

DEPARTMENT OF CONSTRUCTION SERVICES
BUREAU OF SCHOOL FACILITIES

BULLETIN

BUILDING AREAS

The Bureau of School Facilities (BSF) frequently responds to questions regarding *building area* as it applies to school construction projects. The Department of Construction Services (DCS) and BSF requirements/application may differ from other agencies or other applicable requirements. This bulletin serves to address two separate purposes in clarifying building areas. The first is for the application of the building code relative to the project/building, in determining the maximum allowable building area, and the minimum allowed construction type and safeguards. The second has to do with the application of building area in the DCS's grant calculations.

The DCS is not a codes enforcement agency and does not offer interpretations or clarifications of the State Codes. However, we do offer our understanding of the applicability of the codes pertinent to our plan review process and clarification of the agency's position regarding various matters relating to the School Construction Grant process (Connecticut General Statute (C.G.S.) Chapter 173).

In an effort to reduce the confusion, a meeting and discussion between staff of the DCS/BSF and the office of the State Building Inspector was conducted to help clarify a number of related issues. The following questions and answers attempt to summarize and outline the issues discussed, clarify the concepts and application of the codes, and identify what is expected on the Code Information Sheets (for proper grant calculations), when submitting to the DCS/BSF for review.

1. How do we determine what is the proper building area to use?

For Code Information purposes:

The Building Code defines Building Area (in Chapter 5) as (all) area included **within** surrounding exterior walls and firewalls, exclusive of vent shafts (not mechanical vent shafts) and courts (open courtyards). Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above. The (I.B.C.) Commentary explains further and includes the open projected floor areas at vertical openings (such as atriums). Building Area is applied when determining the largest floor area to determine the maximum allowable floor area and building area. The entire area of each floor must be calculated (including the horizontal projected floor areas of multi-story vertical openings) in order to determine the largest floor.

The Building Code also similarly defines Gross Floor Area (in Chapter 10) as the area included **within** surrounding exterior walls. Depending on the use of a space, either *Net Floor Area* or *Gross Floor Area* is used to determine the maximum occupant load for each floor level. Gross floor area is secondary to the issues that this bulletin attempts to address, although some comments on the topic are included herein for clarity.

For Grant Calculation purposes:

The DCS has relied on the Building Code's definition of Building Area as the basis for what building area is and how it is measured relative to the DCS Space Standards calculations. This has provided a consistent approach when determining the grant calculations. Building Area is one of three primary factors in determining the Space Standards for the grant calculations (for the applicable State Standard Space Specifications refer to C.G.S. 10-287c-15). Therefore, "gross square feet of such building" as used in C.G.S. 10-286 is considered by DCS to be the same value as the Building Area defined in the Connecticut State Building Code.

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2. **What is considered a multi-story space requiring calculating additional floor area for the open area?** It is easier to address what is not considered a multi-story space. Gymnasiums, cafeterias, auditoriums, and similar multi-purpose rooms are generally considered tall one-story spaces instead of multi-story spaces. However, there may be exceptions. As such, each project is viewed separately on a case-by-case basis.
3. **Does the upper (open) floor area of atriums or vertical openings count in the building area calculations?** Yes, when determining the maximum allowable floor area for height and area. However, some vestibules or vertical openings (or portions of the space) may be very high one-story spaces. The open floor area of such spaces is not considered occupied area when determining the maximum occupant load for spaces and floors, in further determining the required exiting capacities.
4. **Are mezzanine (and balcony) areas included in the calculated building area?** According to Section 505.1 of the Building Code, the area of a mezzanine is not considered when applying the provisions for height and area. However, the area of a mezzanine is included in fire areas, and used to determine occupant loads of spaces.
5. **Are areas under roof overhangs and canopies included in the building area?** Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above. However, it's not the intent to include the simple architectural overhangs. If there are large projections, then those areas beneath should be included as building area. This will be viewed on a case-by-case basis. Detached canopies or unenclosed covered walkways, etc., that are not a continuation of the building's roof(s) should not get counted towards building area.
6. **How is building area presented for grant calculations?** Building areas are first presented when an application for a school construction project is submitted to the DCS/BSF. However, it may change by the completion of the project. Therefore, the DCS/BSF relies on the accuracy of the areas identified by the design professionals on the Code Information Sheet (refer to "Construction Document Guidelines for School Districts and Design Professionals"). The areas shown in item #4 Building Area, of the Code Information, shall be the same areas that BSF uses in item #16 Building Areas for Grant Calculation.

