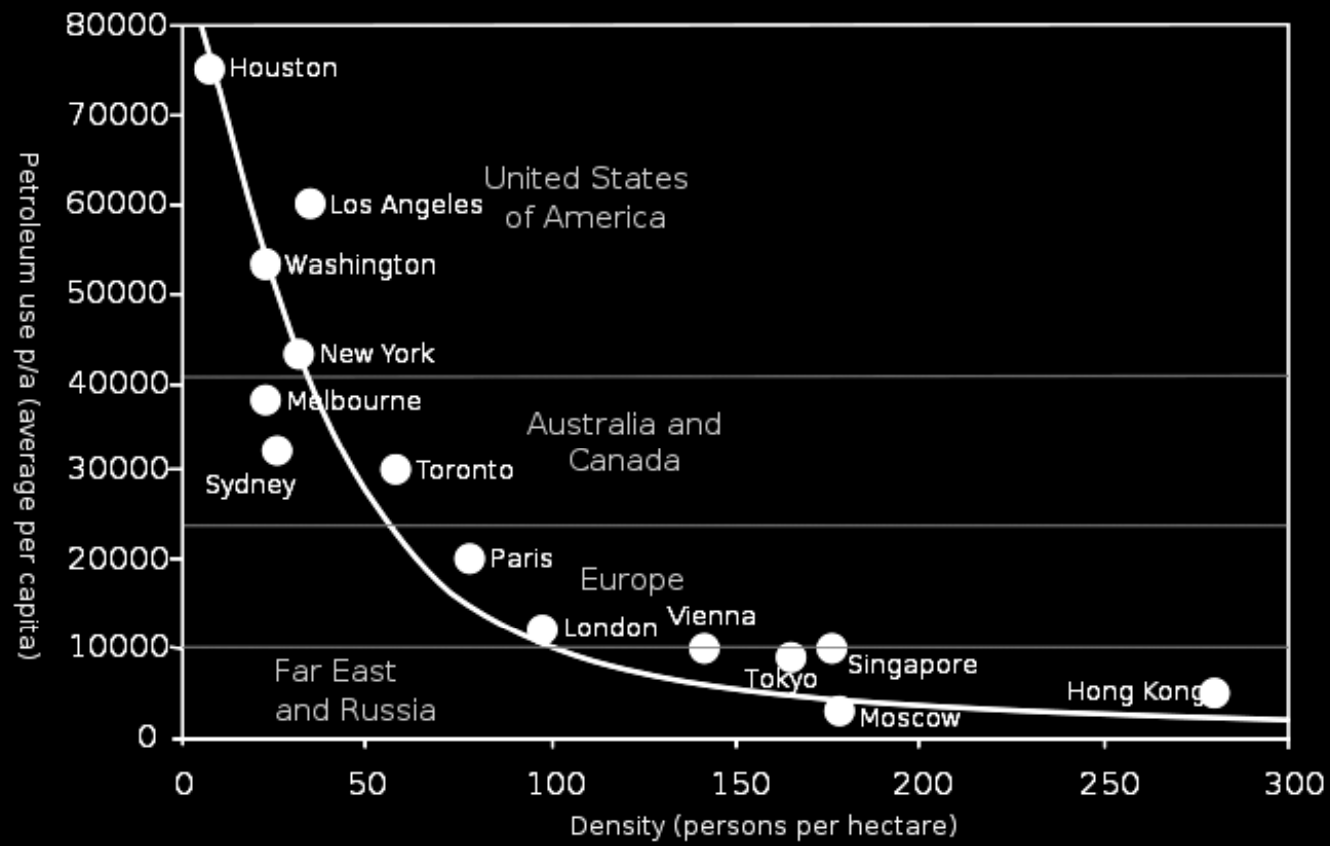
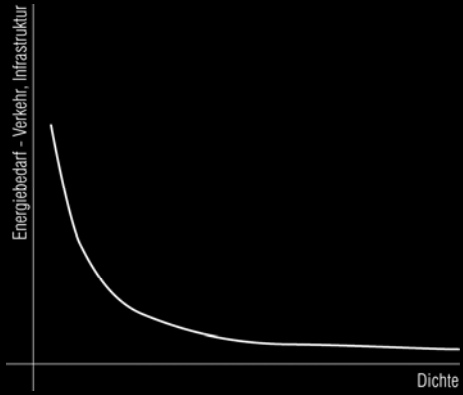


