# Facilities Inventory Project
# Boston Report

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# FACILITIES INVENTORY PROJECT BOSTON REPORT

## Introduction

In 2010, The Children's Investment Fund (The Fund) contracted with Wellesley Centers for Women and On-Site Insight (OSI) to assess the quality of facilities housing early care and education (ECE) and out-of-school-time (OST) programs for children in Boston, Massachusetts. Facilities influence children's educational outcomes, staff effectiveness, and the health and safety of everyone in a program, yet the condition of these facilities is largely unknown, because there has never been a broad assessment of ECE and OST facilities. The results of the study will be used to document the current state of ECE and OST facilities and what is needed to improve facilities to an established quality standard. The Fund will use the study to help plan our training, technical assistance and financing services to programs throughout the Commonwealth. In addition, we will use the findings to build support for new public and private financing of facilities for ECE and OST programs.

This Report provides the results of a survey of ECE and OST program facilities in Boston. The study focused on community-based non-profit programs and included center-based programs serving infants, toddlers, preschoolers and/or school-age children through the age of 13. The Fund was interested in assessing all aspects of the built environment – the building envelope and systems, vehicular access and parking areas, the building entry, child activity spaces/classrooms, administrative and support areas, and outdoor space.

## Background

Children's development is supported by contexts that promote their learning and growth, including early care and education and out-of-school-time programs. Considerable research has examined the importance of *psychosocial* environments, including relationships with caring adults. *Physical* environments are also important contexts for children's development. The physical environment is "the stage or setting upon which social transactions take place."[1] Physical environments can affect children's outcomes in two ways, by suggesting "a range of activities that can or cannot occur," and by eliciting emotions, such as feelings of comfort, self-worth or anxiety.[2]

Facilities quality is significantly related to program quality for children in infant, toddler and preschool classrooms and in out-of-school time programs. Preschool-age children exhibit more social withdrawal and more off-task behavior under crowded conditions. In a 2004 study, Kantrowitz and Evans found that, the more children there were per activity area, the greater the amount of time spent off-task.[3] Crowding in child care centers has also been associated with attention deficits, behavior problems, and reduced interactions between children.[4] In a study of cortisol levels among 18-40 month old children, LeGendre found higher cortisol levels among

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[1] Theodore Wachs, 1989. The development of effective child care environments: Contributions from the study of early experience. *Children's Environments Quarterly*, 8 (4) 4-16.

[2] Olds, A.R., 1989. Psychological and physiological harmony in child care center design. *Children's Environments Quarterly*, 6 (4) 8-16.

[3] Kantrowitz, E.J. & Evans, G.W. 2004. The relation between the ratio of children per activity area and off-task behavior and type of play in day care centers. *Environment and Behavior,* 36 (4), 541-557.

[4] Maxwell, L. 1996. Multiple effects of home and day care crowding. *Environment and Behavior*, 28(4), 494-511, cited in *Evans op. cit.; Maxwell, L.E. 2003. Home and school density effects on elementary school children. Environment and Behavior*, 35 (4), 566-578.

children in more crowded classrooms, and in group sizes of more than 15 children.[5] Higher cortisol levels indicate greater stress.

In a study of programs serving 4-year-olds in 10 countries, Montie and colleagues found that children who attended programs that offered a wide range of equipment and materials showed greater improvement in cognitive performance than children in less resource rich programs.[6] In a study of 202 Colorado child care centers, Perlman and colleagues found that classrooms with varied materials and activities, adequate space and appropriate furnishings had higher quality interactions between staff and children, including developmentally appropriate interactions during personal care routines and encouragement of language development.[7]

The *Cornerstones* [8]report on early childhood settings in Massachusetts highlighted concerns about hygiene and sanitation.  It found that 39% of preschool sites had too little indoor space, poor ventilation, poor lighting, or inadequate activity spaces;  51% of infant-toddler programs lacked appropriate furnishings or made use of furnishings that were in poor repair. Fewer than half the programs had space and materials for active physical play.

While there is less research on OST program facilities, there is some information. Research on schools has found that students in poorer quality facilities have poorer test scores, poorer attendance and higher dropout rates.[9] Technical design features, such as acoustics, climate control, lighting and warm colors, have been found to be correlated with positive child outcomes.[10] In addition, the Massachusetts After-School Research Study[11]found that appropriate space led to positive staff engagement, which in turn led to positive youth engagement, challenging activities and high-quality homework time.

## The Facilities Standards and Criteria

While there are multiple sets of standards offered through varying professional and accrediting organizations that address some components of the physical environment, there is no single set of standards which pays comprehensive attention to facility quality and functionality and none that address standards for both ECE and OST programs. The Children's Investment Fund recognized the need for standards that identify those elements that support good educational environments for children, work environments for staff, and the health and safety of all occupants – standards that go beyond the interior to assess the general condition of a building, the building envelope, mechanical systems, and the grounds.  The Fund, with consultants from Wellesley Centers for Women and On-Site Insight, has developed standards for physical environments that support children's learning, safety and healthy development.

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[5] LeGendre, A. 2003. Environmental features influencing toddlers' bioemotional reactions in day care centers. *Environment and Behavior*, 35 (4), 523-549.

[6] Montie, J.E., Xiang, Z. & Schweinhart, L.J. 2006. Preschool experience in 10 countries: Cognitive and language performance at age 7. *Early Childhood Research Quarterly,* 21, 313-331.

[7] Perlman, M., Zellman, G.L. & Le, V. 2004. Examining the psychometric properties of the Early Childhood Environment Rating Scale-Revised (ECERS-R). *Early Childhood Research Quarterly*, 19, 398-412.

[8] Washington, V., Reed, M., and Cowden, M.  2007. *Cornerstones:  Strengthening the Foundation of Health and Safety in Early Education and Care.*  Cambridge, MA:  Schott Fellowship in Early Education and Care at Cambridge College.

[9] Evans, op. cit.

[10] Moore 2001. op. cit.

[11] Intercultural Center for Research in Education and National Institute on Out-of-School Time, 2005. *Pathways to Success for Youth:  What Counts in After-School,* p. 26

## The Facilities Standards

1. INSPECTIONS: The facility meets all local and state inspection, licensing and code requirements to ensure the health and safety of all persons who occupy the space and to support basic program operations. All inspections are current.

2. SITE LOCATION, ORIENTATION AND LAYOUT: The facility is located on a site that supports the program activities and the health and safety of children and staff. The location is convenient to transportation and basic community services, and makes best use of the features of the site.

3. VEHICULAR ACCESS AND PARKING AREAS: The facility drop-off/pick-up and general parking areas are accessible, easy to navigate, safe for vehicular and pedestrian traffic, and adequate to address parking needs.

4. BUILDING ENTRY/LOBBY: The entrance to the facility is visible, secure and accessible. It welcomes children and adults into the center while providing an appropriate level of security.

5. ENVELOPE & SYSTEMS: The facility is safe, secure and accessible. The external and internal envelope and structures (roof, ceilings, doors, walls, floors, windows, exits, stairways) are in good repair and well maintained. There is sufficient capacity in the electrical, heating and cooling, plumbing, fire, ventilation, lighting and water systems to meet all regulations and ensure the comfort and safety of building occupants.

6. CHILD ACTIVITY SPACE: The facility provides sufficient child activity space designed to support program activities, including educational activities, hygiene and routine care. The space is divided into zones for messy, quiet, and active activities. It welcomes and engages children and youth and makes them feel secure and comfortable.

7. ADULT ACTIVITY SPACE: The facility includes space for reception and administrative offices, staff needs for meeting, planning and relaxation, and space for parents. It is equipped with furnishings, appropriate technology and other resources to support a professional staff.

8. SUPPORT SPACE: The facility includes sufficient space for all functions that support program operations, including food preparation, cleaning and maintenance, laundry and long-term storage.

9. ENVIRONMENTAL HEALTH: The facility meets environmental health standards in the management of hazardous materials, provisions for safe drinking water, recycling and refuse, temperature and humidity, and storage of potentially toxic substances.

10. OUTDOOR SPACE & ACTIVITIES: The facility provides sufficient outdoor space and equipment suitable for the ages of the children in the program. The space and equipment offer access to nature and natural materials, opportunities for healthy physical activities and learning.

In addition to the ten standards, the Facilities Standards include an appendix that provides a summary of key regulations governing accessibility in ECE and OST program facilities.

