

National **Charter School**  
**Resource Center**

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at American Institutes for Research

# Planning for Excellent School Facilities

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# About the Resource Center

The **U.S. Department of Education** is committed to promoting effective practices, providing technical assistance, and disseminating the resources critical to ensuring the success of charter schools across the country. To that end, the Education Department, under a contract with American Institutes for Research, has developed the **National Charter School Resource Center**.

# Webinar Presenters

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# Today's Objectives

- Participants will understand the steps necessary to work with a school community to plan a facility that adequately serves the unique needs of its educational program.
- Participants will be able to understand the process required to assess their physical space and programmatic needs and the costs and benefits of various plan components.

# Agenda

- Introduce research on the impact of facilities on student learning.
- Review the benefits of engaging in a strong facilities planning process.
- Identify key steps of preliminary planning.
- Preview additional tools that will give school leaders greater capacity for sound decision making.

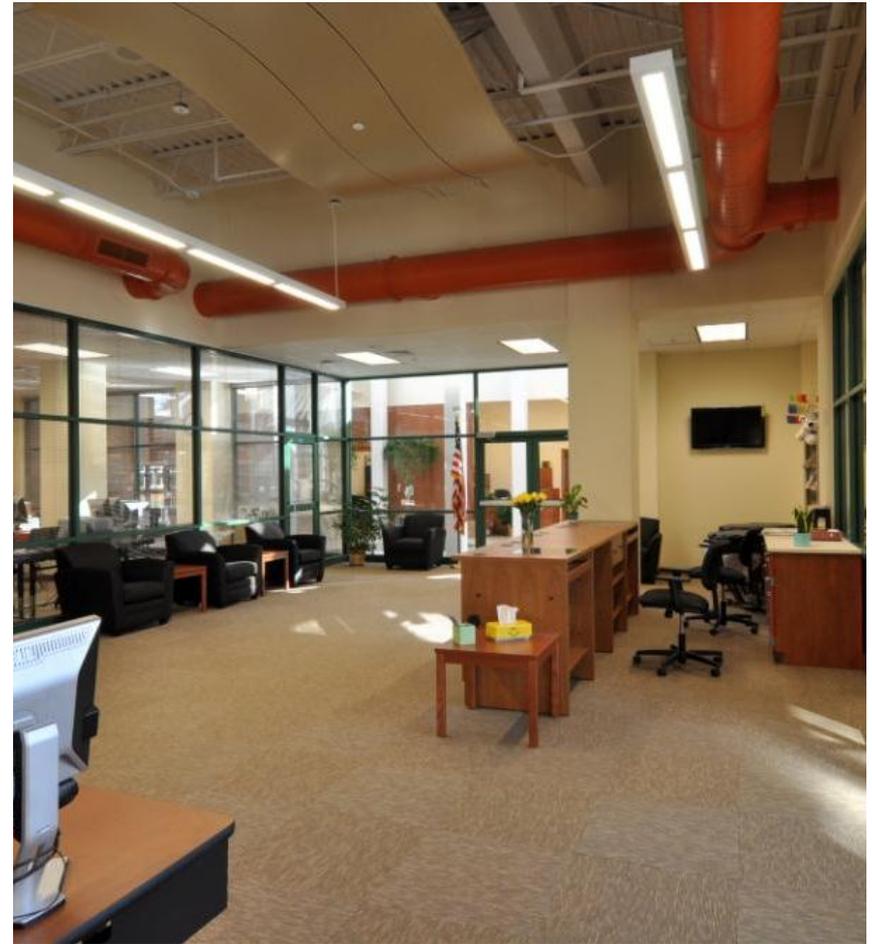
# Research Studies Prove That Facilities Matter

- Teachers are more likely to stay in schools with a high-quality facility.
- Better facilities correlate to improved student attendance, reduced suspension and dropout rates, and fewer behavioral incidents.
- Students in high-quality facilities outperform their peers in low-quality facilities by 3 percent to 7 percent on standardized tests.

Adapted from 21st Century School Fund. (2009). *Research on the impact of school facilities on students and teachers: A summary of studies since 2000*. Washington, DC: Author. Retrieved from <http://www.21csf.org/csf-home/Documents/ResearchImpactSchoolFacilitiesFeb2010.pdf>

# What Are the Benefits of Educational Facility Planning?

- Help secure a high-quality facility.
- Help manage enrollment growth or change.
- Ensure facility funds are cost effective.
- Enable access to real estate opportunities and facility funding.