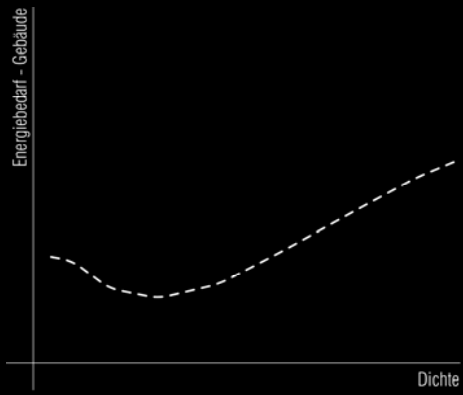
A STUDY OF THE RELATIONSHIP BETWEEN DAYLIGHT PERFORMANCE AND URBAN PATTERNS IN HIGH DENSITY CITIES



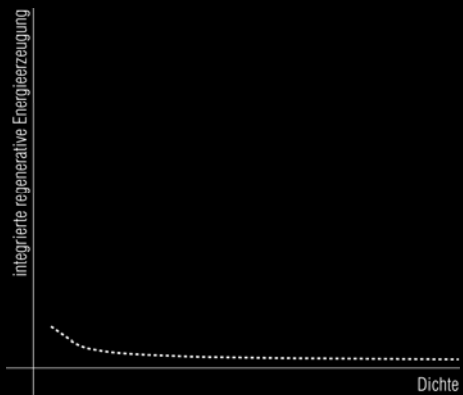
NEWMAN & KENWORTHY, 1989



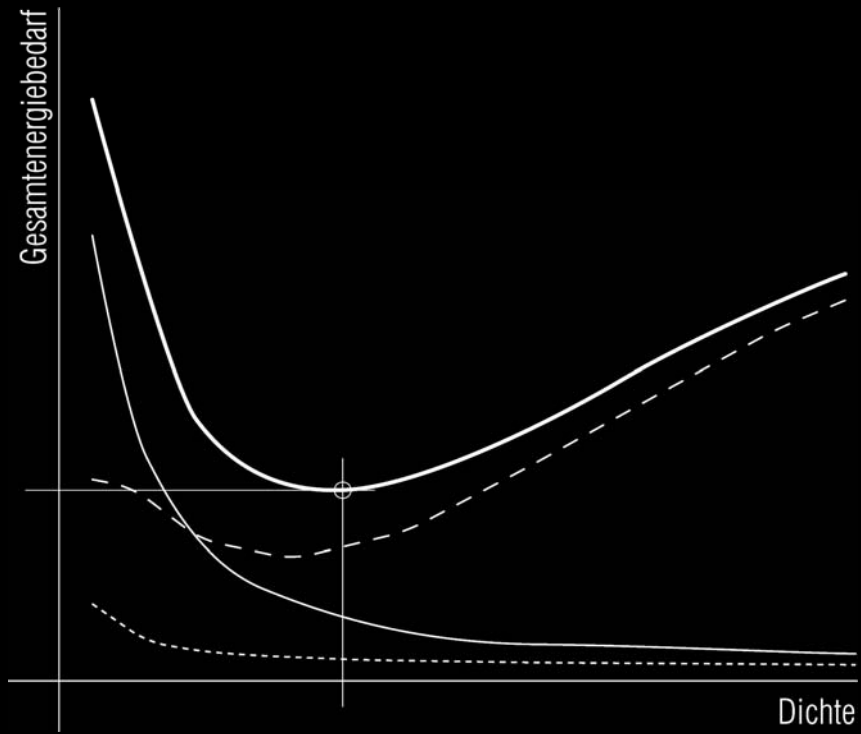
**traffic
infrastructure**



buildings



