

<b>Data Study of the Examples from the Zoning Slides of the ZAP meeting on 2022-12-12</b>				
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<i>Opening Notes</i>				
<i>Note 1: All slides use the same value for the Gross Area per residential Unit (GAU), namely, 1000 SF</i>				
<i>Note 2: Slides often provide the building Footprint (FP) and the Gross Floor Area (GFA) of the the building or set of buildings in the example</i>				
<i>The Floor 3 Footprint (FP3) may be calculated as <math>GFA - 2*FP</math></i>				
<i>The spreadsheet calculations show that FP3 is essentially <math>(2/3)*FP</math> in all examples, within roundoff</i>				
<i>Note 3: An estimate of the number of units possible in a building or a set of buildings is usually given on a slide</i>				
<i>The spreadsheet calculations show that this estimated unit count is usually <math>ROUND(DOWN(GFA/GAU))</math>, except when GFA is almost an exact multiple of GAU</i>				
<i>Sometimes, by examining how many units may actually fit on each floor of each building, one may get a smaller estimate of the total number of units possible</i>				
<b>Example 1: Slides 6-7: Lot Size Greater than 30000 SF</b>				
Property & Data Fields	Values	Computations	Computations	Notes or Formulas
714-724 Beacon St {office}		<i>Underground Parking</i>	<i>Surface Parking</i>	
Lot Size SF	31221			From slide 6
Frontage FT	160			From slide 6
Building A Footprint SF		3770	2400	From slide 7
Building B Footprint SF		4000	2400	From slide 7
Building C Footprint SF		4000	3650	From slide 7
Building A Footprint SF on Floor 3		2513	1600	Multiply by 2/3
Building B Footprint SF on Floor 3		2666	1600	Multiply by 2/3
Building C Footprint SF on Floor 3		2666	2433	Multiply by 2/3
FP = Total Footprint		11770	8450	Total of the footprint of each building
GFA =Gross Floor Area		31580	22530	From slide 7
FP3 = Floor 3 Footprint		8040	5630	$GFA - 2 * FP$
GFA/FP		2.68	2.67	$ROUND(GFA/FP,2)$
FP3/FP		0.68	0.67	$ROUND(FP3/FP,2)$
GAU = Gross Area per Unit		1000	1000	Standard GAU used on all slides
Units {on slide}		31	22	From slide 7
Units {by computation #1}		31	22	$ROUND(DOWN(GFA/GAU,0))$
Units {by computation #2}		30	21	$2*ROUND(DOWN(FP/GAU,0)) + ROUND(DOWN(FP3/GAU,0))$
Units {by computation #3}		28	18	Total of the number of units of size GAU on each floor of each building
Open Space		59%	51%	From slide 7

<b>Example 2: Slides 8-9: Combining Two Lots</b>				
<b>Property &amp; Data Fields</b>	<b>Values</b>	<b>Computations</b>		<b>Notes or Formulas</b>
<b>Combined Lot</b>		<b><i>Underground Parking</i></b>	<b><i>Surface Parking</i></b>	<b>Notes or Formulas</b>
1365 Centre St {gas station}	11528			From assessor's database
1359 Centre St {office}	6496			From assessor's database
Lot Size SF {on slide}	17710			From slide 8
Lot Size SF {by computation}	18024			By addition using data from assessor's database
Frontage FT	175			From slide 8
Building A Footprint SF		3950	2400	From slide 9
Building B Footprint SF		3950	3230	From slide 9
Building A Footprint SF on Floor 3		2633	1600	Multiply by 2/3
Building B Footprint SF on Floor 3		2633	2153	Multiply by 2/3
FP = Total Footprint		7900	5630	Total of the footprint of each building
GFA =Gross Floor Area		21070	14970	From slide 9
FP3 = Floor 3 Footprint		5270	3710	GFA - 2 * FP
GFA/FP		2.67	2.66	ROUND(GFA/FP,2)
FP3/FP		0.67	0.66	ROUND(FP3/FP,2)
GAU = Gross Area per Unit		1000	1000	Standard GAU used on all slides
Units {on slide}		21	15	From slide 9
Units {by computation #1}		21	14	ROUNDDOWN(GFA/GAU,0)
Units {by computation #2}		19	13	2*ROUNDDOWN(FP/GAU,0) + ROUNDDOWN(FP3/GAU,0)
Units {by computation #3}		20	13	Total of the number of units of size GAU on each floor of each building
Open Space		53%	35%	From slide 9