**The Specific Criteria for the Facilities Standards.** Each Standard has one or more criteria. For each criterion, we identified Regulatory Standards, Professional Standards, and Best Practices Standards, whenever possible. A program that meets *Regulatory Standards* complies

with Massachusetts state regulations (licensure, building codes, etc); a program that meets *Professional Standards* meets professional association standards and guidelines; a program that meets *Best Practices Standards* follows best practice guidelines from a variety of sources.[12]

## The Survey Methodology

*Sample.* The sample for the study was limited to community-based non-profit programs in Boston.  Programs that were for-profit centers or family child care homes were not included in the study. In addition, programs that were run by schools or other public agencies, or that were worksite programs, were not included in the study, because those programs are likely to have access to other capital resources from their sponsoring entity. The sample included center-based programs serving infants, toddlers, preschoolers and/or school-age children through the age of 13. More than three-quarters of all eligible OST programs (80%) and two-thirds (66%) of ECE programs agreed to participate in the study. The final sample included 58 ECE programs and 40 OST programs and is representative of other, similar ECE and OST non-profit programs in Boston, Massachusetts.

*Assessment Protocol.* The objective of this study was to inspect the physical space occupied by a wide range of early childhood education and out-of-school-time programs and various systems/components utilized by these programs to see how they well they met Regulatory Standards, Professional Standards and Best Practices Standards. Where an inspected component did not meet one of these standards, a cost to bring it into compliance was developed. The assessment measure was adapted from OSI's standard inspection protocol, which is focused primarily on visually inspecting all major systems and components at various types of real estate assets and then projecting future needs and related costs for these systems and components in the form a long-range capital needs assessment. This protocol was adapted to assess a subset of the Facilities Standards selected by The Fund as of particular interest, and limited to those standards that could be assessed effectively.

Upon identification, the standards were entered into an excel spreadsheet and arranged according to type of standard (regulatory/professional/best practices) and grouped by location within the facility (i.e. classroom, kitchen, storage, etc.). Each standard was entered with its category in the survey, a brief description of the standard, the reference to the full standard, and the full standard in an input box. In addition, each standard was evaluated to determine whether or not it applied to all age groups.  At the beginning of each facility visit, the inspector would enter the age group(s) served within that program and the spreadsheet/checklist would then display only those standards that applied to those group(s).  Answers on the checklist were restricted so they would be consistent for analysis.  Space for notes/free responses as well as quantitative information on modifications to be made were also included in the assessment tool.

The inspection protocol tool for the accessibility portion of the study was based on OSI's standard accessibility inspection checklist, which was developed approximately fifteen years ago and has been continually refined over time. The checklist was previously used for two separate reviews of all housing developments included in the portfolio of the Boston Housing Authority. The checklist references both Uniform Federal Accessibility Standards (UFAS) and Massachusetts Architectural Access Board (Mass AAB) standards.

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[12] Standards item numbers follow this format: the first digit represents the Standard (1 -10); the second digit represents the Area under that Standard, the third digit represents the source or level (Regulatory Standards =1, Professional Standards=2 or Best Practices=3), and the final digit represents the item number. For example, Standard 4, Area 1, Best Practices, item b would be written 4.1.3.b.

A pilot study utilizing the identified standards was completed by OSI at nine facilities, including four early childhood programs and five OST programs. Based upon completion of the pilot study facility visits, the inspection tool was revised to include prompts for the inspector for better quantitative information if a standard was not met. Additionally, the application of standards to some age groups was revised in a few cases, and the standards were re-ordered to be chronological and ease the inspection process.

*Recruitment of Programs.* WCW selected the sample programs. OSI and The Fund screened the list for eligibility.  Based upon the final list, letters were mailed to the selected programs in batches (at the start, one batch at a time was mailed out per region; as the study progressed, letters were sent out as needed).  Approximately one week after mailing the letters, the program/site was called to recruit the program and schedule a visit.

*Data Collection.* OSI conducted site visits at each participating program; in addition, programs were asked to complete a brief survey of program information. After scheduling the site visit, OSI emailed a confirmation letter to the program director and/or other program staff that included the date and starting time of the facility visit, a list of the information/documents that OSI would like to have available for review during the visit, and a list of the areas/spaces that we would need access to (if possible). The program information form was sent as an attachment to each of these confirmation emails. At the time of each site visit, the inspector brought along a printed copy of a blank program information form that could be completed at that time, if necessary. If the program information form was still not completed by the time the site visit concluded, the inspector asked that the form be sent directly to OSI's office as soon as possible.

Five OSI staff completed the site visits; between them, these staff have completed approximately 700 capital needs assessments for a wide variety of real estate asset types over the past eleven years, prior to this survey. The staff have backgrounds in historic preservation and residential construction, commercial real estate appraisal and residential construction and remodeling, landscape design with experience in site review/reconnaissance, design/layout, and cost estimating, real estate development and inspections of public housing. Each inspector involved with the study received both in-house and field training. In-house training covered background and goals of the study, explanation of the standards, inspection protocol, and use of the various tools. Field training consisted of visiting a facility as a group to become familiar with the protocol and tools. Individually, each new inspector then shadowed the trainer during one facility visit and subsequently had the trainer shadow them on one facility visit to help reinforce understanding of protocol and use of the inspection tools. Telephone and/or email communication was available between the inspectors and the trainer throughout the course of the facility visits to answer questions specific to protocol and/or other inspection-related matters.

At the start of each facility visit, the inspector typically met with the director, and briefly went over the background about the program. Additionally, the director (or other staff member) was asked if there were any major concerns or issues with the program's physical space.  The director or other staff member then led the inspector on a brief tour of the spaces (interior and exterior) utilized by the program and introduced the inspector to the teachers, so that they would not be surprised by a stranger.  As part of the tour, the director or other staff member described to the inspector how the various spaces were used (if something was just an art room, or snack room, etc). During this time, the inspector asked questions about items that could not be seen because of the season or because of access (asked about air conditioning in the winter, heating in the summer, outdoor lighting levels and controls, etc).  After the brief tour, the inspector then went back to each space on his/her own to take measurements, photographs, and fill out the inspection checklist.  To the greatest extent possible, the inspector tried to go into classrooms

when the children were not present so as not to be a distraction. Specific care was also taken by each inspector not to include children in any of the photographs.

Many times the inspector was not able to get on the roof or in the boiler room.  Where access was not available or possible, the inspector looked for evidence of the condition of these items – water stains, draft guards, auxiliary electric heaters – and asked if there were problems keeping the building warm/cool enough or with active leaks.  These answers sometimes provide better information than just visual observation.  Also, since this survey was limited to a simple assessment of the general condition and/or level of performance of these systems/components; the answers provided by the program director or other site staff, typically provided adequate information for purposes of the survey.

*Cost calculations.* Based upon the responses gathered for each program in the sample, costs were estimated to make modifications to meet *The Facilities Standards and Criteria*. Two assumptions were made in calculating costs:

1. Modifications are feasible (disregarding the potential structural, site logistic and permission/use/occupancy limitations of individual locations), and
2. Standards could be met by reconfiguring space within the existing footprint of the program.

However, reconfiguring the program space may reduce the amount of child activity space and lead to decreases in licensed capacity. Few, if any, of the programs in the sample could afford the loss of revenue from a reduced enrollment of children, but the alternative, small scale additions to the building would be costly, inefficient, and likely infeasible.

Cost calculations for new space for gross motor activities or elevators were calculated based on constructing an addition to the building. Creation of a gross motor space could require a large enough addition to be feasible from a construction contracting basis, and the alternative, partitioning existing interior space, would in most cases, displace an entire classroom.  Due to the variability of interior layouts and building types, costs for a new elevator assumed the addition of a new elevator shaftway outside the existing footprint of the building.

Many programs in the study were located in spaces without fire sprinkler systems. Current building codes do not require sprinklers in all buildings. Therefore, costs to install fire sprinkler systems were not included in the study's cost estimates.

Each item in the assessment was analyzed to create a scope of work for necessary repairs, replacements, and/or modifications.  In some instances, several scopes of work were created to address different issues found within one standard, or to address differences in cost due to building type (i.e. repairs to exterior walls of masonry versus siding or adding a bathroom above or below grade). After costs for each of these scopes were determined, they were combined as a weighted average resulting in a single average modification cost for a particular standard.

For example, standard 6.4.1.e states that there should be one toilet and one sink for every twenty children.  Through the course of the study, ten sites were identified as not having adequate facilities.  The modifications needed varied from adding an additional sink in an existing bathroom, adding an additional toilet in an existing bathroom, expanding an existing bathroom to create space to add an additional sink and toilet, and partitioning space to create a new bathroom with two toilets and two sinks.  Full scopes of work (demolition, framing, supply

and drain line plumbing, fixtures, lighting, painting, etc) for each of these scenarios were then developed and priced, resulting in estimates for the four modifications. These four estimates were then combined in a weighted average according to the frequency of each modification, to result in a single average modification cost for this standard.

