

Summit County Building Standards
 1030 East Tallmadge Avenue
 Akron, Ohio 44310
 James B. McCarthy, County Executive
 Robert H. Miller, Chief Building Official
 Phone: (330) 630-7280
 Fax: (330) 630-7296

Summit County Building Standards

OBBC 506 AREA MODIFICATIONS

Increasing Building Area Limitations

Problem: Find Maximum Allowable Area for Office Bldg. per floor.

Open Perimeter

North East South West
 150'-0" 0'-0" 150'-0" 0'-0" = 300'-0" open perim.

Building Perimeter

North East South West
 150'-0" 200'-0" 150'-0" 200'-0" = 700'-0" perimeter

Str. Frontage Increase = $2 * \left\{ \frac{[300'-0"] * 100 - 25}{[700'-0"]} \right\} = 35.71\%$

Sprinkler Increase = 2 stories = 200%

Multistory Reduction = 2 story/ 5B = 0%

Final Calculations

| | |
|--|----------------|
| Base Percentage from Table 503 | + 100.00% |
| Street Frontage Increase % | + 35.71% |
| Automatic Sprinkler System Increase % | + 200.00% |
| <u>Multistory Building Reduction %</u> | <u>- 0.00%</u> |
| Total % Increase | 335.71% |
| Adjustment Factor (335.71%) / 100 | = 3.36 |

Allowable Floor Area B Use/5B Constr. (Table 503) = 7,200SF
 Allow. Floor Area * Adjustment Factor = Adj. Allowable Area
 7,200 SF * 3.36 = 24,171 SF/Fl.

ANSWER: 24,171 SF/FL Allowed < 30,000 SF/FL Actual
 Not allowed by Code. Cannot build this building.
 Must reduce footprint & recal. (May have to do these calculations several times to find answer!)



Presenter:
 Charles J. Corcoran, Architect
 Summit County Plans Examiner
 Email: ccorcoran@exec.summitoh.net

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OBBC 506.0 Area Modifications

506.1 General: The provisions of this section shall modify the area limitations of Table 503 as herein specified.

Cross References

OBBC 406.0 Open Parking Structures has a separate height/area table 406.4 This table is subject to OBBC Sections 504 and 506.

506.2 Street Frontage Increase

Where a building or structure has more than 25 percent of the building perimeter fronting on a street or other unoccupied space, the area limitations specified in Table 503 shall be increased 2 percent for each 1 percent of such excess frontage. The unoccupied space shall be on the same lot or dedicated for public use, shall not be less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane not less than 18 feet (5486 mm) in width.

Street Frontage Increase Calculation

Open perimeter must be >25% of building perimeter.

$$\text{Street Frontage Inc.} = 2 * \left\{ \left[\frac{\text{open perimeter}}{\text{bldg perimeter}} \right] * 100 - 25 \right\}$$

(150% Max)

All 3 Requirements must be met:

- The unoccupied space shall be on the same lot or dedicated for public use. *Can be a parking lot but not a rail road line—Remember: size of obstruction!*
- Shall not be less than 30 feet (9144 mm) in width (For fire department operations. *Recommendation: Contact Fire Chief to confirm that operations can be done in 30 ft area if it obstructions, ie: trees, ditches, etc*)
- Shall have access from a street by a posted fire lane not less than 18 feet (5486 mm) in width. (OBBC does not define “a posted fire lane”.
18’ width is for fire department access to the 30’ wide area. *Recommendation: Contact Fire Chief for fire lane requirements*)

506.2.1 (4101:2-5-06) Adjoining property:

The unoccupied space on adjoining property may be used for this increase, provided that the adjoining property shall be dedicated or deeded so as to preclude, for the life of the structure, the erection of any building or structure on such unoccupied space. (See Section 3781.02 of the Revised Code.)



506.3 Sprinkler System Increase

Where a building is equipped throughout with an automatic sprinkler system installed in accordance with OBBC Section 906.2.1, the area limitation specified in Table 503 shall be increased 200 percent for one- and two-story buildings and 100 percent for buildings more than two stories in height.

Exceptions

- The automatic sprinkler system increase shall not apply to buildings with an occupancy in Use Group H-1.
- The automatic sprinkler system increase shall not apply to any fire area with an occupancy in Use Group H-2 or H-3.

506.4 Multistory Building Reduction

The area limitations for buildings two stories in height shall be the same as the area limitations provided in Table 503 for one-story buildings. In buildings over two stories in height, the area limitations of Table 503 for one-story buildings shall be reduced as specified in Table 506.4.