**building integrated
energy production**



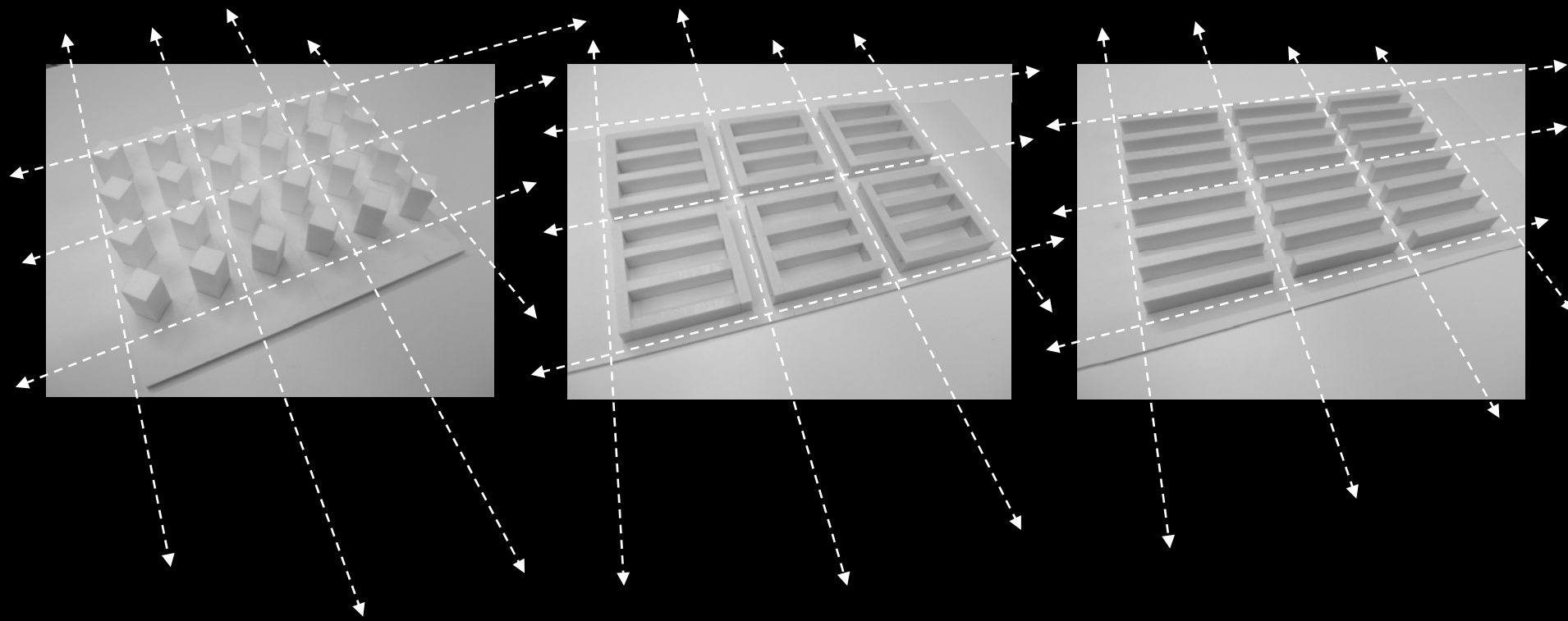
?

.energydemand

point

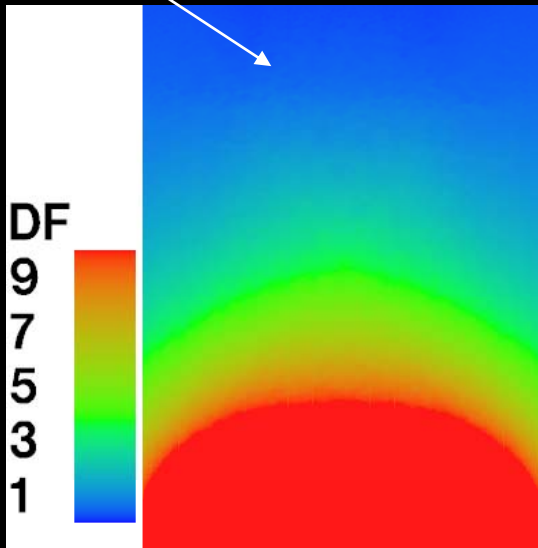
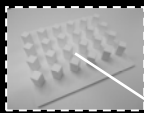
block

line

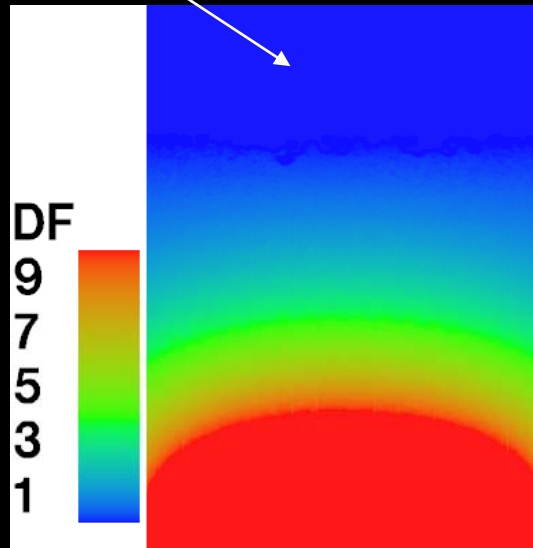
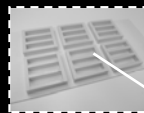