# Preliminary Facility Planning Process

- Step 1: Build an in-house planning team.
- Step 2: Understand the process.
- Step 3: Articulate a vision for the facility.
- Step 4: Engage experienced help.
- Step 5: Prepare educational specifications.
- Step 6: Assess facility requirements and conditions.
- Step 7: Prepare a feasibility analysis.

# Step 1: Build an In-House Planning Team

- Designate the leader and provide adequate planning time.
- Secure broad participation among all of the participants.
- Ensure that the leader and the school community have sufficient time for their responsibilities.



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# Step 2: Understand the Process

|                           | Assessment Phase<br>Time _____<br>\$ _____  | Visioning Phase<br>Time _____<br>\$ _____ | Planning Phase<br>Time _____<br>\$ _____ | Development Phase<br>Time _____<br>\$ _____ | Implementation Phase<br>Time _____<br>\$ _____ |
|---------------------------|---|---|--|---|--|
| Education                 | <p>Each phase of facility development has time requirements and costs associated with it.</p> <p>Identify the approvals needed with each phase and content area.</p> <p>Learn the requirements for each approval.</p> <p>Raise vulnerabilities early—for example, charter length, enrollment concerns, and budget challenges.</p> |   |  |   |  |
| Facilities                |   |   |  |   |  |
| Community, Legal & Zoning |   |   |  |   |  |
| Finance                   |   |   |  |   |  |
| Management                |   |   |  |   |  |
| Quality Control           |   |   |  |   |  |

Prepared by the 21st Century School Fund, Washington, DC, February 2000

# Step 3: Articulate a Vision for the Facility

Facilitate a community process to articulate and document the following:

- Educational program
  - Philosophy
  - Teaching and learning methods
  - Educational and support services and programs
- Students, staffing, and community to be served
  - Enrollment, grades, and ages to be served
  - Staffing and work environment
  - Community programs and access



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## Step 4: Engage Experienced Help

- Talk to public and private school leaders about individuals and firms that provide facility expertise.
- Prepare a scope of work for educational specifications and a feasibility study.
- Interview individuals and firms.
- Engage a consultant or firm.

# Step 5: Prepare Educational Specifications

- The educational specifications document will be used by real estate and building professionals to find and develop the educational spaces you need at a cost you can afford.
- Key elements in the educational specifications:
  - Vision and philosophy
  - Current and planned enrollment
  - Description of programs and services
  - Current and planned services—administrative, teaching, operational, and student support

# Step 5: Prepare Educational Specifications

## Tool: Space Planning Chart

The educational specifications will establish how much space is needed to support your vision, program, and enrollment. Here's an example:

- Student capacity: 478
- Gross square feet (GSF) per student: 160
- Include outdoor requirements:
  - School yard
  - Parking
  - Trash
  - Bus turnarounds

| Summary From Detailed Analysis                                 | Net Sq. Ft.   |
|--|---------------|
| Academic core spaces   | 26,100        |
| Special education spaces                                       | 3,525         |
| Administrative spaces  | 2,985         |
| Media center spaces  | 2,970         |
| Visual arts spaces   | 1,475         |
| Music spaces   | 1,325         |
| Physical education spaces                                      | 5,800         |
| Student dining spaces  | 3,500         |
| Food service spaces  | 1,350         |
| Custodial spaces   | 600           |
| Total programmed space   | 49,630        |
| Building services (based on estimated net to GSF ratio of 40%) | 19,852        |
| Facility total   | 69,482        |
| Construction factor (10% multiplied by the facility total)     | 0.10          |
| <b>TOTAL GSF</b>   | <b>76,430</b> |

Table adapted from Bruce-Monroe Elementary School. (2009, September). Retrieved from [http://www.21csf.org/csf-home/publications/Bruce\\_Monroe\\_Elementary\\_School\\_Planning\\_Specs\\_Appendix.pdf](http://www.21csf.org/csf-home/publications/Bruce_Monroe_Elementary_School_Planning_Specs_Appendix.pdf)