Quantities/scales of scope of work used here are averages and were determined using information from the individual programs. However, when quantitative information could not be reasonably gathered, (i.e. linear footage of ductwork within a program) a conceptual prototype was used. The prototype was defined based on the average enrollment of the sample and application of the necessary square footage ratios and ancillary spaces (hallways, bathrooms, office, storage, etc). Costs were estimated only for the program space and may not include an entire system. For example, standard 5.9.C.1.a was used to determine if ventilation systems were in a safe, operable condition. Ventilation systems at several programs did not meet this standard and costs were estimated to clean only that ductwork serving the program space, although the same ductwork might continue or extend beyond the program space to serve other portions of a building or facility.

In some instances, a finding of 'does not meet the standard' during the physical review of the program space resulted in no subsequent scope of work or cost estimates being developed. Compliance with the standard in these situations typically involved organizational or housekeeping issues such as the rearrangement of furniture within a classroom or improvements/modifications that were viewed as being easily addressed by program staff.

In order to avoid duplication of costs, each scope of work was analyzed to determine if there were instances where making the modifications required for one standard would also result in a subsequent standard being met. Where this occurred, no separate cost was included for modifications for that subsequent standard. For example, Standard 5.18.3.b1 was used to determine whether programs had windows from the activity rooms to the outside. Standard 5.18.3.a quantified this by saying that there should be a direct line of sight to the outdoors from 70% of the floor areas of classrooms. We found that programs that did not have windows in all activity rooms also did not meet the day lighting threshold. Therefore, if modifications were made to meet standard 5.18.3.a, standard 5.18.3.b1 would also be met, so a separate cost estimate was not required.

When the same scope of work was determined to be necessary for two separate standards, costs were only applied once. For example, there are Regulatory and Professional Standards (5.9.1.a and 5.9.2.a, respectively) that address the condition of flooring. If the flooring in a program did not meet both 5.9.1.a and 5.9.2.a, only the Regulatory Standards cost was shown, as replacing the flooring would be the necessary modification to meet each standard. However, where it was found that flooring did met the Regulatory Standards but not the Professional Standards, a cost was shown in Professional Standards for that program.

In other cases, the modification of one standard could be included in the specifications of another standard. For example, accessibility item number 84 states that there are to be two 42 inch long grab bars at the water closet in an accessible children's restroom. Item number 85 states that the side grab bar should be no more than 12 inches from the corner of the wall. If both standards were not met (no grab bars in place) it is assumed that the installation required for Item 84 would also specify the distance required for compliance with Item 85 and therefore no cost would be shown for Item 85. Costs for Item 85 would only be shown if grab bars were already in place (Item 84 was met) but not located in the correct position.

The estimates per standard shown in Appendix A and B represent the average cost, as derived from an analysis of the sampled program spaces, to complete a specific scope of work in order to comply with a specific standard and do not include regionalization factors. When costs were applied to individual programs, scopes of work that included labor had a regionalization factor[13] applied to the average cost. The regionally-adjusted costs were totaled to create the numbers used in the Findings section of this report. Excluded from the totals in the findings are costs for items such as design fees, permits, and bonding.

The study calculated current costs for the programs/facilities, as they were at the time of the visit, to meet the standards evaluated in this study. Costs were not calculated for a reserve or maintenance fund for items that will need eventual replacement – furniture, heating systems, roofs, etc. Primary sources referenced as part of the cost development for the study include R.S. Means, Lakeshore Learning, Kaplan Early Learning Company, and Playworld Systems.

As average costs for repairs, replacements, and/or modifications needed to comply with a specific standard, the projected costs presented here are not meant to be, nor should they be viewed as being, specific to any particular program space contained in the sample. The variability of retrofit work coupled with the existing location and condition of the specific program spaces included in the sample could add to the actual costs for any indicated scope of work. Furthermore, site conditions and/or adaptability of the program space may prevent the completion of many of the anticipated scopes of work, although the cost to complete a specific scope of work at that particular program space has still been included as part of the study.

## Findings

The findings are organized into three sections: a description of the sample, the results of the site visits, and cost estimates to address identified problem areas.

### *Sample Description*

The sample included 58 ECE programs and 40 OST programs. Among the ECE programs, 91% accepted preschoolers, 53% accepted toddlers, and 40% accepted infants. The average capacity was 57.3 preschoolers, 12.2 toddlers and 5.9 infants. Among OST programs, the average capacity was 43.7 school-age children. The ECE programs had been located at their current location between 3 and 56 years and the OST programs between 1 and 70 years.

| Table 1. Property Type | | |
|---|---|---|
| Property Type | ECE | OST |
| Community Buildings | 12.1% | 50.0% |
| Former School Buildings | 8.6% | 2.5% |
| Housing Developments | 10.3% | 5.0% |
| Residential Property | 6.9% | 2.5% |
| Commercial Property | 29.3% | 7.5% |
| Religious Buildings | 10.3% | 20.0% |
| Buildings Designed for Child Care | 13.8% | 7.5% |

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[13] From *RS Means 2009*, regionalization factors were calculated as follows: Region 1 urban communities (such as Springfield, Chicopee, and Holyoke) 1.01 and "rural" communities (Pittsfield and Greenfield) 0.9875, Region 2 – Fitchburg, Worcester – 1.0555, Region 3 – Lawrence, Lowell – 1.094, Region 5 – Brockton, Fall River, New Bedford – 1.075, and Regions 4 and 6 – Cambridge and Boston, 1.154.

Programs can be located in a range of buildings or properties (see Table 1). OST programs were most frequently located in community buildings, such as YMCAs (50%), while ECE programs were most likely to be found in storefronts or other commercial property (29.3%).

Early childhood programs were more likely than OST programs to be part of a multi-site child care organization, while OST programs were more likely to be part of a larger organization that also provides goods and services other than child care, such as a YMCA (see Table 2).

**Table 2. Organization Type**

| | ECE | OST |
|---|---|---|
| Part of a larger child care organization that delivers child care in more than one site | 45.65% | 18.18% |
| Part of a larger organization that provides goods and services other than child care (such as a YMCA) | 26.09% | 54.55% |
| Single site (Located at one site or address only; only provides child care) | 28.26% | 27.27% |

The differences between ECE and OST are significant at $p < .001$, $X^2 = 43.20$.

OST programs are more likely to be located in buildings owned by the program or its larger organization, while ECE programs are more likely to rent (see Table 3). In addition, 12% of ECE programs and 13% of OST programs are in rent-free space, that is, they do not own the building and they do not pay rent to the owner.

**Table 3. Building Ownership**

| | ECE | OST |
|---|---|---|
| Own | 33.33% | 54.17% |
| Rent | 54.76% | 33.33% |
| Rent-free | 11.90% | 12.50% |

Programs were asked about their revenue sources. Based on responses from 39 ECE programs and 22 OST programs, Table 4 summarizes the average proportion of revenues from each source. The majority of programs relied heavily on government subsidies, or other government funds (see Table 4). Three-quarters (74%) of ECE programs, and 55% of OST programs, receive at least half of their revenues from government subsidies. However, parent fees contribute an average of 14% of the revenue for ECE programs and 16% of revenues for OST programs.

**Table 4. Revenue Profiles**

| Profile | ECE | OST |
|---|---|---|
| N | 39 | 22 |
| Govt child care subsidies (vouchers, contracts, Head Start) | 68.8% | 52.0% |
| Govt quality improvement grants (UPK, School Age Quality Grants, Community Partnerships) | 5.2% | 3.9% |
| Other govt funds (e.g., food program) | 6.2% | 4.9% |
| Parent Fees | 14.3% | 15.6% |
| Foundations and corporations | 4.6% | 10.9% |
| Other revenue sources | 3.7% | 11.2% |

**Program-Identified Needs**

While three-quarters (78%) of ECE programs and 71% of OST programs have made some repairs in the past year, two-thirds of programs reported that they have put off repairs in the past year because of lack of funds. About half of the programs reported that they included an item in their budgets for replacement reserve and maintenance. When asked about the types of facilities costs they currently pay, or about other recommended improvements to the facility, programs offered a variety of responses. Among the most common concerns were problems with heating/ventilation/air conditioning (HVAC), problems with the outdoor playground, the need for more storage, and concerns about the maintenance and repair of doors, walls, ceilings and roofs.

## Results from the Site Visits

The site visits assessed 76 *Regulatory Standards* items *(*complies with Massachusetts state regulations, including licensure, building codes, etc), 59 *Professional Standards* items (meets Professional Association Standards and guidelines) and 132 *Best Practices* items (follows best practice guidelines). Each item was rated as to whether it was not observed at the visit, not applicable to this particular program, met the standard or did not meet the standard.