<b>Example 3: Slides 10-11: Small Lot</b>				
<b>Property &amp; Data Fields</b>	<b>Values</b>	<b>Computations</b>	<b>Computations</b>	<b>Notes or Formulas</b>
1359 Centre St {office}		<i>Underground Parking</i>	<i>Surface Parking</i>	
Lot Size SF {on slide}	6500			From slide 10
Lot Size SF	6496			From assessor's database
Frontage FT	65			From slide 10
<i>Underground Parking {less viable}</i>				
FP = Total Footprint		3130	2320	From slide 11
GFA =Gross Floor Area		8350	6190	From slide 11
FP3 = Floor 3 Footprint		2090	1550	GFA - 2 * FP
GFA/FP		2.67	2.67	ROUND(GFA/FP,2)
FP3/FP		0.67	0.67	ROUND(FP3/FP,2)
GAU = Gross Area per Unit		1000	1000	Standard GAU used on all slides
Units {on slide}		8	6	From slide 11
Units {by computation #1}		8	6	ROUNDDOWN(GFA/GAU,0)
Units {by computation #2}		8	5	2*ROUNDDOWN(FP/GAU,0) + ROUNDDOWN(FP3/GAU,0)
Units {by computation #3}		8	5	Total of the number of units of size GAU on each floor of each building
Open Space		44%	35%	From slide 11
<i>Slide 11 notes that underground parking is less viable with this building size</i>				

<b>Example 4: Slide 4: 11 Washington St</b>				
<i>One of three buildings treated as a "Residential Building Comparison for VC1"</i>				
<i>Each building is accompanied by a photo</i>				
<b>Property &amp; Data Fields</b>	<b>Values</b>			
<i>Stated on slide 4</i>				
<b>Building Type</b>	Multi-Family Residential			
<b>Building Details</b>	6-unit converted Victorian			
<b>Footprint SF</b>	3831			
<i>From Google Maps</i>				
<b>Front Setback FT</b>	64			
<i>From Assessor's Database</i>				
<b>Lot Size SF</b>	60002			
<b>Frontage FT</b>	145			
<i>Unit areas from Assessor's Database</i>				
<b>Unit 1 {4 RM 2 BR} SF</b>	1328			
<b>Unit 2 {4 RM 1 BR} SF</b>	1003			
<b>Unit 3 {4 RM 2 BR} SF</b>	1384			
<b>Unit 4 {4 RM 2 BR} SF</b>	1342			
<b>Unit 5 {5 RM 2 BR} SF</b>	1541			
<b>Unit 6 {5 RM 2 BR} SF</b>	1298			
<b>Total SF for Units 1-6</b>	7896			
<i>Note: The lot size (60002 SF) is about 15 times the size of the building footprint (3831 SF)</i>				

<b>Example 5: Slide 5: Minimum Lot Size for 4000 SF Building Footprint</b>				
<i>We focus on the last example on this slide since that is only example that uses surface parking</i>				
<i>This last example makes the assumption that the right side of the lot abuts a residential district</i>				
<i>This assumption results in a right side setback of 15 feet, a lot size of 13050 SF, and usable open of 23%</i>				
<i>Without this assumption, the right side setback would be 10 feet and that would result in a smaller lot size (12180 SF) and a smaller percentage of open space (18%)</i>				
<b>Property &amp; Data Fields</b>	<b>Values</b>	<b>Computations</b>	<b>Computations</b>	<b>Notes or Formulas</b>
<i>Critical dimensions in the last example</i>				
<b>Building Frontage FT</b>	40			
<b>Building Depth FT</b>	100			
<b>Building Footprint SF</b>	4000			<b>Building Frontage x Building Depth</b>
<i>Lot width computation</i>				
<b>Left side setback FT</b>	20			<b>Required width for a two way driveway</b>
<b>Right side setback FT</b>	15			<b>Based on: right side abuts a residential district</b>
<b>Lot width in FT</b>	75			<b>Building Frontage + Left side setback + Right side setback</b>
<i>Lot depth computation</i>				
<b>Front setback FT</b>	10			<b>Minimum front setback</b>
<b>Parking lot depth in FT</b>	64			<b>Assumes two rows of parked cars plus required space between these rows</b>
<b>Lot depth FT</b>	174			<b>Front setback + Building Depth + Parking Depth</b>
<i>Lot size computation</i>				
<b>Lot size SF</b>	13050			<b>Lot width x Lot depth</b>
<i>Parking computation</i>				
<b>Driveway area SF</b>	2200			<b>Left side setback x (Front setback + Building Depth)</b>
<b>Parking lot area SF</b>	3840			<b>Parking lot depth x (Left side setback + Building Frontage)</b>
<b>Total parking requirements SF</b>	6040			<b>Driveway area + Parking lot area</b>
<i>Usable open space computation</i>				
<b>Usable open space SF</b>	3010			<b>Lot size - Building Footprint - Total parking requirements</b>
<b>Usable open space, as percentage</b>	23%			<b>Usable open space / Lot size, as percentage</b>
<i>Note 1: For some reason, slide 5 gives the usable open space as 27% rather than the value 23%, as computed via the dimension data</i>				
<i>Note 2: The surface parking requirements (6040 SF) are 1.5 times the building footprint (4000 SF).</i>				