Payment requests submitted by the district may be impacted by the **space standards**. The BSF Grant Data Unit may make grant calculation adjustments if necessary, based upon the area information on the Code Information Sheets, believing this information to be more current and accurate than what was originally filed (or is on file). Exceptions in the codes allow various building areas elements to be exempted from the Height & Area calculations. However, all actual building areas shall be accounted for in item #16 Building Areas for Grant Calculation.

It should be noted that although the Building Code definition is utilized in reporting the building area for code and for grant purposes, the actual footprint area is usually larger (by the exterior wall thicknesses). Other building area elements may be identified on the construction documents, either for construction purposes or for grant-calculation purposes. The following common terminology must be used for continuity and clarity. Refer to the "Construction Document Guidelines for School Districts and Design Professionals" for the formatting of this information.

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Open Space Area shall refer to those building areas under excessive roof overhangs (and canopies) and open floor areas of vertical openings that were included in items #4 Building Areas and #16 Building Areas for Grant Calculation of the Code Information. These areas must be identified and itemized whenever a district requests a space standard waiver, and the areas shown on the code information must reconcile with the waiver request letter. The areas or portions of those areas may be considered when calculating the grant. **DO NOT** subtract the open space areas from the "Total Facility" item #16 on the Code Information Sheet.

Total Constructed Building Area shall refer to the area of the building (**all floors**) when measured to **exterior face** of the exterior walls. This is usually the same area that the contractors are using.

Refer to Section 5 of the "Construction Document Guidelines for School Districts and Design Professionals" for the recommended Code Information format.

- 7. What if the building area changes during the project?** If the building areas change between the time of application and the Plan Review/Approval process, the BSF relies on the accuracy of the areas identified by the design professionals, on the Code Information Sheet, and may make grant calculation adjustments if necessary, based upon the area information on the Code Information Sheets (believing this information to be more current and accurate).

However, if changes are required after the review and approval of a project, then follow the procedures outlined in the Bulletin "*BUILDING AREA ADJUSTMENTS AFTER A PCT SUBMISSION*".

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**BUILDING AREA ADJUSTMENTS AFTER A PLAN
COMPLETION TEST (PCT) SUBMISSION**

When the BSF receives an application, the building area indicated by the district is presumed to be an estimate. At the time of the PCT meeting, the district and design professionals submit project documentation for review. The areas indicated on the drawings are presumed to be more current and more accurate and may supercede the previously submitted application data. The BSF may make adjustments to the data necessary for the proper calculations for grant payments.

For any number of reasons, the building area (square feet) may change by the completion of the project. For example, the district discovers that the building areas for a particular structure/project (as indicated on the ED050 Survey or the ED049 School Construction Project application) were reported incorrectly in the past. If after the PCT and review the district discovers the need to change those previously submitted building areas, the procedures listed on this bulletin, must be followed.

1. The district will provide a written explanation (to BSF Manager) for what precipitates the need for the change in the previously recorded building area, detailing the specifics of what is to be adjusted, and why, along with supporting documentation.
2. To ensure the accuracy of information, the building shall be surveyed. Previously submitted Code Information Plan(s) can be revised to record the survey information, and shall be signed and sealed by the licensed architect or engineer. The design professional shall:
 - a. Survey the buildings' exterior perimeter at each floor level.
 - b. Transpose the exterior dimensions onto the Code Information Plans (previously submitted as a part of the PCT process). Each floor level must be presented with dimensions.
 - c. Identify exterior wall thickness (used to recalculate building areas) for each floor. The wall thicknesses must be indicated on the Code Information Plans.
 - d. Revise the Code Information, items #4 Building Area through #7, and #16 Building Areas for Grant Calculations (refer to Section 5 of the "Construction Document Guidelines for School Districts and Design Professionals"). Use the Building Code definition of Building Area, include areas under canopies, roof /floor overhangs or projections, and/or extract open (to air) courts/courtyards or shafts. Include the open areas of the vertical openings at each floor level.
 - e. Add a new line to Code Information Sheet (below #16): "17 Total Constructed Building Area", and provide the new calculated area (measured to the exterior face of the building).
3. Provide a copy of the revised Plans (signed and sealed) to BSF, along with the letter from the Superintendent of Schools (described in #1 above) requesting an adjustment. The design professional shall include a certification statement on the revised drawing. The certification shall attest to the revisions based upon a survey of the actual conditions.