

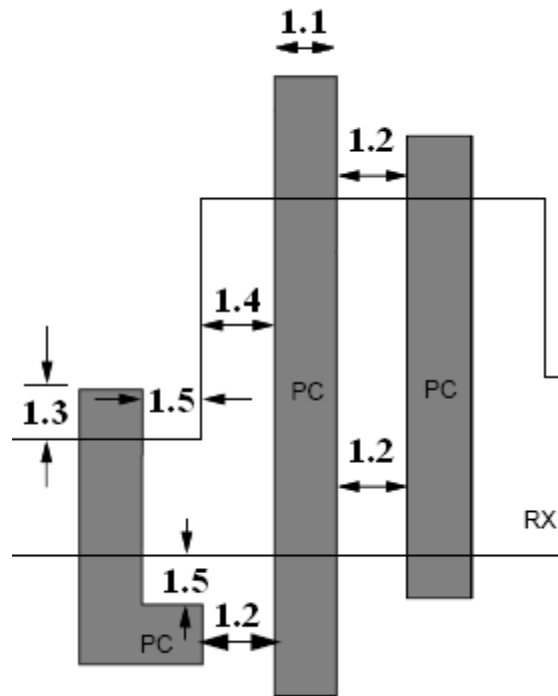
# Simplified Layout Rules for EECS 427

(Last updated: Sept. 11, 2007)

## Layout Rules – Poly

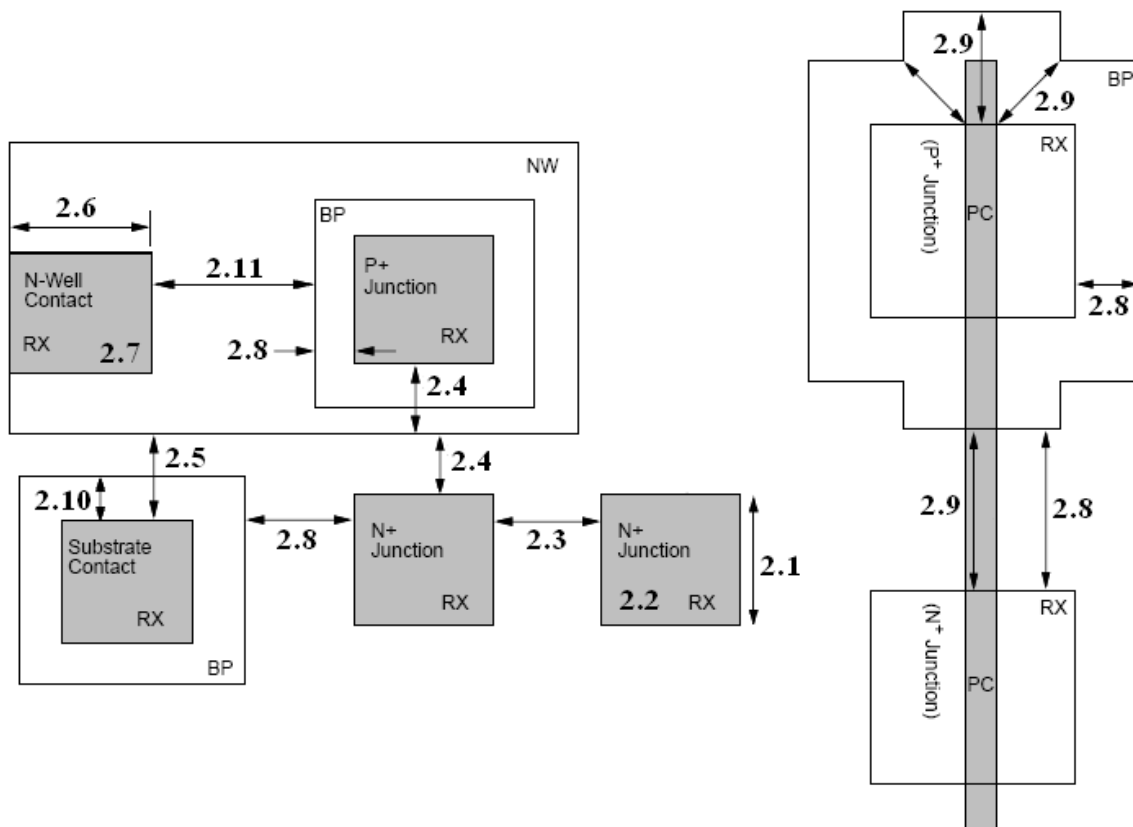
Reference Number	Rule Number	Description	Unit (um)
1.1	GR1	Minimum width	0.12
1.2	GR102	Minimum spacing	0.20
1.3	GR111	Minimum gate extension to active	0.23
1.4	GR110	Minimum active extension to poly	0.20
1.5	GR115	Minimum spacing between poly and active	0.08

