

-> Fund for Quality ->

Expanding Early Childhood Education in Philadelphia

CHILDCARE CENTER DESIGN DEVELOPMENT RECOMMENDATIONS

REINVESTMENT FUND
PUBLIC HEALTH MANAGEMENT CORPORATION
JUNE 2017 - Updated June 2024



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This reference guide provides information on the planning and design of high-quality early childhood spaces that conform to the licensing regulations of the Pennsylvania Department of Human Services (DHS) and the City of Philadelphia.

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LEARNING ENVIRONMENT DESIGN OVERVIEW

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This reference guide supports the concept that a childcare center should encourage a child’s social, physical, intellectual, creative, cultural, and emotional development through play and learning in a healthy, safe, stimulating, aesthetically pleasing environment for the children and their teachers. The design of center spaces should highlight the high-quality early childhood care, education, mission, and vision of the center. This manual will provoke thought on what you may want to include in your design to develop a high-quality center, support employee development, and meet licensing requirements.

Childcare Center: A childcare facility in which seven or more children who are not related to the operator receive childcare. A childcare center must have a certificate of compliance (“license”) from the Department of Human Services (DHS) in order to legally operate.

This guide is designed to provide a current operating childcare provider or a prospective provider with information for the planning and design of early childhood spaces that conform to the licensing regulations of the Pennsylvania Department of Human Services (DHS) and the City of Philadelphia. It also provides some guidelines for on-going efficient and sustainable operations. This guide applies to providers that seek to:

- expand or renovate interior spaces in a current program
- purchase and renovate existing non-childcare facilities
- design and construct a new center
- identify strategies to reduce operating expenses.

References throughout this guide will be made to the National Association for the Education of Young Children (NAEYC), the Environment Rating Scale (ERS), and Caring for Our Children (CFOC), as well as other resources that may apply to centers operating in the Commonwealth of Pennsylvania and the City of Philadelphia. In addition to published resources, the authors and consultants experience of working in the early childhood field has contributed to many of the recommendations herein.

NOTE: Information related to the purchase or construction of a center should be reviewed with professionals such as architects, engineers, zoning officials, and other licensing agencies that have jurisdiction over childcare centers **prior** to a purchase or when planning for a construction project.

GOALS AND OBJECTIVES



The goal of this reference guide is to help current and future providers move from an idea to a completed physical space that will allow them to raise the bar in childcare centers. The guide details activities for providers to tackle their market assessment and facility preplanning, project management and design specification development, and assembling an operating plan for the project. It is segmented by topic area and is meant as a platform for further research and development by your project team and community.

Each topic area includes Best Practices and Lessons Learned that reach beyond the regulated requirements for optimizing operations and for achieving sustainability and resilience. Each topic displays standards of childcare classrooms and ancillary spaces based on the recommended design guidelines that meet and exceed the Pennsylvania and the City of Philadelphia licensing regulations for the establishment of a high-quality childcare center. In addition, standards from NAEYC, ERS, GSA, and the STARS program will be incorporated to better allow programs to achieve these expectations.

This guide was created in 2017 and updated in 2024 to incorporate best practices around environmental health, environmental sustainability, and climate resilience.

DESIGN PROCESS CONSIDERATIONS

1. Incorporate health and safety guidelines in the design to create quality environments for children with a focus on optimizing indoor air quality.
2. Promote easy accessibility to families for function, as well as provide spaces that will encourage family involvement.
3. Promote the design of adjacent childcare spaces that support the children's classrooms.
4. Provide learning spaces and common areas that accommodate the required child group sizes and staff-to-child supervision ratios.
5. Provide examples of ancillary and classroom space planning with suggested equipment content and proximities to allow for supervision of children at all times during a day.
6. Incorporate sustainable, energy-efficient, recycled, recyclable, non-toxic, durable, and biophilic (natural or nurturing connection to nature) materials in the design to be responsible stewards of the environment.
7. Incorporate Circular Economy strategies in the design and planning process to maximize resources and minimize waste – eliminate waste and pollution, circulate products and materials at their highest value, and regenerate nature.
8. Help providers think about and consider the following functions in a quality childcare center:
 - a. Activity areas that will allow children to choose from a variety of age-appropriate activities.
 - b. Location of activities within the classroom that incorporate wet and dry regions, quiet and messy spaces.

- c. Boundaries that allow for movement of children in a safe mode and that do not restrict opportunities or freedom to explore but also allow for privacy.
- d. Storage that is flexible to allow for changes in the room layout, needs of the children, and changes in the children's interests or programming changes.
- e. Equipment and materials that are high quality and non-toxic that both educate and stimulate children's play.
- g. Safe drop-off/pick-up of children and adequate parking facilities for staff and families. Consider accommodating stroller parking to facilitate walkable community pick-up and drop-off.
- h. Security at the center including secure access to the facility and playground areas.
- i. Development of either indoor and/or outdoor gross motor space with consideration of the safety and non-toxicity of surfaces and equipment and incorporates connection to nature.
- j. Adequate and extreme-heat-safe outdoor spaces with designed areas providing shade, including hard shade structures, for children to allow freedom to explore nature and play while avoiding overheating. Outdoor spaces should consider fencing, water play, and natural areas within the playground space.
- k. Dedicated and supportive spaces for staff to prepare and take breaks and to provide continuing development programming.