FAR	point	block	line		reflectance	transmittance
scenario A	1.5	1.5	1.5			
scenario B	2.5	2.5	2.5	external wall (ext)	0,2	
scenario C	3.0	3.0	3.0			
scenario D	3.8	3.8	3.0	external wall (int)	0,5	
scenario E	5.0	3.8	3.0			
				Internal partition	0,5	
				roof (ext)	0,2	
				roof (int)	0,7	
				ground (ext)	0,2	
				floor/ceiling (floor)	0,2	
				floor/ceiling (ceiling)	0,7	
				external glazing		0,8

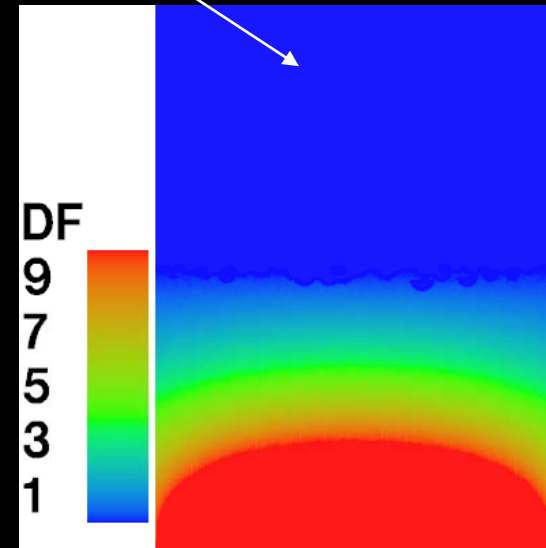
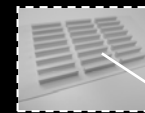
scenario C – FAR 3.0 – 1st level:



