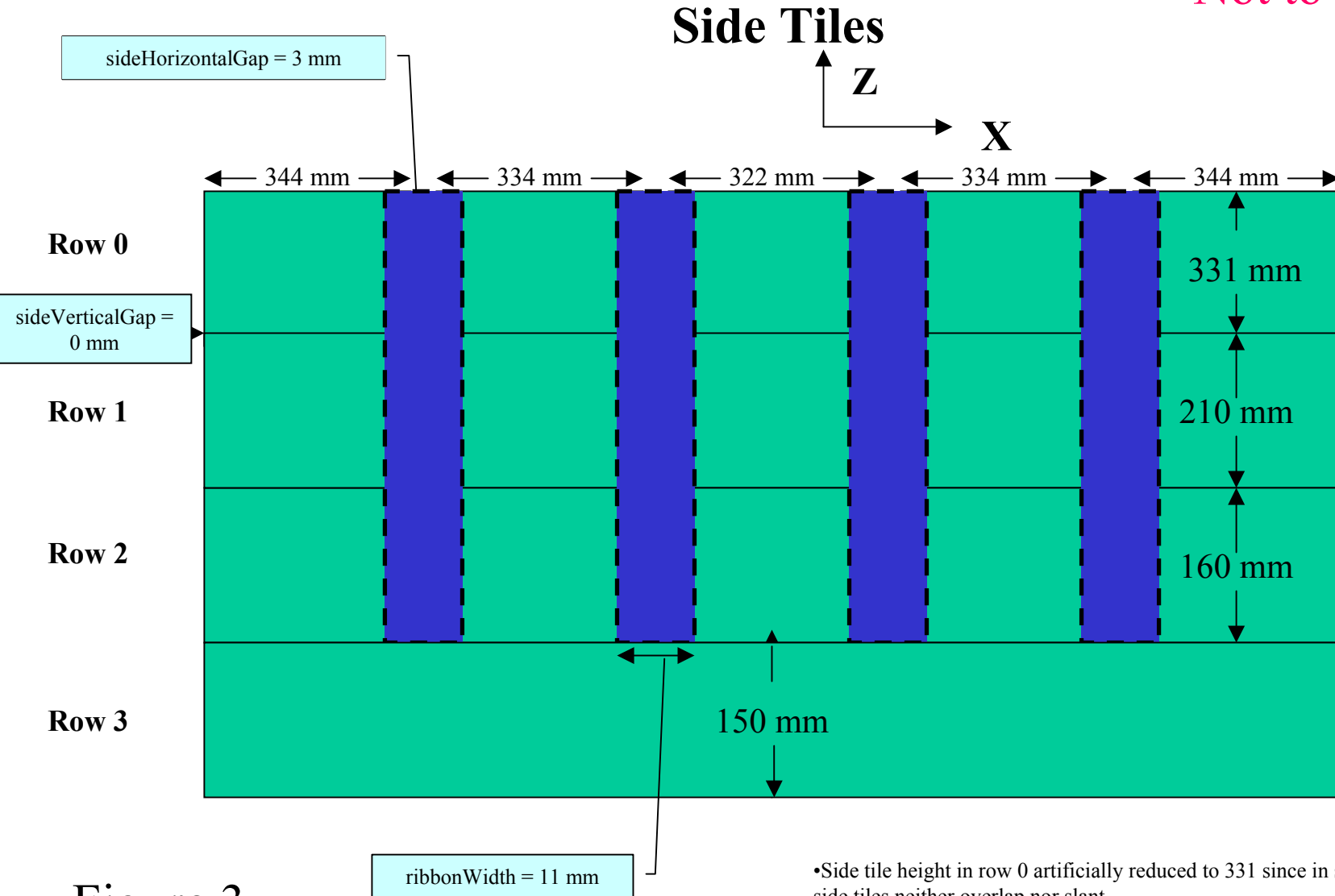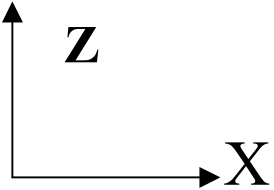