# Step 5: Prepare Educational Specifications

## Tool: Space Planning Chart

Alternate example for educational specifications with tighter space constraints:

- Student capacity: 650
- 19 classrooms for 34 students
- Gross square foot (GSF) per student: 76

| Summary From Detailed Analysis                                 | Net Sq. Ft.   |
|--|---------------|
| Academic core spaces   | 16,625        |
| Science Classrooms   | 3,000         |
| Administrative spaces / Medical                                | 2,625         |
| Flexible Learning Labs   | 2,500         |
| Media Center   | 2,000         |
| Storage  | 1,500         |
| Student dining spaces  | 3,000         |
| Food service spaces  | 1,000         |
| Custodial spaces   | 1,000         |
| Total programmed space   | 33,250        |
| Building services (based on estimated net to GSF ratio of 35%) | 11,637        |
| Facility total   | 44,887        |
| Construction factor (10% multiplied by the facility total)     | 0.10          |
| <b>TOTAL GSF</b>   | <b>49,375</b> |

# Step 5: Prepare Educational Specifications

## Tool: Building Utilization Study

**BUILDING  
Capacity and  
PROGRAM  
Capacity are two  
very different  
things  
For charter  
schools,  
everything is tied  
back to the  
budget**

| RSD-OPSB PK-8 Capacity Calculation         |                     |                              |                   |
|--|---------------------|------------------------------|-------------------|
| Building Capacity Calculation              |                     |                              |                   |
| Pre-Kindergarten - Grade 8                 | # Teaching Stations | # Students/ Teaching Station | Building Capacity |
| Pre-Kindergarten Classroom                 | 3                   | 20                           | 60                |
| Kindergarten                               | 3                   | 26                           | 78                |
| Grades 1-3 Classroom                       | 9                   | 26                           | 234               |
| Grades 4-5 Classroom                       | 6                   | 33                           | 198               |
| Grades 6-8 Classroom (Eng, Math, SS)       | 9                   | 33                           | 297               |
| Grades 6-8 Science Classroom               | 2                   | 33                           | 66                |
| Grades 6-8 Science Lab                     | 1                   | 33                           | 33                |
| Special Education Self-Contained Classroom | 2                   | 10                           | 20                |
| <b>Total</b>                               | <b>35</b>           |                              | <b>986</b>        |
| Program Capacity - Average                 |                     |                              |                   |
| Pre-Kindergarten - Grade 8                 | # Teaching Stations | # Students/ Teaching Station | Program Capacity  |
| Pre-Kindergarten Classroom                 | 3                   | 20                           | 60                |
| Kindergarten                               | 3                   | 23                           | 69                |
| Grades 1-3 Classroom                       | 9                   | 23                           | 207               |
| Grades 4-5 Classroom                       | 6                   | 24                           | 144               |
| Grades 6-8 Classroom (Eng, Math, SS)       | 9                   | 24                           | 216               |
| Grades 6-8 Science Classroom               | 2                   | 24                           | 48                |
| Grades 6-8 Science Lab                     | 1                   | 24                           | 24                |
| Special Education Self-Contained Classroom | 2                   | 10                           | 20                |
| <b>Total</b>                               | <b>35</b>           |                              | <b>788</b>        |

# Step 5: Prepare Educational Specifications

## Tool: Additional Considerations

Multiple Factors will impact your building utilization including the following:

- Educational philosophy and class size ideals.
- Number of sections per grade.
- Growth plans and number of sections per grade over time.
- Will every teacher have an assigned room?
- Will classrooms be utilized all day or empty during teacher planning periods?
- Implications of Block Scheduling.
- Number of lunch periods. Will different grades eat lunch together?
- Potential for additional administrative space needs for back office functions such as Accounting, Human Resources, Operations, etc.

# Step 6: Assess Facility Requirements and Conditions

- Location
- Condition
- Design
- Utilization



# Step 6: Assess Facility Requirements

## Tool: What Makes a Suitable Building?

### Site Factors:

- Access to public transportation
- School bus access
- Evaluate zoning for permitted uses
- Open space

### Building Condition:

- Phase I and II Environmental Investigation
- Assess building condition: roof, parapets, walls, windows, doors and foundation).
- Assess building systems
- Accessibility
- Existing egress capacity

### Dimensional Issues:

- Dimensional requirements for special spaces
  - Structural system for column-free spaces – gymnasiums and theaters.
  - Suitability of column grid for classroom module
  - Building dimensions and suitability for classroom layout
  - Building depth and access to daylight – single loaded, double loaded, donut
  - Building orientation for daylight
  - Minimum ceiling heights for distribution of services
- .....