avg. DF% 5.94

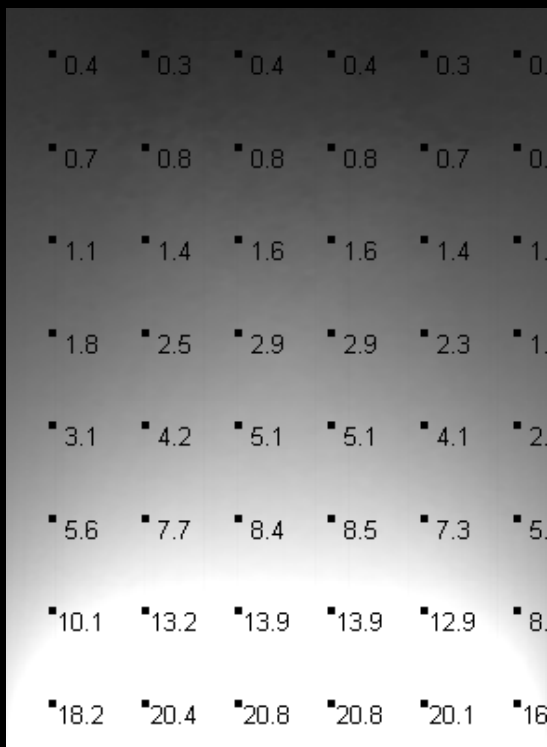


avg. DF% 5.35

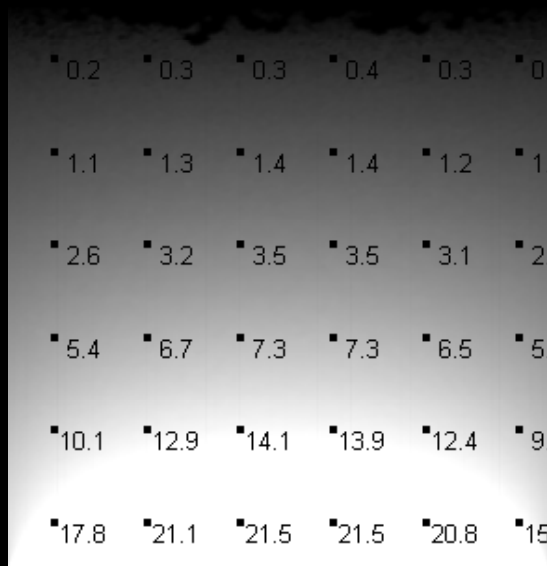


avg. DF% 3.85

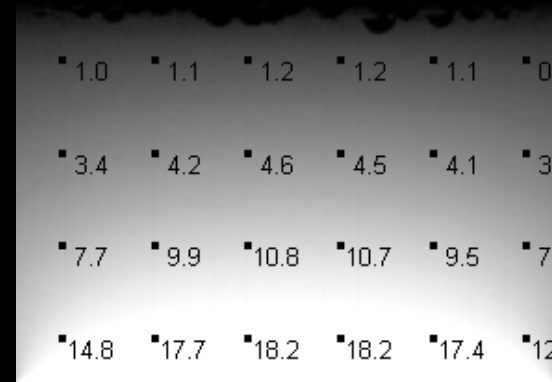
scenario C – FAR 3.0 – 1st level:



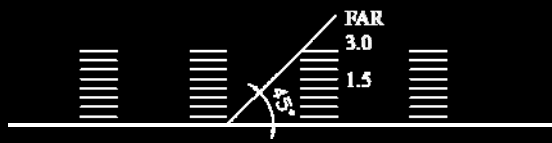
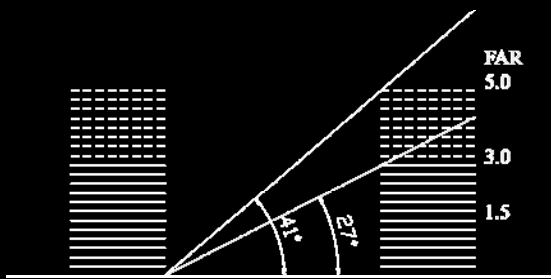
avg. DF% 5.94



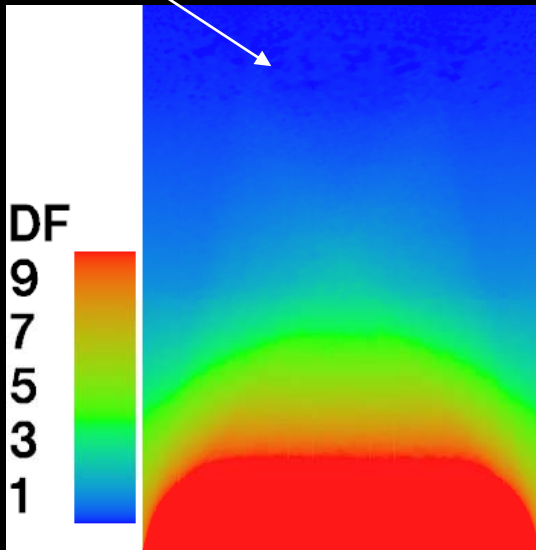
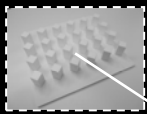
avg. DF% 5.35



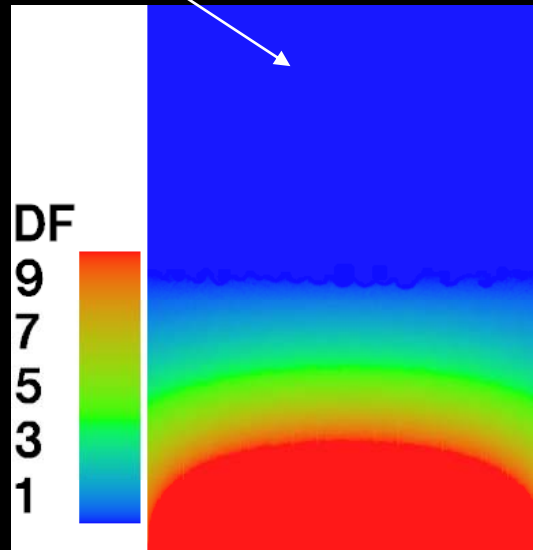
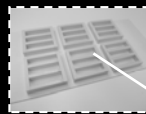
avg. DF% 3.85