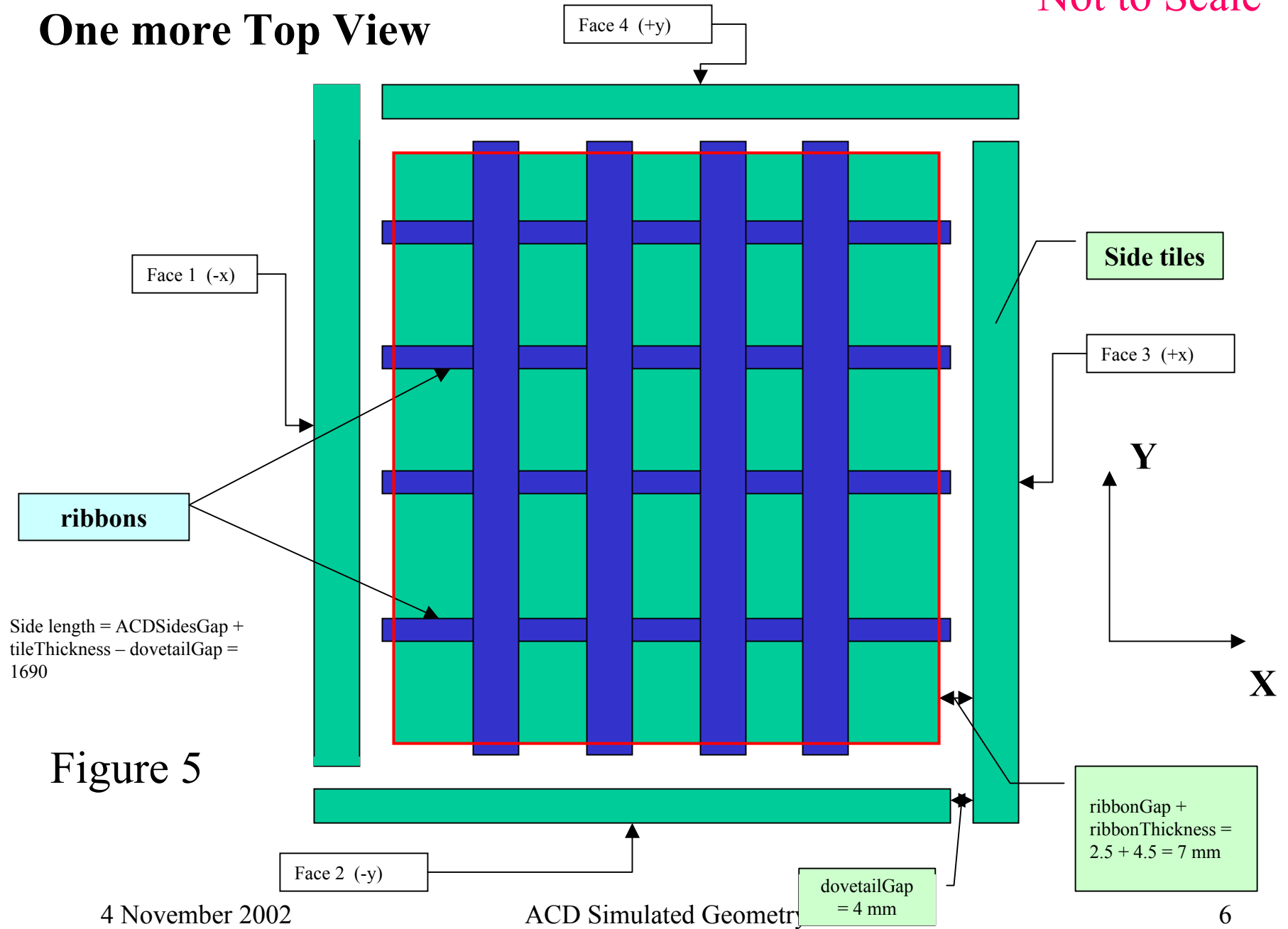
Row 1