### *Strengths*

Among the 76 Regulatory Standards items, 42% of programs met all or almost all (90% or more) of the items, and almost all programs met 80% of the items (see Table 6). For example, all programs provided egress doors or in other ways complied with Standard 5.5.1.b, "Except as specifically permitted by 780 CMR 1008.1 egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort. (780 CMR 1008.1.8)." All programs provided adequate classroom space to accommodate a variety of activities, and to accommodate all children who are present playing individually, together, and in small or large groups (Standard 6.1.1.a) and appropriate eating space for all children (Standard 6.12.1.a). All programs provided a separate mat, cot, etc. for each child (Standard 6.17.1.a), and, in programs with infants, cribs with firm, properly fitted mattresses with clean coverings (Standard 6.17.1.f), and with slats on cribs are no more than 2- 3/8 inches apart (Standard 6.17.1.g).

Among the 59 Professional Standards items, almost all of the programs met at least half of the relevant Professional Standards items, and one-fifth (20%) of the programs met almost all (90% or more) of the items. Almost all programs provided a welcoming setting (Standard 6.1.2.h), clear classroom pathways that allowed children to move from one area to another without disturbing other children's work and play (Standard 6.6.2.a). Almost all programs had a minimum of three interest areas in the classrooms (Standard 6.1.2.b) and provided places for displaying children's work (Standard 6.11.2.a). Almost all programs provided toilets, drinking water, and hand-washing facilities within 40 feet of the indoor areas that children use (Standard 6.4.2.a).

Among the 132 Best Practices items, almost all (89%) of the programs met at least half of the Best Practices standards. For example, the furniture in 86% of the programs met Standard 6.13.3.a, "No sharp edges within children's areas. All corners on trim, counters, partitions, and shelving must have rounded edges." In addition, 84% of the programs provided adequate ventilation to "prevent indoor $CO_2$ levels from exceeding outdoor levels by more than 700 parts per million (ppm), as described in LEED Version 2.0" (Standard 5.9.C.3.c).

**Table 6. Proportion of Programs Meeting Standards on Items**

| | Met Standards on 95% or more of Items | Met Standards on 90% or more of Items | Met Standards on 80% or more of Items | Met Standards on 50% or more of Items |
|---|---|---|---|---|
| Regulatory Standards | 11% | 42% | 91% | 100% |
| Professional Standards | 6% | 20% | 64% | 98% |
| Best Practices | - | - | 3% | 89% |

### *Problem Areas*

While this is good news, there are problem areas that need to be addressed to ensure the high quality facilities necessary for ECE and OST programs; the problem areas are found in aspects of the building envelope and systems, the child activity space, the adult activity space and the outdoor space and activities. We address the problem areas under each of the relevant Standards.

**FACILITIES STANDARD 5. ENVELOPE & SYSTEMS:** *The facility is safe, secure and accessible. The external and internal envelope and structures (roof, ceilings, doors, walls, floors, windows, exits, stairways) are in good repair and well-maintained. There is sufficient capacity in the electrical, heating and cooling, plumbing, fire, ventilation, lighting and water systems to meet all regulations and ensure the comfort and safety of building occupants.*

**Regulatory Standards: Complies with State regulations (licensure, building codes, etc).** We found that more than half of ECE programs did not meet Regulatory Standards on safety measures for electrical outlets (see Table 7). In addition, 9%-26% of all programs did not maintain exterior walls, floors, windows and roofs "in a safe, operable and sanitary condition." Windows are a particular area of concern, with 18% of programs in buildings that did not have screens in good repair on all windows used for ventilation, and 15% of programs in buildings whose windows did not meet safety standards for window design to prevent injury to children (see Table 7).

**Professional Standards: Professional association standards.** The Professional Standards for building security requires that, "If emergency exits lead to potentially unsafe areas for children (such as a busy street) alarms or other signaling devices shall be installed on these exit doors to alert the staff in case a child attempts to leave. (NHSPS 5.023)." Over half (58%) of all programs were in buildings that did not provide signaling devices on emergency exits that lead to potentially unsafe areas.

**Best Practices.** Best Practices standards for ventilation require that programs locate air returns over diaper and toilet areas and that the ventilation system be sufficient to prevent indoor $CO_2$ levels from exceeding outdoor levels by more than 700 parts per million (ppm), as described in Leadership Energy and Environmental Design (LEED) Version 2.0. About half (45%) of ECE programs did not have air returns over diaper and toilet areas; 16% of all programs did not have adequate ventilation of $CO_2$.

| Table 7. ENVELOPE and SYSTEMS. Percent of all programs that did not meet standards on specific items. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Assessment Items** | **All** | **ECE** | **OST** | **$X^2$** |
| **N programs** | **98** | **58** | **40** | |
| **5.4 Electrical System and Electrical Outlets** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| a. All electrical outlets within the reach of children younger than school age must be made inaccessible by use of a safety device or covering that prevents access to the receptacle openings.  If the covering is a shock stop, it must be of adequate size to prevent a choking hazard. (606 CMR 7.07 (10o)) | N/A | 51.72% | N/A | N/A |
| **5.6 Exterior Walls** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| a. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein, which are regulated by 780 CMR shall be maintained in a safe, operable and sanitary condition (780 CMR 103.1) | 15.31% | 20.69% | 7.50% | NS |
| **5.8 Floors** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| a. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein, which are regulated by 780 CMR shall be maintained in a safe, operable and sanitary condition. (780 CMR 103.1) | 25.51% | 27.59% | 22.50% | NS |
| **5.11 Roof** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| a. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by 780 CMR shall be maintained is a safe, operable and sanitary condition. (780 CMR 103.1) | 19.39% | 18.97% | 20.0% | NS |
| **5.13 Security** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| a. If emergency exits lead to potentially unsafe areas for children (such as a busy street) alarms or other signaling devices shall be installed on these exit doors to alert the staff in case a child attempts to leave. (NHSPS 5.023) | 58.16% | 55.17% | 62.50% | NS |
| **5.9C Ventilation** | | | | |
| **Best Practices** | | | | |
| b. Locate air return over diaper and toilet areas.  (GSA 10.9.2) | 30.61% | 44.83% | 10.0% | 13.52*** |
| c. … prevent indoor $CO_2$ levels from exceeding outdoor levels by more than 700 parts per million (ppm), as described in LEED Version 2.0. (GSA 10.1.16) | 16.33% | 20.69% | 10.0% | NS |
| **5.18 Windows** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| a. All windows used for ventilation must include screens in good repair. (606 CMR 7.07 (10h)) | 18.37% | 15.52% | 22.50% | NS |
| b. Windows and glass doors must be constructed, adapted, or adjusted through the use of window guards or other means to prevent injury to children (606 CMR 7.07 (10h)) | 15.31% | 22.41% | 5.0% | 5.54* |
| c. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by 780 CMR shall be maintained in a safe, operable and sanitary condition. (780 CMR 103.1) | 9.18% | 13.79% | 2.50% | NS |

| **Table 7. ENVELOPE and SYSTEMS.** Percent of all programs that did not meet standards on specific items. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Assessment Items** | **All** | **ECE** | **OST** | **$X^2$** |
| **N programs** | **98** | **58** | **40** | |
| **Best Practices** | | | | |
| b. Provide windows from activity rooms to the outside [b1] (DOD 7-1.3) | 21.43% | 13.79% | 32.50% | 4.92* |
| b. Provide windows from ... activity rooms to corridors.[b2] (DOD 7-1.3) | 42.86% | 36.21% | 52.50% | NS |

Note: Base for percents includes N/A items and Not Seen items.
* $p < .05$, ** $p < .01$, *** $p < .001$

**FACILITIES STANDARD 6. CHILD ACTIVITY SPACE:** *The facility provides sufficient child activity space designed to support program activities, including educational activities, hygiene and routine care. The space is divided into zones for messy, quiet, and active activities. It welcomes and engages children and youth and makes them feel secure and comfortable.*

*Indoor Activity Space.* State regulations require a minimum of 35 square feet of activity space per child. (606 CMR 7.07 (15c). Almost all programs met this Regulatory Standard. The Professional Standards for indoor activity space size for OST programs require approximately 45 square feet per child or youth for small group and enrichment activities such as woodworking, arts and crafts, and science experiments, and approximately 35 square feet per child or youth for quiet activities such as homework, reading, or holding club meetings. Almost half of OST programs did not meet these standards (see Table 8).

*Bathrooms.* State regulations (Regulatory Standards) require adequate bathrooms for programs. We found that 20% of OST programs did not have enough toilets and sinks for the number of children in the program. In addition, 33% of ECE programs did not have toilet facilities that provided age-appropriate privacy for the children enrolled in the program. Finally, 48% of ECE programs and 38% of OST programs did not have bathrooms that were readily accessible to all children, including children with disabilities.

Best Practices standards for bathrooms recommend a minimum of two toilets and two child-height hand washing sinks within each classroom area for toddlers and preschoolers, with never less than one toilet, one lavatory and one drinking fountain for every 12 children who will use them. More than half (62%) of ECE programs did not meet this Best Practices standard.