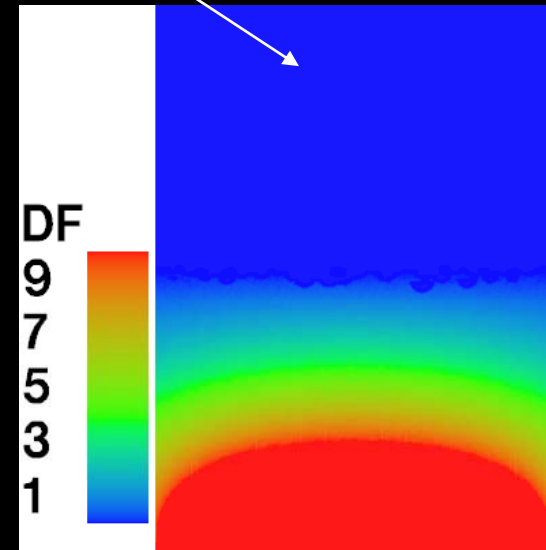
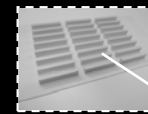
scenario E - DF% limit 3.85 and distribution of daylight :



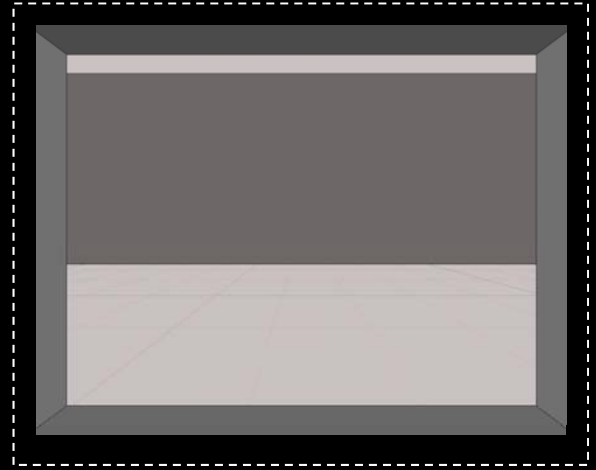
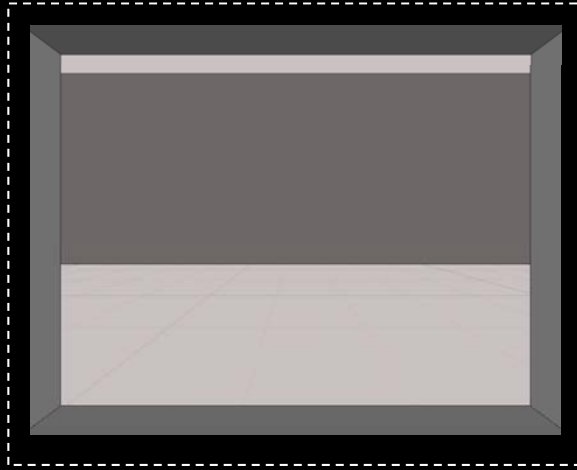
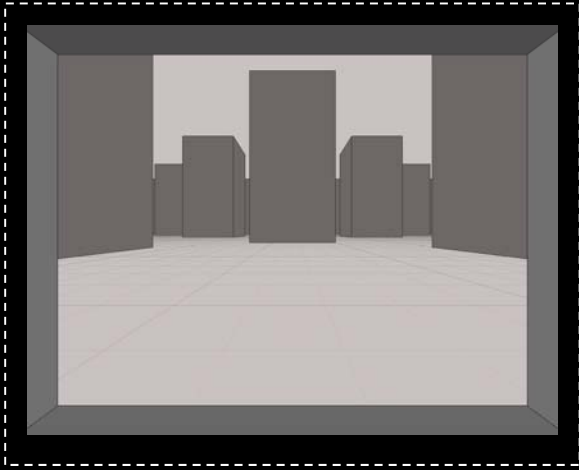
FAR 5.0 – 20 level