Table 506.4 REDUCTION OF AREA LIMITATIONS

| Number of stories | Type of construction | | |
|-------------------|----------------------|------|---------------------------|
| | 1A & 1B | 2A | 2B, 2C, 3A, 3B, 4, 5A, 5B |
| 1 | None | None | None |
| 2 | None | None | None |
| 3 | None | 5% | 20% |
| 4 | None | 10% | 20% |
| 5 | None | 15% | 30% |
| 6 | None | 20% | 40% |
| 7 | None | 25% | 50% |
| 8 | None | 30% | 60% |
| 9 | None | 35% | 70% |
| 10 | None | 40% | 80% |

Final Calculations:

| | |
|--|---------------------|
| Base Percentage from Table 503 | + 100% |
| Street Frontage Increase % | + 150% (max) |
| Automatic Sprinkler System Increase % | + 0 or 100% or 200% |
| <u>Multistory Building Reduction %</u> | - 0 to 80% |
| Total % Increase | 450 % <u>Max</u> |

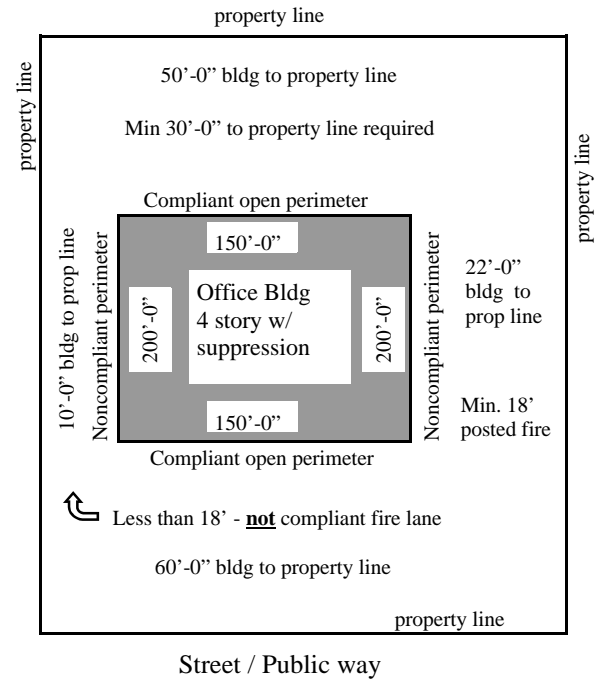
Total % Increase / 100 = Adjustment Factor

To find allowable area if Construction Type is known:

$$\frac{\text{Base area (Table 503 per Const. Type/Use Group)} * \text{Adjustment Factor}}{\text{Allowed Modified Floor Area}}$$

To find minimum construction type if actual area is known:

Actual Floor Area / Adjustment Factor = Adj. Tabular Area
Enter Table 501 with Use Group Classification and find minimum construction classification providing Tabular Area equal to or greater than the Adjusted Tabular Area.



Problem: Find Minimum Construction Type for Office Bldg. Assume 2C Construction

Open Perimeter
North East South West
150'-0" 0'-0" 150'-0" 0'-0" = 300'-0" open perim.

Building Perimeter
North East South West
150'-0" 200'-0" 150'-0" 200'-0" = 700'-0" perimeter

Str.Frontage Increase = $2 * \left\{ \left[\frac{300'-0"}{700'-0"} \right] * 100 - 25 \right\} = 35.71\%$

Sprinkler Increase = 2+ stories = 100%
Multistory Reduction = 4 story/ 2C = -20%

Final Calculations

| | |
|--|-----------|
| Base Percentage from Table 503 | + 100.00% |
| Street Frontage Increase % | + 35.71% |
| Automatic Sprinkler System Increase % | + 100.00% |
| <u>Multistory Building Reduction %</u> | - 20.00% |
| Total % Increase | 215.71% |
| Adjustment Factor (215.71%)/ 100 | = 2.16 |

Actual Floor Area / Adjustment Factor = Adj. Tabular Area
30,000 SF / 2.16 = 13,889 SF

Table 503/ B Use Group = Min. Construction Type is 5A with 15,300 SF
OBBC 504.0 Height Modifications: Sprinklers add 1 story/20'-0" to B Use thus 4 story/60'-0" is allowed.

ANSWER: Use Group B / Type 5A / 4 story / 60'-0"