BEST PRACTICES FOR CHILDCARE DESIGN

1. Guide the creation of environments that encourage social, physical, intellectual, creative, cultural, and emotional development in appropriate, well-crafted, aesthetically pleasing spaces.
2. Specify control for bulk water and moisture in the building. In new construction and most major renovations asking your project team to design and construct water and vapor control layers into the wall assembly to keep water out are relatively straightforward. In minor renovations a visual inspection and use of tools such as a moisture meter will help identify where water is affecting the interior. Identifying how to solve the issue can be challenging as water moves in many ways. The key is to move it away from the building as thoroughly and quickly as possible by ensuring that the roof is solid, the gutters and leaders are contiguous and that the land is graded down and away from the foundation. See example [here](#).
3. Specify air tight construction to be able to control the quality and conditioning of the indoor environment. In new construction and in major renovations the design drawings should specify the location of the air barrier in the wall assembly and detail how to achieve a high level of air tightness. In minor renovations it is important to identify flaws in the exterior envelope that will allow moisture and air to penetrate the building. These flaws should be repaired and/or sealed. One way to test for air leakage is via a blower door test. Conducted by an energy auditor, this test will tell you how 'leaky' your building is and identify where air is moving through the wall. Sealing these leaks will reduce indoor air pollution, allow better control over indoor temperature and comfort, reduce drafts, and reduce operating expenses.
4. Provide quality light, with a prioritization on natural daylight, by task, for cognitive development. Glare can contribute to a reduction in visual comfort and perception. Fixtures with anti-glare components, such as shields and louvers, are recommended.
5. Incorporate biophilia, or connection with nature, into the design to bring nature into the interior. See resources from Bio Philly [here](#).
6. Enhance the children's perceptual awareness and provide places for wonder, curiosity, and expression of their ideas.

8. Recognize the safety concerns that may jeopardize the safety of the children in the program.
9. A checklist has been provided in Appendix 2 to assist you in ensuring that all aspects of licensing regulations are considered prior to the final design and construction of the childcare spaces.

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PREDEVELOPMENT ACTIVITIES AND BEST PRACTICES

PLANNING DOS

There are a number of steps that need to be considered prior to renovating, expanding or building a childcare center. Many of the steps listed below require a significant amount of the provider's/owner's time, resources, and funds and should be considered and developed prior to moving forward. We suggest that you should not enter into a lease or a sales agreement until all of the following issues are thoroughly investigated.

Develop Your Vision and Goals

1. **DO** Solicit the input of your childcare staff, if the childcare center is currently in operation. Ask what do they envision for the design that will promote the center's educational philosophy while upholding the vision and mission of the program, as well as providing a healthy work environment to support the growth and excellence of staff.
2. **DO** Develop your organization's vision and mission for the childcare center; Set goals for its operations and use and for environmental performance prior to the outset of design. With key project team members, write a story, your story, that helps others envision how the center will be designed and operated. This story should be shared with your entire project team and be included in your plans and specifications as well as any RFPs/RFIs/ and contracts that you may generate for the project. You may consider augmenting your story with an OPR or Owner's Project Requirements document (See Appendix 3 for a sample form) that can also be shared with contractors and suppliers during construction and referred to by the design team during project development.

Conduct Thorough Market Research

3. **DO** Do your homework. Discuss with local and regional agencies that connect families to childcare centers. Understand the community and types of programs needed to develop a successful program in your target footprint/ area. Also, refer to the Childcare Map that is explained in Appendix 6 of the guide.
4. **DO** Get to know your competition and cooperative partners. Evaluate the supply of childcare providers in your target or proposed area of operation and understand the population they serve, the programs they offer, the fees they charge and where they see the most need to determine the overall childcare needs of the community.
5. **DO** Determine the affordability of your services to families in your current or potential geographic area of operation.
6. **DO** Determine the availability of governmental or other financial assistance for families with lower incomes in your area.

Conduct Thorough Real Estate Risk and Availability Research

7. **DO** Investigate all zoning, building, energy, fire codes, environmental assessments, and other governmental requirements needed prior to the start of the project. Zoning and building code requirements are significant issues. Prior to beginning a project, you should seek professional assistance from an architect, engineer, and/or attorney to guide you

through the process. A major expense in Philadelphia is the stormwater fee. Identifying ways to mitigate this while protecting the facility from moisture and bulk water will build resilience to flooding and reduce operating costs.