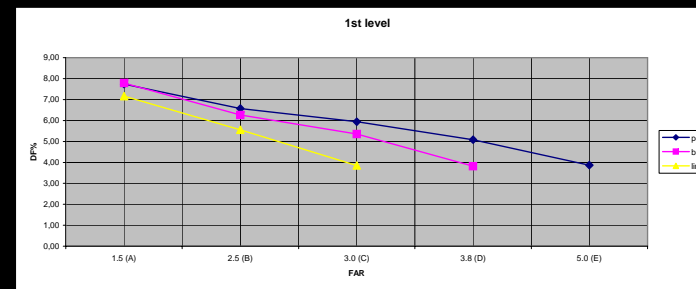
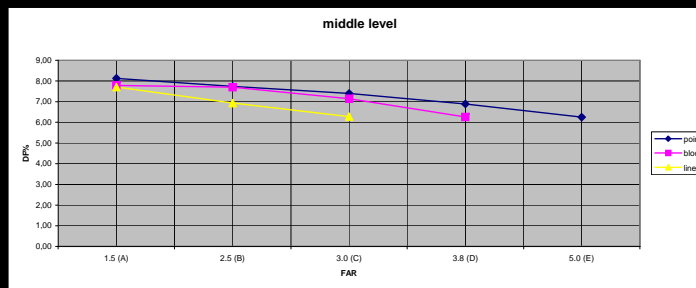
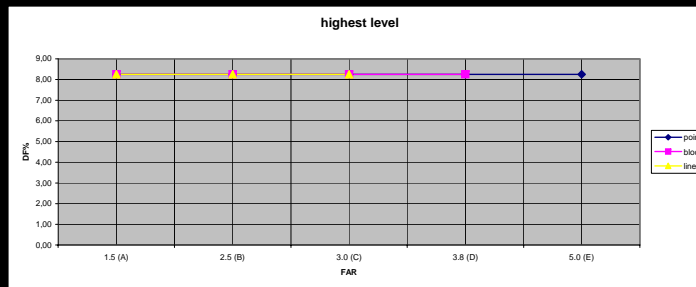


FAR 3.8 – 8 level

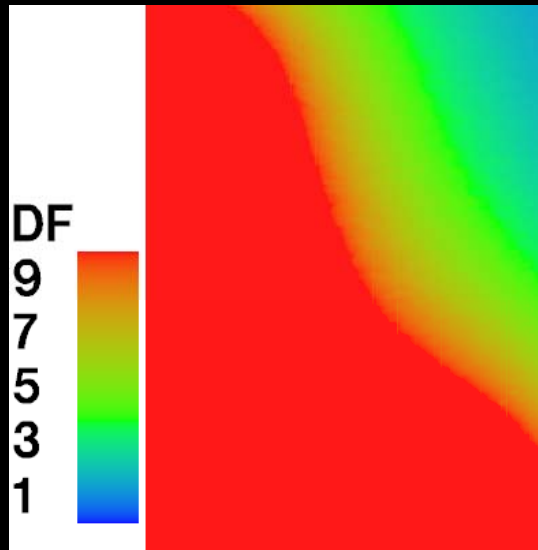


FAR 3.0 – 8 level

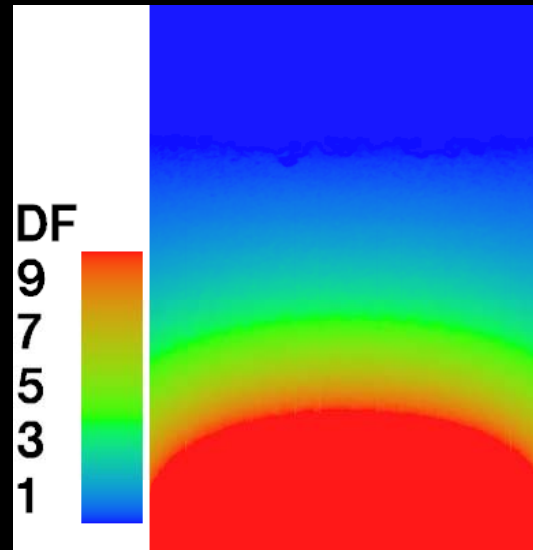




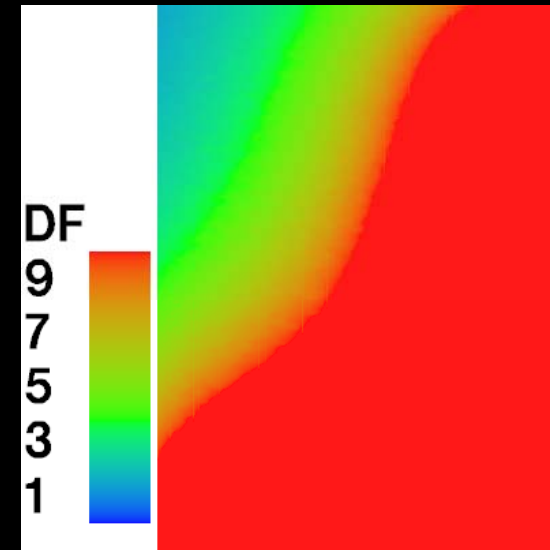
scenario C – 1st level – outer corners:



avg. DF% 15.22

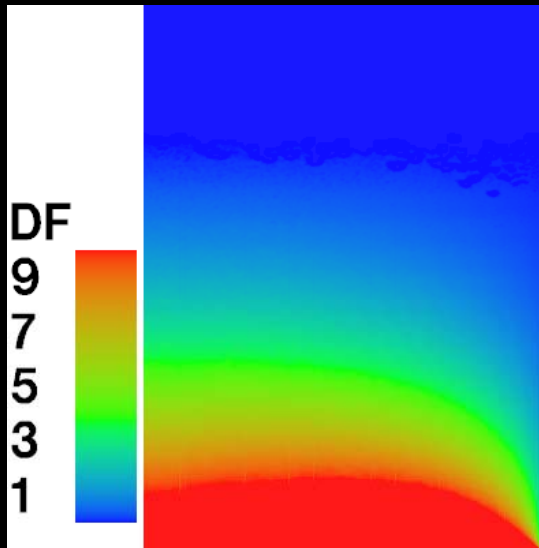


avg. DF% 5.35

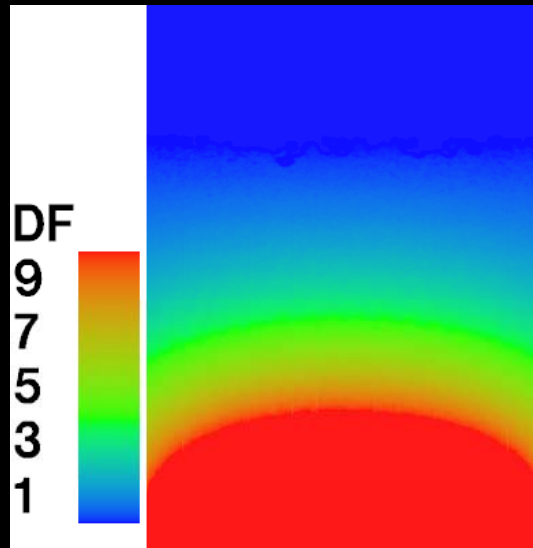


avg. DF% 15.22

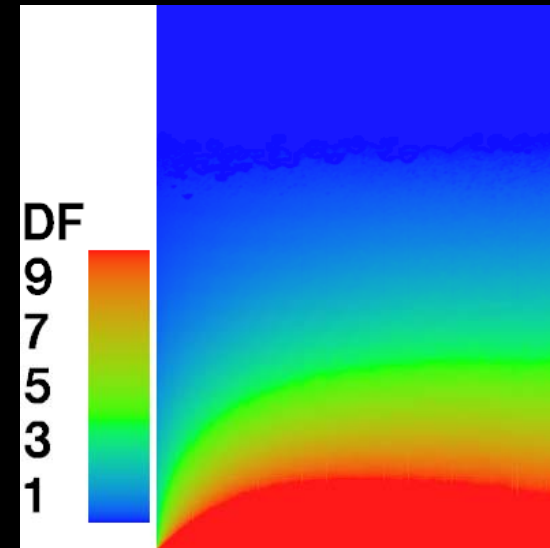
scenario C – 1st level – inner corners:



avg. DF% 3.06



avg. DF% 5.35



avg. DF% 3.06

Konklusio:

- *idente Bebauungsdichte impliziert nicht zwingend idente Tageslichtverhältnisse.*
- *zunehmende Bebauungsdichte impliziert nicht zwingend eine Verschlechterungen der Tageslichtverhältnisse.
(65% höhere Dichte bei Punktbebauung gegenüber einer Zeilenbebauung)*
- *Ecksituationen sind nicht nur aus Sicht der räumlichen Qualitäten, sondern auch aus energetischen Sicht von Relevanz.
Innenecken: untergeordnete Funktionen, Erschließungszonen, ...
Aussenecken: sommerliche Überhitzungsgefahr*
- *Punkthaustypologien erweisen sich hinsichtlich der Tageslichtqualitäten sowohl für Neubauprojekte als auch für Nachverdichtungsszenarien als vorteilhaft*

THE END