*Classroom Sinks.* The Professional Standards for classroom sinks requires that the hand-washing sinks are accessible to staff and children, with step stools provided if needed. Eighteen percent of OST programs did not meet this standard.

*Diapering.* The Professional Standards for diapering requires that each changing area be separated by a partial wall or located at least three feet from other areas that children use and that it be used exclusively for one designated group of children. Ten percent of ECE programs did not meet this standard.

| Table 8. CHILD ACTIVITY SPACE. Percent of all programs that did not meet standards on specific items. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Assessment Items** | **All** | **ECE** | **OST** | **$X^2$** |
| **6.2 Activity Space Size** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| b. (OST only) Approximately 45 square feet per child or youth for small group and enrichment activities such as woodworking, arts and crafts, and science experiments. (COA ASP-PS 6.02) | N/A | N/A | 47.50% | N/A |
| c. (OST only) Approximately 35 square feet per child or youth for quiet activities such as homework, reading, or holding club meetings. (COA ASP-PS 6.02) | N/A | N/A | 47.50% | N/A |
| **6.4 Children's Bathrooms** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| e. The licensee must maintain a ratio of at least one toilet and sink in one or more well-ventilated bathrooms for every 20 children. (606 CMR 7.07 (16 d1)) | 10.20% | 3.45% | 20.0% | 7.08** |
| f. Toilet facilities must afford adequate privacy appropriate to the ages of children enrolled in the program. (606 CMR 7.07 (16 d3)) | 20.41% | 32.76% | 2.50% | 13.34*** |
| g. Bathrooms must be in close proximity to children's activity space. (606 CMR 7.07 (16 d4a))[14] | 6.12% | 5.17% | 7.50% | NS |
| h. Bathrooms must be readily accessible to all children, including children with disabilities. (606 CMR 7.07 (16 d4a)) | 43.88% | 48.28% | 37.50% | NS |
| **Best Practices** | | | | |
| a. [for toddlers and preschoolers] A minimum of two toilets and two child-height hand washing sinks within each classroom area that uses the toileting facility, with never less than one toilet, one lavatory and one drinking fountain for every 12 children who will use them (where allowed by licensing). Note: two classrooms may share one toilet area. (GSA 7.6.4) | N/A | 62.07% | N/A | N/A |
| **6.7 Classroom Sink(s)** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| c. The hand-washing sinks are accessible to staff and children (step stools if needed). (NAEYC 9C.05) | 8.16% | 1.72% | 17.50% | 7.86** |
| **Best Practices** | | | | |
| a. ...Provide an adult height art sink in all toddler and preschool classrooms at 865 mm [34 inches]. (GSA 7.6.3) | N/A | 70.69% | N/A | N/A |
| a. For pre-school and school-age children the [children's art] sink height should be 650 mm [25.6 inches]. (GSA 7.6.3) | 69.39% | 70.69% | 67.50% | NS |
| a. Provide sheet impervious floor coverings with sealed seams and using a floor drain in this [art] area, if feasible. (GSA 7.6.3) | 71.43% | 75.86% | 65.0% | NS |
| b. Provide one paper towel dispenser per sink area. (DOD 7-2.1.2.4) | 11.22% | 5.17% | 20.0% | 5.22* |

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[14] "close proximity" was defined as less than 50 feet from activity space for the assessment. The Professional Standards Standard for 6.4 Children's Bathrooms sets a stricter standard, "6.4.2.a. Toilets, drinking water, and hand-washing facilities are within 40 feet of the indoor areas that children use. (NAEYC 9C.05)." Four additional programs did not meet the 40-foot standard.

| Table 8. CHILD ACTIVITY SPACE. Percent of all programs that did not meet standards on specific items. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Assessment Items** | **All** | **ECE** | **OST** | **$X^2$** |
| **6.10 Diapering (ECE only)** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| b. Each changing area is separated by a partial wall or is located at least three feet from other areas that children use and is used exclusively for one designated group of children. (NAEYC 5.A.08h). | N/A | 10.34% | N/A | N/A |
| **6.13 Furniture and Built-Ins** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| b. All play equipment, and structures must be free of entrapment hazards. (606 CMR 7.07 (13d)) [defined as no openings between 3.5" – 9" in width for the assessment] | N/A | 50.0% | N/A | N/A |
| **6.15 Multi-Purpose or Gross Motor Room** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| a. When outdoor opportunities for large-motor activities are not possible because of conditions, the program provides similar activities inside. (NAEYC 5.A.06b) | 35.71% | 31.03% | 42.50% | NS |

Note: Base for percents includes N/A items and Not Seen items.
* $p < .05$, ** $p < .01$, *** $p < .001$

***Furniture and Built-Ins.*** State regulations (Regulatory Standards) require that all play equipment and structures be free of entrapment hazards. We found that half of ECE programs had equipment with entrapment hazards.

***Multi-Purpose or Gross Motor Room.*** The Professional Standards for a gross motor room requires that, when outdoor opportunities for large-motor activities are not possible because of conditions, the program provides similar activities inside. One-third of all programs did not have a separate indoor room for gross motor activity.

**FACILITIES STANDARD 7. ADULT ACTIVITY SPACE:** *The facility includes space for reception and administrative offices, staff needs for meeting, planning and relaxation, and space for parents. It is equipped with furnishings, appropriate technology and other resources to support a professional staff.*

**Regulatory Standards: Complies with State regulations (licensure, building codes, etc).** The Regulatory Standards for a staff room requires a separate space designated for administrative duties and educator-parent conferences. We found that almost half (48%) of OST programs and 14% of ECE programs did not provide such space.

**Professional Standards: Professional association standards.** The Professional Standards for a staff room recommends that the program provide a secure place for staff to store their personal belongings; one-third (39%) of programs did not do so. The Professional Standards also recommends an area for planning or preparing materials that is separate from the children's areas; 45% of OST programs and 18% of ECE programs did not have separate space for planning and preparation. Finally, 15% of all programs did not provide an adult-size bathroom for staff in program space.

| Table 9. ADULT ACTIVITY SPACE. Percent of all programs that did not meet standards on specific items. Weighted Data. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Assessment Items** | **All** | **ECE** | **OST** | **$X^2$** |
| **7.3 Staff Room** | | | | |
| **Regulatory Standards: Complies with State regulations (licensure, building codes, etc)** | | | | |
| a. There must be designated space, separate from children's play or rest areas, for administrative duties and educator and parent conferences. (606 CMR 7.07 (16c2)) | 27.55% | 13.79% | 47.50% | 13.48*** |
| **Professional Standards: Professional association standards** | | | | |
| b. The work environment includes: a place for adults to take a break from children [b1]. (NAEYC 9C.02) | 31.63% | 17.24% | 52.50% | 13.61*** |
| b. a secure place for staff to store their personal belongings [b2]. | 38.78% | 31.03% | 50.0% | NS |
| b. an administrative area for planning or preparing materials that is separate from children's areas [b3]. | 29.59% | 18.97% | 45.0% | 7.70** |
| b. an adult sized bathroom [b4]. | 14.29% | 12.07% | 17.50% | NS |
| **Best Practices** | | | | |
| a. Buffer visually and acoustically from children's activity rooms and public area and provide a vision panel in the door. (DOD 7-5.2) | 38.78% | 41.38% | 35.0% | NS |
| c. Provide space for comfortable seating (e.g., sofa and lounge chairs) for about 25 percent of staff. (DOD 4-5.4) | 35.71% | 29.31% | 45.0% | NS |
| d. Provide bulletin boards. (DOD 4-5.5) | 27.55% | 22.41% | 35.0% | NS |
| f. Provide a sink and space for a coffee machine, refrigerator and microwave. Use solid surface counter tops. (DOD 4-5.7) | 62.24% | 55.17% | 72.50% | NS |
| g. Provide space for staff work, development of program materials, and utilization for staff training library and resources. (DOD 4-6) | 36.73% | 25.86% | 52.50% | 7.23** |
| h. Provide work counter with storage above and below counter. Coordinate location of electrical receptacles with counter heights. (DOD 4-6.3) | 52.04% | 44.83% | 62.50% | NS |
| l. Provide shelving and closet space for staff training resources. (DOD 4-6.4) | 28.57% | 18.97% | 42.50% | 6.42* |
| j. Provide additional equipment including: Personal Computer(s) With Internet Access [1/4 staff, unless computers in classrooms], Printers and scanners [1/20 staff], Telephone, Wall clock. (DOD 4-6.9) | 64.29% | 67.24% | 60.0% | NS |
| o. Provide storage for training materials and AV cart. (DOD Youth Table 4-3.2) | 39.80% | 32.76% | 50.0% | NS |
| p. Adult toilet outside toddler and preschool classrooms. (Head Start 7.7.2). q. Adult toilet in or near infant classrooms. (Head Start 7.7.2) | N/A | 20.69% | N/A | N/A |

Note: Base for percents includes N/A items and Not Seen items.
* $p < .05$, ** $p < .01$, *** $p < .001$

**Best Practices.** Over one-third of programs did not provide space for staff work, development of program materials, and utilization for staff training library and resources, or enough comfortable seating for about 25% of staff. About 25% of programs did not provide shelving and closet space for staff training resources, or bulletin boards for staff use. Best Practices standards for the staff room also recommend that the staff room provide additional resources, including a sink and space for a coffee machine, refrigerator and microwave, a work counter with storage above and below counter, additional equipment including personal computer(s) with internet access (unless computers in classrooms), printers and a telephone. Over half of the programs did not offer a staff room with these resources. Finally, Best Practices standards

recommend adult toilets located outside of toddler and preschool classrooms, and in or near infant classrooms; 21% of ECE programs did not meet this standard.