# Step 6: Assess Facility Conditions

## Tool: Building Survey

| Building Systems/Feature          | School Does Not Have System/Feature | Excellent | Good | Fair | Poor |
|-----------------------------------|-------------------------------------|-----------|------|------|------|
| a. Roofs                          | 0                                   | 1         | 2    | 3    | 4    |
| b. Framing, floors, foundations   | 0                                   | 1         | 2    | 3    | 4    |
| c. Exterior walls, finishes       | 0                                   | 1         | 2    | 3    | 4    |
| d. Windows, doors                 | 0                                   | 1         | 2    | 3    | 4    |
| e. Interior finishes, trim        | 0                                   | 1         | 2    | 3    | 4    |
| f. Plumbing/lavatories            | 0                                   | 1         | 2    | 3    | 4    |
| g. Heating system                 | 0                                   | 1         | 2    | 3    | 4    |
| h. Air conditioning system        | 0                                   | 1         | 2    | 3    | 4    |
| i. Ventilation/filtration system  | 0                                   | 1         | 2    | 3    | 4    |
| j. Electrical system              | 0                                   | 1         | 2    | 3    | 4    |
| k. Interior lighting              | 0                                   | 1         | 2    | 3    | 4    |
| l. Exterior lighting              | 0                                   | 1         | 2    | 3    | 4    |
| m. Energy management system       | 0                                   | 1         | 2    | 3    | 4    |
| n. Safety features                | 0                                   | 1         | 2    | 3    | 4    |
| o. Security systems               | 0                                   | 1         | 2    | 3    | 4    |
| p. Internal communication systems | 0                                   | 1         | 2    | 3    | 4    |
| q. Technology infrastructure      | 0                                   | 1         | 2    | 3    | 4    |

Use a building assessment survey to ensure complete understanding of potential costs and liabilities.

| Outdoor Feature                     | School Does Not Have Feature |
|-------------------------------------|------------------------------|
| a. School parking lots and roadways | 0                            |
| b. Bus lanes and drop-off areas     | 0                            |
| c. School sidewalks and walkways    | 0                            |
| d. Outdoor play areas/playgrounds   | 0                            |
| e. Outdoor athletic facilities      | 0                            |
| f. Covered walkways                 | 0                            |
| g. Fencing                          | 0                            |

Adapted from *Condition of America's Facilities: National Center for Education Statistics Fast Response Survey 2012–2013*, an updated version of an earlier survey. Retrieved from <http://nces.ed.gov/surveys/frss/publications/2000032/pdf/questionnaire.pdf>

# Step 6: Assess Facility Conditions

## Elementary Schoolyard Survey

| Rate Your Elementary Schoolyard:<br>Features to Look For                 | FEATURES<br>ON-SITE?<br>Yes = 2<br>No = 0 | QUALITY<br>Good = 3<br>Fair = 2<br>Poor = 1 | TOTAL<br>POINTS |
|--|---|---|-----------------|
| Are there multiple types of play areas?                                  | 2   | 3   | 5               |
| Is there a variety of play and athletic equipment?                       | 2   | 3   | 5               |
| Is access available for children of all abilities?                       | 2   | 3   | 5               |
| Are there plenty of shaded areas for children and adults?                | 2   | 3   | 5               |
| Is there comfortable seating for children and adults?                    | 2   | 3   | 5               |
| Is there open space for organized sports?                                | 2   | 3   | 5               |
| Is there a hardscape ball court?   | 2   | 3   | 5               |
| Is there a grassy or artificial turf playing field?                      | 2   | 3   | 5               |
| Are there working drinking fountains on the schoolyard?                  | 2   | 3   | 5               |
| Is there an outdoor classroom?   | 2   | 3   | 5               |
| Are working water connections available?                                 | 2   | 3   | 5               |
| Are there school garden beds?  | 2   | 3   | 5               |
| Are there environmental habitat areas?                                   | 2   | 3   | 5               |
| Are there varieties of interesting and educational shrubs and plants?    | 2   | 3   | 5               |
| Can neighbors use the schoolyard after school and on weekends?           | 2   | 3   | 5               |
| Is the schoolyard designed for passive observation?                      | 2   | 3   | 5               |
| Do people feel safe in the schoolyard?                                   | 2   | 3   | 5               |
| If there are fences, are they appropriate in size, design, and location? | 2   | 3   | 5               |
| Is there appropriate lighting?   | 2   | 3   | 5               |
| Is the schoolyard regularly maintained and upgraded?                     | 2   | 3   | 5               |
| <b>TOTAL POINTS for a Quality Schoolyard</b>                             | <b>40</b>                                 | <b>60</b>                                   | <b>100</b>      |