**NOTE:** Reference number corresponds to the number on the figure.



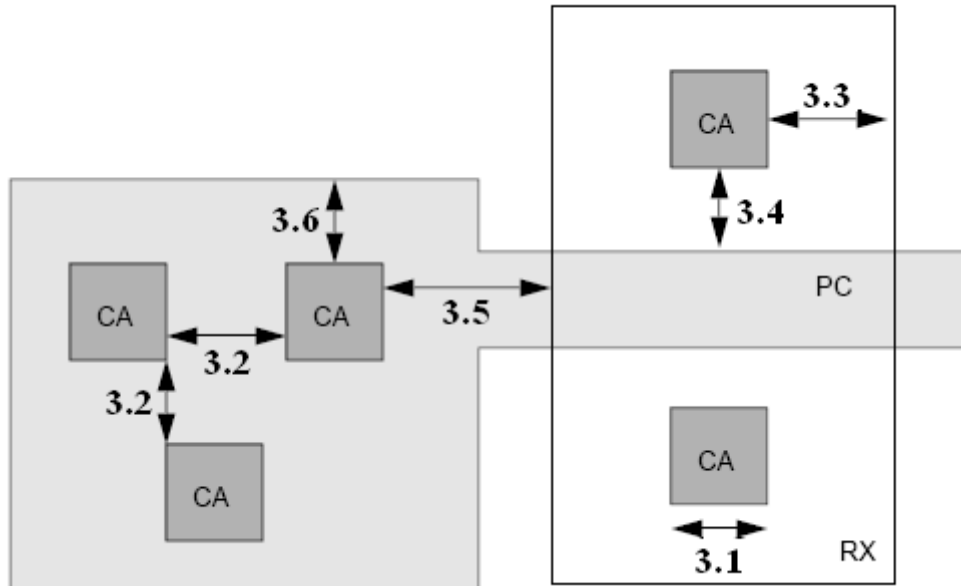
## Layout Rules – Active

Reference Number	Rule Number	Description	Unit (um)
2.1	GR50	Minimum width	0.28
2.2	GR51	Minimum area	0.100 (um <sup>2</sup> )
2.3	GR52	Minimum spacing	0.18
2.4	GR260 GR265	Source/drain active to well edge	0.30
2.5	GR266	Substrate contact active to well edge	0.06
2.6	GR261	Minimum well contact active width	0.33
2.7	GR262	Minimum well contact active area	0.076 (um <sup>2</sup> )
2.8	GR355	Source/drain active (with no poly) to P <sup>+</sup> select	0.12
2.9	GR370 GR371	Source/drain active (with poly) to P <sup>+</sup> select	0.25
2.10	GR354a	Substrate contact active to P <sup>+</sup> select	0.00
2.11	GR356b	N-well contact active to P <sup>+</sup> select	0.12