**FACILITIES STANDARD 10. OUTDOOR SPACE & ACTIVITIES:** The facility provides sufficient outdoor space and equipment suitable for the ages of the children in the program. The space and equipment offer access to nature and natural materials, opportunities for healthy physical activities and learning.

*Age-Appropriate Design and Activities.* Professional Standards professional association standards require that there be a clear separation for the play areas for children of different ages; 20% of programs did not meet this standard.

*Active Outdoor Play.* One-third (37%) of programs had on-site sole use outdoor play space, and another 20% share on-site play space. One in ten programs did not have outdoor play space, and 32% used public playgrounds; these public playgrounds were not assessed as part of this survey.

Professional Standards require that there be clear separations for the play areas for infants, preschoolers and school-age children; 12% of programs did not meet this standard. Professional Standards for OST programs require that programs provide a large field area, for structured sports activities such as kickball; 23% of all OST programs did not have a large field area. Professional Standards also require that OST programs have an outdoor play area with a hard surface for basketball, rollerblading, bike riding and other activities; 28% of OST programs did have a hard surface play area.

*Sand and Water Play.* Professional Standards professional association standards require that sand play areas shall be distinct from landing areas for slides or other equipment; 4% of programs did not have separate sand play areas. Professional Standards also require that sandboxes be covered with a lid or other covering when they are not in use; 3% of programs did not meet this standard.

*Fencing and Barriers.* Professional Standards professional association standards require that fencing be constructed to discourage climbing; one-third (37%) of programs did not meet this standard. Best Practices standards recommend that gates be self-closing and latching, and that children's fingers be protected from pinching or crushing on gate hinge spaces; 47% of ECE programs and 18% of OST programs did not meet this standard.

*Natural Elements and Landscaping.* Professional Standards professional association standards require that outdoor play areas accommodate exploration of natural environment, including a variety of natural and manufactured surfaces, and areas with natural materials such as nonpoisonous plants, shrubs, and trees. About one-fifth (19%) of all programs did not meet this standard.

*Size, Layout, Circulation.* State regulations (Regulatory Standards) require that, "The licensee must maintain, or have access to, an outdoor play area of at least 75 square feet per child who is outside at any one time;" 25% of OST programs and 7% of ECE programs did not meet this requirement.

*Outdoor Surfacing.* State regulations (Regulatory Standards) require that, "The use zones under and around swings, slides and climbing structures must be covered with an adequate depth (9 inches) of an impact absorbing material, in accordance with EEC policy; 2% of ECE

programs did not meet this requirement.[15]

| Table 10. OUTDOOR SPACE AND ACTIVITIES. Percent of all programs that did not meet standards on specific items. Weighted Data. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Assessment Items** | **All** | **ECE** | **OST** | **$X^2$** |
| **10.2 Age-Appropriate Design and Activities** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| c. There should be a clear separation for the play areas for children ages 0-2, 2-5, and 5-12. (NPPS and CPSC 2.2.2) | 12.24% | 10.34% | 15.0% | NS |
| **10.4 Active Outdoor Play** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| c. OST only: There is a large field area, for structured sports activities such as kickball. (COA ASP-PS 7.01) | N/A | N/A | 22.50% | N/A |
| d. OST only: There is a hard surface for basketball, rollerblading, bike riding and other activities. (COA ASP-PS 7.01) | N/A | N/A | 27.50% | N/A |
| **10.6 Sand and Water Play** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| a. Sand play areas shall be distinct from landing areas for slides or other equipment.(NHSPS, 5.180) | 4.08% | 5.17% | 2.50% | NS |
| c. Sandboxes shall be covered with a lid or other covering when they are not in use. (NHSPS, 5.180) | 3.06% | 3.45% | 2.50% | NS |
| **10.8 Fencing and Barriers** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| b. The fencing shall be constructed to discourage climbing. (NHSPS, 5.178) | 36.73% | 43.10% | 27.50% | NS |
| **Best Practices** | | | | |
| d. Gates must be self-closing and latching. Children's fingers must be protected from pinching or crushing on gate hinge spaces. (GSA 6.7.1) | 34.69% | 46.55% | 17.50% | 8.82** |
| **10.10 Natural Elements and Landscaping** | | | | |
| **Professional Standards: Professional association standards** | | | | |
| a. Outdoor play areas... accommodate exploration of natural environment, including a variety of natural and manufactured surfaces, and areas with natural materials such as nonpoisonous plants, shrubs, and trees. (NAEYC 9B.01c) | 19.39% | 22.41% | 15.0% | NS |
| **10.11 Size, Layout, Circulation** | | | | |
| | | | | |
| a. The licensee must maintain, or have access to, an outdoor play area of at least 75 square feet per child who is outside at any one time.  (606 CMR, 7.07 (7)) | 14.29% | 6.90% | 25.0% | 6.34* |
| **10.13 Outdoor Surfacing** | | | | |
| **Regulatory Standards: Complies with State regulations** | | | | |
| c. The use zones under and around swings, slides and climbing structures must be covered with an adequate depth (9 inches) of an impact absorbing material, in accordance with EEC policy. (606 CMR 7.07 (16e)) | 1.02% | 1.72% | 0.0% | NS |

Note: Base for percents includes N/A items and Not Seen items.
* $p < .05$, ** $p < .01$, *** $p < .001$

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[15] This item was not applicable for 82% of OST programs, and for 37% of ECE programs.

## Property Type

As noted above, programs were located in a variety of property types, including community buildings, former schools, housing developments or residential property, commercial property, religious buildings, and buildings designed for child care. We examined whether certain building types were more likely to meet, or not meet, Regulatory Standards, Professional Standards or Best Practices. We found that there were no significant differences across property types for Professional Standards. However, programs in buildings that were in commercial space or community buildings or that were designed for child care were more likely to meet the Regulatory Standards items than were programs in religious buildings (see Table 11). In addition, programs in buildings that were designed for child care were more likely to meet the Best Practices than were programs in religious buildings, former schools or housing developments; programs in community buildings were more likely to meet Best Practices than were programs in religious buildings.

**Table 11. Proportion of Items Met, by Property Type: Means** (weighted data)

| | Community Bldg | Former School Bldg or Housing Development | Com-mercial | Religious Bldg | Designed for Childcare | F-test |
|---|---|---|---|---|---|---|
| Regulatory Standards | 89% | 87% | 90% | 83% | 91% | 3.78** |
| Professional Standards | 82% | 84% | 83% | 77% | 82% | NS |
| Best Practices | 67% | 59% | 65% | 55% | 70% | 5.11** |

$* p < .05, ** p < .01, *** p < .001$

## ACCESSIBILITY

The Children's Investment Fund seeks to ensure that children with differing abilities have access to high quality early care and education facilities as well as after school and out of school time facilities. We support the intent of the Massachusetts Architectural Access Board "… to provide persons with disabilities full, free and safe use of all buildings and facilities so that all such persons may have the educational, living and recreational opportunities necessary to be as self-sufficient as possible and to assume full responsibilities as citizens." (521 CMR 2.2).

While neither federal nor Massachusetts regulations require that all early care and education and out-of-school time facilities be fully accessible, these regulations do require compliance with certain standards depending on the extent of the facility work and whether it is new construction/additions, or alterations to existing buildings.  The relevant requirements are found in UFAS 4 and 521 CMR. The Americans with Disabilities Act requires that businesses make reasonable accommodations to individuals with a disability, unless the entity can demonstrate that the accommodation would impose an undue hardship on the operation of the business, (Title 42, Chapter 126, Section 12112). The Massachusetts Department of Early Education and Care also requires that "The licensee must accept applications and make reasonable accommodations to welcome or continue to serve any child with a disability" (606 CMR 7.04 (13)). Early education and out-school-time providers should consult with an architect to determine which, if any, accessibility requirements apply to their particular project.