210 mm

Row 2

160 mm

Row 3

150 mm

ribbonWidth = 11 mm

•Side tile height in row 0 artificially reduced to 331 since in simulation side tiles neither overlap nor slant.

•X-dimension of middle column set to 322 mm to get total X-extent to be 1690.

Figure 3

Side Tiles another view

Not to Scale

Z

X

Row 0

Height = 331 mm

Ribbon width 11 mm,
4.5 mm thick.
This is +x side so identifier
has fFace=**3**, fMeasure=**Y** ,
fSegment=**0**

851.0 mm

ACD side support

Row 1

Height = 210 mm

Row 2

Height = 160 mm

Figure 4

Row 3

Height = 150 mm

ACD Simulated Geometry

tileThickness = 10 mm

One more Top View

Not to Scale

Face 4 (+y)

Side tiles

Face 1 (-x)

Face 3 (+x)

ribbons

Y

Side length = ACDSidesGap + tileThickness – dovetailGap = 1690

X

Figure 5

ribbonGap + ribbonThickness = 2.5 + 4.5 = 7 mm

Face 2 (-y)

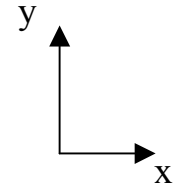dovetailGap = 4 mm

ACD Simulated Geometry

Support pieces jigsaw puzzle, top view

Pieces || to X axis are longer