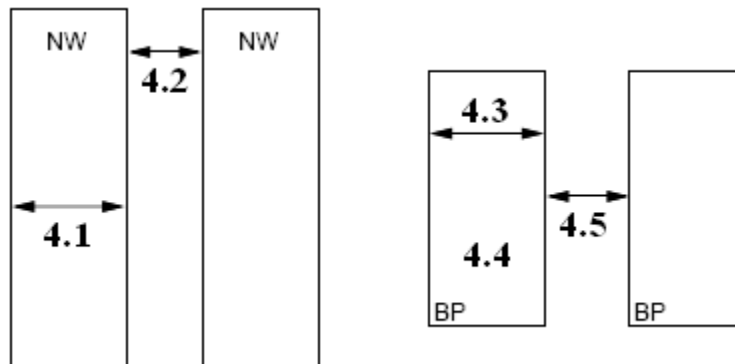
## Layout Rules – Contact

Reference Number	Rule Number	Description	Unit (um)
3.1	GR200	Exact size	0.16 x 0.16
3.2	GR203	Minimum spacing	0.24
3.3	GR204	Minimum active overlap	0.06
3.4	GR207	Active contact to poly	0.10
3.5	GR208	Poly contact to active	0.11
3.6	GR209	Minimum poly overlap	0.02



## Layout Rules – N-Well & P<sup>+</sup> Select

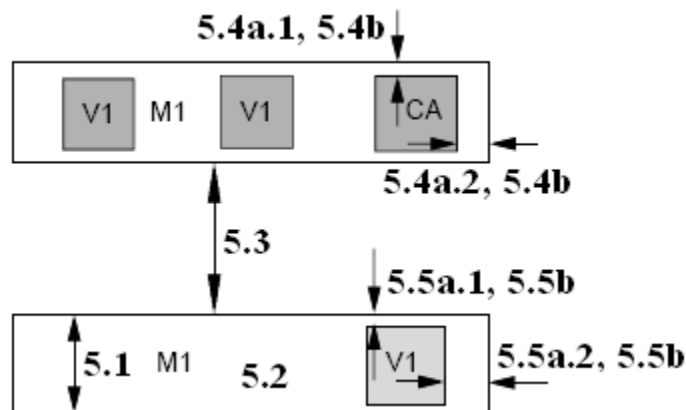
Reference Number	Rule Number	Description	Unit (um)
4.1	GR250	N-well minimum width	0.68
4.2	GR252a	N-well minimum spacing at different potential	0.92
4.2b	GR252b	N-well minimum spacing at same potential	0.70
4.3	GR350	P <sup>+</sup> select minimum width	0.24
4.4	GR351a	P <sup>+</sup> select minimum area	0.197 (um <sup>2</sup> )
4.5	GR352	P <sup>+</sup> select minimum spacing	0.24



## Layout Rules – Metal1

Reference Number	Rule Number	Description	Unit (um)
5.1	GR500	Minimum width	0.16
5.1b	GR500b	Maximum width	50.00
5.2	GR501a	Minimum area	0.089 (um <sup>2</sup> )
5.3	GR502	Minimum spacing	0.16
5.3b	GR504R	Minimum spacing when either metal is wider than 1.04um	0.36
5.4a.1	GR505a	Minimum overlap of contact	0.00
5.4a.2	GR506aR	Minimum extension of contact for 2 opposite sides	0.06
5.4b	GR506ab	Minimum overlap of contact on all 4 sides	0.04
5.5a.1	GR570	Minimum overlap of via1	-0.02
5.5a.2	GR571aR	Minimum extension of via1 for 2 opposite sides	0.06
5.5b	GR571b	Minimum overlap of via1 on all 4 sides	0.02

**NOTE: For 5.4, please follow 5.4b or 5.4a.1 AND 5.4a.2 (same for 5.5)**



### Layout Rules – Mx (Metal2 ~ Metal6)

Reference Number	Rule Number	Description	Unit (um)
6.1	GR600	Minimum width	0.20
6.1b	GR600b	Maximum width	50.00
6.2	GR601a	Minimum area	0.120 (um <sup>2</sup> )
6.3	GR602	Minimum spacing	0.20
6.3b	GR604R	Minimum spacing when either metal is wider than 1.0um	0.36
6.4	GR610 GR611	Minimum overlap of via	0.00

### Layout Rules – Vx (Via1 ~ Via5)

Reference Number	Rule Number	Description	Unit (um)
7.1	GR550	Exact size	0.20 x 0.20
7.2	GR553	Minimum spacing	0.20