The Accessibility Appendix of the *Program Facility Standards For Early Care and Education  & Out-of-School-Time Programs* contains accessibility standards, taken from the Uniform Federal Accessibility Standards (UFAS), which were developed under the Architectural Barriers Act, and used by the Department of Defense and other federal agencies, and are required for all facilities

designed, built, or renovated with federal funds.[16] The UFAS standards are also generally consistent with the standards published by the non-governmental American National Standards Institute (ANSI).

As part of the statewide facilities survey, On-Site Insight also surveyed accessibility of each facility, using their *Section 504/Mass AAB Facility Review Book*, which is based on the UFAS. A summary of the results of the Accessibility Survey of the 98 programs can be found in Appendix B. We examined specific accessibility items of interest for this report; the numbers refer to the numbers used in Appendix B.

## Parking and Doors

One-fifth of programs did not have enough accessible parking, and almost one-quarter did not have an accessible interior route through the building. Three-quarters of programs did not have a sign indicating the location of an accessible entrance to the building. Almost half of programs had interior doors with the wrong types of handles, and about one-third of the buildings did not have adequate signage on interior doors.

| Table 12. Accessibility: Parking and Doors. Percent of all programs that did not meet standards on specific items. Weighted Data. | | | | |
|---|---|---|---|---|
| | % did not meet standard | | | |
| | All | ECE | OST | $X^2$ |
| **Parking** | | | | |
| 13. one accessible space for every 25 spaces up to 500. | 19.39% | 20.69% | 17.50% | NS |
| **Entrance Doors** | | | | |
| 51. Any entrance/exit of a facility not accessible by persons in wheelchairs shall have a sign clearly indicating the location of the accessible entrance/exit. | 74.49% | 72.41% | 77.50% | NS |
| **Interior Circulation** | | | | |
| 54. At least one accessible route complying with 4.3 shall connect accessible building and facility entrances with all accessible spaces and elements within the building or facility. (UFAS 4.1.2(1)) | 23.47% | 22.41% | 25.00% | NS |
| **Interior Doors** | | | | |
| 68. Lever operated, push-type and u-shaped handles are acceptable designs.  (UFAS 4.13.9). Hardware must be located 36-48 in above the floor. (521 CMR 26.11.2) | 41.84% | 41.38% | 42.50% | NS |
| 73. Must have signs clearly indicating the location of accessible entrance/exit.  (521 CMR 25.6) | 32.65% | 27.59% | 40.0% | NS |

Note: Base for percents includes N/A items and Not Seen items.

## Elevators

Two-thirds of the programs in the sample were in buildings that were not required to have elevators. Fewer than 10% of programs were in buildings with elevators that did not meet the standards for the location of hall lanterns and the presence of an audible signal.

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[16] The Massachusetts standards from the Architectural Access Board (AAB) are closely aligned with the federal standards; the Program Facilities Standards include those Massachusetts standards that differ from or supplement the UFAS standards.

| Table 13. Accessibility: Elevators. Percent of all programs that did not meet standards on specific items. Weighted Data. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Elevators** | **All** | **ECE** | **OST** | **$X^2$** |
| 191. Hall lantern fixtures shall be mounted so that their centerline is at least 72 inches (1830mm) above the lobby floor. Visual elements shall be at least 2 ½ inches (64mm) in the smallest dimension. (UFAS 4.10.4 (1 and 2)) | 8.16% | 5.17% | 12.50% | NS |
| 192. audible signal shall be provided at each hoistway entrance to indicate which car is answering a call.  (UFAS 4.10.4) | 3.06% | 1.72% | 5.00% | NS |

Note: Base for percents includes N/A items and Not Seen items.

## Adult Toilets

Twelve percent of ECE programs and 18% of OST programs did not have adult-sized toilets in the program space (see Table 9).  Almost half of programs had adult toilets that did not have adequate knee clearance at the sink – see Table 14. About one-quarter of programs had adult toilets that did not have entrance doors that were fully accessible. About one-fifth of programs did not have adult toilets on an accessible route and one-quarter did not have enough space inside the toilet for wheelchairs to make a 180 degree turn.

| Table 14. Accessibility: Adult Toilets. Percent of all programs that did not meet standards on specific items. Weighted Data. | | | | |
|---|---|---|---|---|
| | **% did not meet standard** | | | |
| **Public Toilet Rooms- Adults** | **All** | **ECE** | **OST** | **$X^2$** |
| 133. Accessible toilet rooms shall be on an accessible route. (UFAS 4.17.1 and 4.22.1) | 18.37% | 24.14% | 10.00% | NS |
| 134. [Entrance] Doorways shall have a minimum clear opening of 32 inches .... (UFAS 4.13.5) & f. Handles, pulls, latches and other operating devises on accessible doors shall have a shape that is easy to operate with one hand ... (521 CMR 26.11.1 and UFAS 4.13 9)) | 26.53% | 31.03% | 20.00% | NS |
| 136. The space required for a wheelchair to make a 180 degree turn is a clear space of 60 inches (15235mm) diameter. (UFAS 4.2.3) | 21.43% | 25.86% | 15.00% | NS |
| 136. Standard accessible stalls shall be 60 inches (60" = 1524mm) wide and 72 inches (72" = 1829mm) deep.(521 CMR 30.6.1) | 6.12% | 6.90% | 5.00% | NS |
| 154.  Must provide a knee clearance of at least 29 in from the floor to the bottom of the apron. | 38.78% | 43.10% | 32.50% | NS |
| 156.  Lever-operated faucets are an acceptable design. (UFAS 4.19.5) | 10.20% | 13.79% | 5.00% | NS |

Note: Base for percents includes N/A items and Not Seen items.

**Children's Bathrooms**

Forty percent of ECE programs, and 18% of OST programs, did not have at least one accessible toilet and sink in each children's bathroom (see Table 15). About one-quarter of programs did not have accessible doorways with unobstructed turning space. The majority of OST programs (85%), and 41% of ECE programs, did not have sinks mounted with the rim no higher than 30 inches.

| Table 15. Accessibility: Children's Toilets. Percent of all programs that did not meet standards on specific items. Weighted Data. | | | | |
|---|---|---|---|---|
| | % did not meet standard | | | |
| **Public Toilet Rooms- Children** | **All** | **ECE** | **OST** | **$X^2$** |
| 76. Where children's toilet rooms are provided, at least one water closet and one sink in each location shall be accessible to children in wheelchairs, or a separate *accessible* unisex toilet room shall be provided at each location. (521 CMR 30.1.b) | 30.61% | 39.66% | 17.50% | 5.47* |
| 78. All doorways and openings that are required to be accessible shall have a clear opening of not less than 32 inches (32" = 813mm). (521 CMR 26.5)  Handles, pulls, latches and other operating devises on accessible doors shall have a shape that is easy to operate with one hand ... (521 CMR 26.11.1 and UFAS 4.13 9)) | 28.57% | 29.31% | 27.50% | NS |
| 80. An unobstructed turning space complying with 521 CMR 6.3 shall be provided within an accessible toilet room. (521 CMR 30.5) | 24.49% | 29.31% | 17.50% | NS |
| 84. The water closet shall have two grab bars, 42 inches (42" = 1067mm) long. (521 CMR 201.15) | 55.10% | 60.34% | 47.50% | NS |
| 94. Sinks shall be mounted with the rim no higher than 30 inches (30" = 762mm) above the finish floor. (521 CMR 30.16.2) | 59.18% | 41.38% | 85.00% | 18.65*** |
| 95. A clearance of at least 25 inches (25" = 635mm) above the finish floor to the bottom of the apron shall be provided. (521 CMR 30.16.2) | 36.73% | 48.28% | 20.00% | 8.14** |

Note: Base for percents includes N/A items and Not Seen items.
* $p < .05$, ** $p < .01$, *** $p < .001$

# Estimated Costs

After the responses were gathered for each program/facility, we estimated the costs for programs to make modifications to meet the guidelines set forth by the study. Meeting some of the standards may be infeasible in existing buildings due to structural issues, site logistics, and permission/use/occupancy of the site. Costs were calculated for modifications based on the assumption that they were feasible and that new spaces would be able to be defined within the existing program space (except for the construction of elevators and new gross motor space). In most instances, this would result in decreased enrollment in order to meet minimum square footage requirements. The costs calculated here are average costs and may not be appropriate for any one particular site. Some standards were not met but costs for modification were not calculated because those modifications should be handled by site staff. The study calculated current costs for the programs/facilities, as they were at the time of the visit, to meet the standards evaluated in this study. Costs were not calculated for a reserve or maintenance fund for items that will need eventual replacement – furniture, heating systems, roofs, etc.