Pieces || to Y axis are shorter

Top support covers sides

y

x
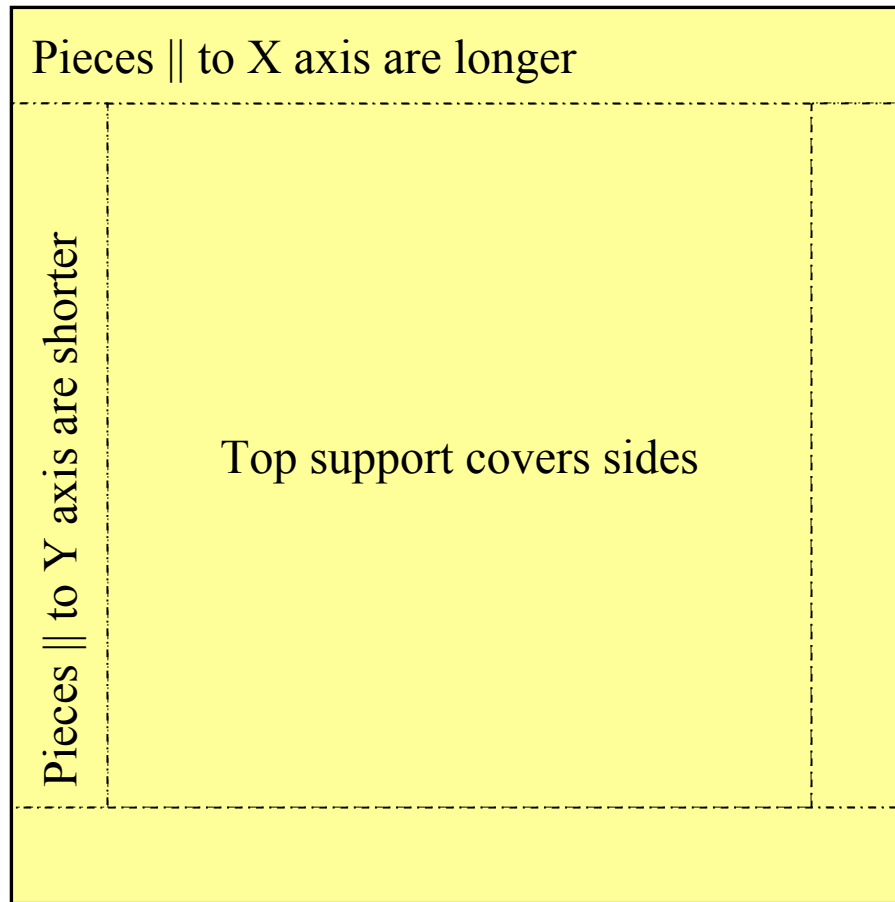
Not to Scale

Figure 6

Support pieces jigsaw puzzle, side view

Top

Pieces || to Y axis are short

Short side || to y-axis

z

y
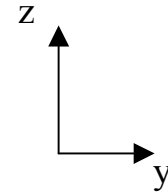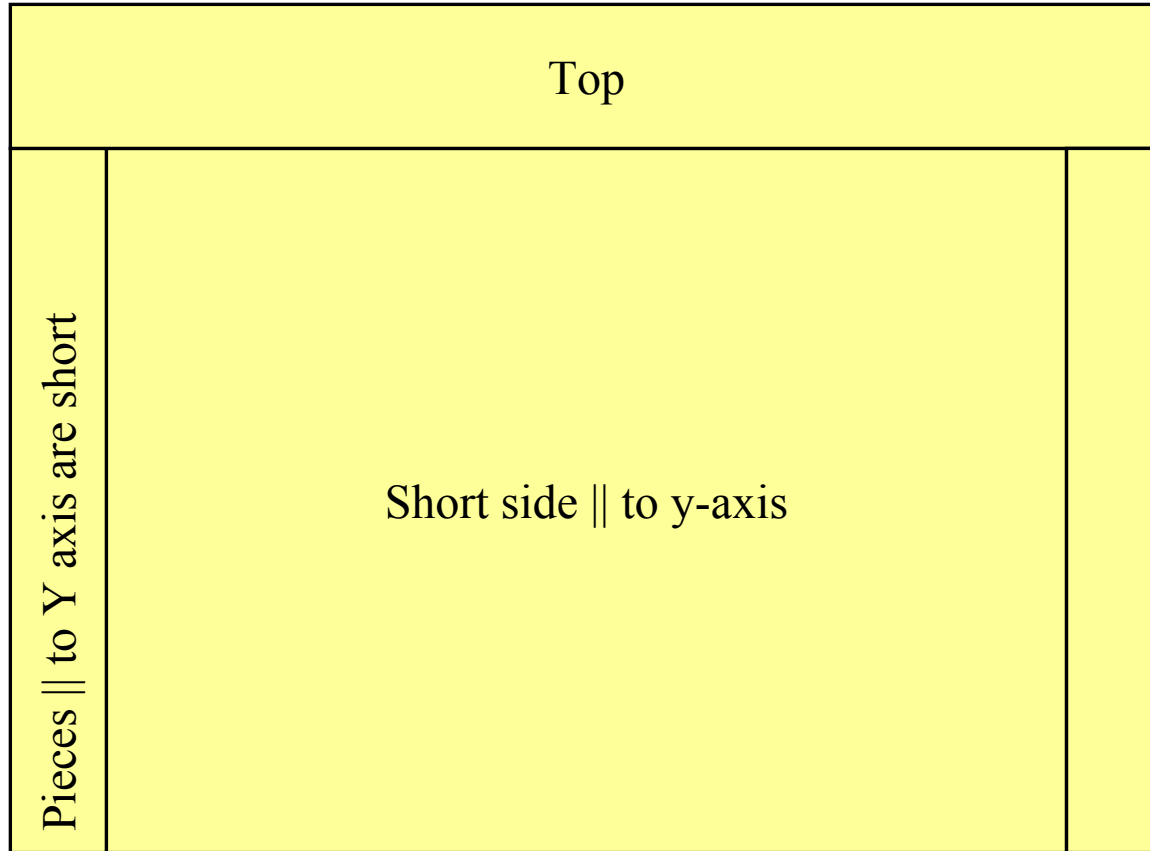
Not to Scale

Figure 7

Identifiers

Tiles

FIELD NAME	fLATObjects	fACDFace	fACDCmp	fRow	fCol
Symbolic Value	eLATACD	eACDTopFace, etc.	eACDTile	-	-
Numeric Value	1	0- 4	40	0-4	0-4
Example:	/1/0/40/2/2	(top center tile)			

Ribbons

FIELD NAME	fLATObjects	fACDFace	fACDCmp	fMeasure	fRibbon	fSegment
Symbolic Value	eLATACD	eACDTopFace, etc.	eACDRibbon	eMeasureX,..Y	-	-
Numeric Value	1	0- 4	41	0, 1	0-3	Side faces: 0 Top face: 1-5
Example:	/1/2/41/0/2/0	(segment of third "x-measuring" ribbon which runs along the –y face)				

Supports

FIELD NAME	fLATObjects	fACDFace	fACDCmp
Symbolic Value	eLATACD	eACDTopFace, etc.	eACDSupport
Numeric Value	1	0- 4	42
Example:	/1/4/42	(side support on +y side)	