Be sure to evaluate the outdoor play, athletic, and educational spaces.

Source: 21st Century School Fund. (2011). *Developing great schoolyards: A handbook for elementary schools*. Washington, DC: Author: Retrieved from <http://www.21csf.org/csf-home/publications/DevelopingGreatSchoolyards20111025.pdf>

## Step 7: Prepare a Feasibility Analysis

- Use the space requirements to identify options for school locations.
- Review all options in relation to space requirements, and estimate the scope of work and cost for each option.
- Identify a schedule associated with each option.
- Bring space, scope, cost, and schedule for options to school decision makers.



# National Averages for School Size and Construction Cost

## 5 PROFILE OF NEW SCHOOLS COMPLETED IN 2011

| National Medians   | \$/Sq. Ft. | \$/Per Student | Sq. Ft./ Per Student | No. of Students | Building Size (Sq. Ft.) | Building Cost (\$000's) |
|--------------------|------------|----------------|----------------------|-----------------|-------------------------|-------------------------|
| Elementary Schools | \$181.00   | \$24,000       | 129.4                | 700             | 85,593                  | \$16,400                |
| Middle School      | \$195.31   | \$28,182       | 137.5                | 840             | 108,000                 | \$22,068                |
| High Schools       | \$219.18   | \$35,833       | 165.3                | 1,100           | 200,000                 | \$39,000                |
| Low Quartile       | \$/Sq. Ft. | \$/Per Student | Sq. Ft./ Per Student | No. of Students | Building Size (Sq. Ft.) | Building Cost (\$000's) |
| Elementary Schools | \$144.91   | \$19,871       | 112.5                | 500             | 67,579                  | \$11,000                |
| Middle School      | \$162.50   | \$19,747       | 123.3                | 600             | 86,000                  | \$17,000                |
| High Schools       | \$162.34   | \$27,826       | 139.3                | 725             | 110,000                 | \$22,000                |
| High Quartile      | \$/Sq. Ft. | \$/Per Student | Sq. Ft./ Per Student | No. of Students | Building Size (Sq. Ft.) | Building Cost (\$000's) |
| Elementary Schools | \$231.88   | \$32,170       | 149.5                | 802             | 103,519                 | \$22,755                |
| Middle School      | \$280.96   | \$41,207       | 158.3                | 1200            | 148,050                 | \$38,000                |
| High Schools       | \$284.55   | \$44,444       | 192.2                | 1600            | 270,000                 | \$64,000                |

**To read this table:** The national median cost per square foot for construction of an elementary school completed in 2011 was \$181.00. Cost per student was \$24,000 and the median school provides 129.4 square feet per student. One quarter of all school districts (the low 25 percent) spent \$144.91 per square foot or less for its elementary school construction while one quarter of all districts spent \$231.88 per square foot or more. The median high school completed in 2011 cost \$39 million. Based on data from 121 elementary schools, 47 middle schools, 67 high schools.

Source: School Planning and Management. (2012, February). *2012 annual school construction report*. Columbus, OH: Author. Retrieved from <http://www.peterli.com/spm/pdfs/SchoolConstructionReport2012.pdf>

# Feasibility Analysis Tool: Back of the Envelope Calculations

# The Payoff

- High-quality educational facility planning gets you a better school, not just a better building.
- It ensures that your dollars and time are spent where they will have the greatest educational payoff.

# Questions?



Raise your hand or enter your question in the chat box  
on the left side of your screen.

# Webinar Presenters

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# Thank you for participating.

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