*Bringing Programs Up to Regulatory Standards*

Five of the programs visited for the study had no costs identified for modifications to meet licensing and building code regulations in the Program Facility Standards Regulatory Standards inspection protocol.  However, the cost to bring some programs into full compliance with Regulatory Standards was over $60,000, with an average cost across the sample of $18,566. Factors that drove these costs were repairs to exterior walls, repairs or replacements of roof coverings, installation of appropriate indoor or outdoor equipment, creation of administrative and staff space, and addition of bathroom facilities. At many facilities, children's chairs, including those constructed of wood, metal/plastic, and molded plastic had head entrapment hazards and thus, replacement costs for those chairs were included. Another common safety hazard identified was the absence of (non-choke) electrical outlet covers in early childhood classrooms.

If modifications are limited to specific high priority items[17], the cost to bring programs into full compliance on priority items on Regulatory Standards was a maximum of $63,228, with an average cost of $14,450 per program. Chart 1 provides the costs for two actual programs with typical costs. Note that these programs, like the other programs in the sample, met the standards on many items (identified as "—").

Chart 1. Estimated Costs of High Priority Modifications for Actual Programs: Regulatory Standards

|  | ECE program | OST program |
|---|---|---|
| Windows: Screens (5.18.1.a) | 251.06 | — |
| Windows: Breakage Protection (5.18.1.b) | — | — |
| Windows: Good Condition (5.18.1.c) | — | — |
| Electrical: Outlet Covers (5.4.1.a) | — | — |
| Floors: Good Condition (5.8.1.a) | — | — |
| Furniture: Free of entrapments (6.13.1.b) | 1,225.74 | 1,225.74 |
| Toilets for children: Proximity (6.4.1.g) | — | — |
| Toilets for children: Privacy according to age (6.4.1.f) | — | — |
| Toilets for children: Number of toilets (6.4.1.e) | — | 7,639.55 |
| Staff Room: Separate space (7.3.1.a) | — | 4,803.00 |
| Roof: Good Condition (5.11.1.a) | — | — |
| Exterior Walls: Good Condition (5.6.1.a) | 13,095.73 | — |
| Surfacing: Fall zone (10.13.1.c) | — | — |
| Total estimated cost of modifications | $14,573.47 | $13,668.29 |

*Bringing Programs Up to Professional Standards*

Costs for full compliance with Professional Standards at some facilities exceeded $210,000, with an average cost of $76,701. Commonly needed modifications for Professional Standards compliance included upgrading heating and cooling systems,  constructing indoor gross motor space as described earlier,  paying for a certified  playground safety  inspection, and modifying playground fencing to discourage climbing.

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[17] Regulatory Standards priority items are: Windows: Screens (5.18.1.a); Windows: Breakage Protection (5.18.1.b); Windows: Good Condition (5.18.1.c); Electrical: Outlet Covers (5.4.1.a); Floors: Good Condition (5.8.1.a); Furniture: Free of entrapments (6.13.1.b); Toilets for children: Proximity (6.4.1.g); Toilets for children: Privacy according to age (6.4.1.f); Toilets for children: Number of toilets (6.4.1.e); Staff Room: Separate space (7.3.1.a); Roof: Good Condition (5.11.1.a); Exterior Walls: Good Condition (5.6.1.a); Surfacing: Fall zone (10.13.1.c)

If modifications are limited to specific high priority items[18], the cost to bring programs into full compliance on priority items on Professional Standards was a maximum of $16,618, with an average cost of $4,305 per program. Chart 2 provides the costs for two actual programs with typical costs. Note that these programs, like the other programs in the sample, met the standards on many items (identified as "—").

| Chart 2. Estimated Costs of High Priority Modifications for Actual Programs: Professional Standards | | |
| --- | --- | --- |
| | ECE program | OST program |
| Security: Door Signal (5.13.2.a) | — | — |
| Classroom sinks: Accessible sinks (6.7.2.c) | — | — |
| Diapering: Running water (6.10.2.b) | — | — |
| Staff Room: Separate space (7.3.2.b) | — | — |
| Staff Room: Storage (7.3.2.b) | 167.33 | — |
| Staff Room: Comfortable seating (7.3.2.a) | — | — |
| Staff Room: Space and surface for work (7.3.2.b) | — | — |
| Staff Room: Adult toilet (7.3.2.b) | — | — |
| Natural Elements and landscaping: Exploration (10.10.2.a) | — | — |
| Age appropriate design: Separate areas (10.2.2.c) | — | 92.32 |
| Fencing: Discourages climbing (10.8.2.b) | 3,863.93 | 3,863.93 |
| Sand and water play: Separate area (10.6.2.a) | — | 694.22 |
| Sand and water play: Covered (10.6.2.c) | — | — |
| Total estimated cost of modifications | $4,031.26 | $4,650.47 |

### Bringing Programs Up to Best Practices Standards

Costs for full compliance with Best Practices Standards reached over $400,000 at some facilities, with an average cost of $180,016. It should be noted that many of the Best Practices standards would require modifications that involve extensive and often intrusive construction. Existing conditions may prohibit full compliance with these standards at many facilities. Among those Best Practices modifications that may be infeasible at some programs or facilities is the repositioning of windows to have varying windowsill heights based on children's ages, installing a restroom with a minimum of two toilets and two sinks within each classroom, creating direct exits to the exterior from each classroom, and adding additional storage space.

If modifications are limited to specific high priority items[19], the cost to bring programs into full compliance on priority items on Best Practices was a maximum of $58,878, with an average cost of $26,521 per program. Chart 3 provides the costs for two actual programs with typical costs. Note that these programs, like other programs in the sample, met the standards on many

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[18] Professional Standards priority items are: Security: Door Signal (5.13.2.a); Classroom sinks: Accessible sinks (6.7.2.c); Diapering: Running water (6.10.2.b); Staff Room: Separate space (7.3.2.b); Staff Room: Storage (7.3.2.b); Staff Room: Comfortable seating (7.3.2.a); Staff Room: Space and surface for work (7.3.2.b); Staff Room: Adult toilet (7.3.2.b); Natural Elements and landscaping: Exploration (10.10.2.a); Age appropriate design: Separate areas (10.2.2.c); Fencing: Discourages climbing (10.8.2.b); Sand and water play: Separate area (10.6.2.a); Sand and water play: Covered (10.6.2.c)

[19] Best Practices priority items are: Ventilation: $CO_2$ Level (5.9C.3.c); Storage: SF of Storage (5.15.3.a); Windows: View from 70% of floor (5.18.3.a); Windows: Windows to halls (5.18.3.b); Classroom sinks: Adult Art Sink (6.7.3.a); Classroom sinks: Child Art Sink (6.7.3.a); Classroom sinks: Impervious flooring (6.7.3.a): Ventilation: Air return over diaper/toilet areas (5.9C.3.c); Staff Room: Separate space (7.3.3.a); Staff Room: Storage (7.3.3.b); Staff Room: Bulletin boards (7.3.3.d); Staff Room: Appliances (7.3.3.f); Staff Room: Work Counter (7.3.3.h); Staff Room: Equipment (7.3.3.j); Staff Room: Resource storage (7.3.3.i); Fencing: Gate latch (10.8.3.d)

items (identified as "—").

Chart 3. Estimated Costs of High Priority Modifications for Actual Programs with Typical Costs: Best Practices

|  | ECE program | OST program |
|---|---|---|
| Ventilation: CO2 Level (5.9C.3.c) | — | — |
| Storage: SF of Storage (5.15.3.a) | — | 4,170.26 |
| Windows: View from 70% of floor (5.18.3.a) | 7,189.41 | 7,189.41 |
| Windows: Windows to halls (5.18.3.b) | — | 3,531.82 |
| Classroom sinks: Adult Art Sink (6.7.3.a) | 7,039.28 | — |
| Classroom sinks: Child Art Sink (6.7.3.a) | 4,060.02 | 4,060.02 |
| Classroom sinks: Impervious flooring (6.7.3.a) | 3,408.95 | 3,408.95 |
| Ventilation: Air return over diaper/toilet areas (5.9C.3.c) | — | — |
| Staff Room: Separate space (7.3.3.a) | 652.01 | — |
| Staff Room: Storage (7.3.3.b) | — | 2,938.80 |
| Staff Room: Bulletin boards (7.3.3.d) | — | — |
| Staff Room: Appliances (7.3.3.f) | 3,046.96 | — |
| Staff Room: Work Counter (7.3.3.h) | — | 2,243.38 |
| Staff Room: Equipment (7.3.3.j) | 1,511.50 | 1,511.50 |
| Staff Room: Resource storage (7.3.3.i) | — | 122.00 |
| Fencing: Gate latch (10.8.3.d) | — | — |
| Total estimated cost of modifications | $26,908.14 | $26,237.14 |

### Accessibility Costs

Estimated costs for full compliance with accessibility standards exceeded $200,000 at some programs, with an average cost of $67,946. A large factor in these costs would be installation of elevators and/or chair lifts at many of the facilities. Many programs have elements that are located on several different stories or levels within the facility – therefore requiring an accessible route between floors. Another common deficiency was accessible restrooms sized appropriately for the age groups served.