8. **DO** Conduct an analysis of the property(ies) you are considering to understand the climate risks including flooding, high winds. Utilizing the NOAA climate risk tool is a great place to start [here](#). Some other environmental and reliability issues to examine include:
 - Understanding the area’s electric energy/ grid reliability to ensure continuity of operations.
 - Traffic patterns around the property to understand acoustical and particulate matter pollution that may affect the interior and exterior environments. If unavoidable, keep these factors in mind during the design process to identify ways to mitigate their impact.
 - Consulting the Choose Safe Siting Program of the Pennsylvania Department of Health [here](#).
 - Considering the building’s siting (south facing/ exposure) and the sunlight path during the building site search process with the idea of maximizing the amount of available daylight inside the building.
 - Testing the water for contaminants including lead. A detailed water testing protocol is provided in the Plumbing section.
 - Testing, by a service, for Radon and install a Radon mitigation system if safe Radon levels are exceeded.
9. **DO** Ensure that the new center or classrooms will meet all licensing and regulatory requirements established by the Commonwealth of Pennsylvania and the City of Philadelphia (Please refer to the checklist in Appendix 2).

Build A Strong Project Team

10. **DO** Interview architects that have experience designing (and hopefully utilizing) childcare centers, if possible, and request an estimate of fees and timelines for the development of schematic drawings, project specifications, building cost estimates, construction documents, and regulatory review. Ask them how they work with the client making sure that you feel comfortable sharing information and feel heard when you make requests and have ideas.

11. **DO** Prior to signing a lease or entering into a sales agreement for the facility, have your design team submit your preliminary plans to L&I (Philadelphia Licensing and Inspections) prior to signing a lease or entering into a sales agreement for the facility for a preliminary read and comment by an L&I Plans Examiner.

Understand the Finances

12. **DO** Develop the project’s capital budget. A capital budget process is defined as determining the cost of land, buildings, and equipment needed to bring the project to fruition and within all licensing requirements. It is also suggested that you calculate non-capital start-up costs such as the cost of licensing, permits, legal and architecture fees, travel, etc., in developing your center plans.

13. **DO** Estimate the amount of funding available for the project to fund the capital

budget from internally generated funds, bank financing, and any grants or awards that may be applied for. This is often referred to as identifying your capital stack. This will help you understand any debt service that you will incur and need to cover through operations.

14. DO Evaluate and plan for the impact of the construction, including temporary space requirements and safety issues, if the project is a renovation of an existing childcare center.

15. DO Develop a staffing plan for each age group. Employed staff must meet DHS minimum requirements (DHS 3270.31 to 37) or exceed the recommended requirements established by Keystone STARS, ERS, and/or NAEYC, including staff qualifications.

16. DO Consider contacting the Philadelphia Water Department (PWD) to determine the historic water use for the target property to use as a baseline for your demand.

17. DO Develop a 3- to 5-year operating budget projection for the center incorporating the information derived from items 1 through 4 above (capacity, ages of children to serve, ratios, etc.). The operating budget will allow you to estimate the center's revenue from tuition and other sources and develop the corresponding costs associated with operating the center. A sample operating budget for a one-year period is attached in Appendix 1.

Educate Yourself

18. DO Attend the Pennsylvania Department of Human Services (DHS) orientation for new childcare centers within 12 months of your application for a license. This mandatory forum will give you the opportunity to ask questions as the interpretation of the regulations may vary from different regions

Develop Procedures

19. DO Develop construction guidelines for your project and for general repairs that support superior Indoor Environmental Quality (IEQ) and limit children and adult exposure to particulate matter and toxins. These guidelines should include:

- How to isolate the occupied spaces from the acoustical impacts of construction
- During any painting or remodeling area should be cordoned and sealed off with plastic sheeting, including over any air intake and distribution vents, and
- Providing continuous air filtration in the work space at negative pressure.
- After any work, the area should be completely cleaned before the sheeting is removed. This cleaning protocol should include complete wipe down of all floors, edges, ledges, surfaces, furnishings and objects and a thorough vacuuming of all upholstered furnishings, rugs and carpeting.
- Ventilating the entire facility at high speed for 24 hours and changing filters before children return.

For new construction or major renovation, the center should be allowed to off-gas for a week and then be ventilated mechanically with filter changes before occupancy/ re-occupancy to clear VOCs (Volatile Organic Compounds) and particulate matter from the center's air.

20. DO Plan to use sustainable building and construction practices such as:

- Be clear about expectations for operations in the drawings and specifications. Where possible specify the exact product needed rather than accept what is at hand.

- Supporting a Circular Economy through reuse of materials and sending your construction waste to a C&D (Construction and Demolition) Waste Recycling firm to be made into new construction inputs.
- Developing a detailed construction schedule to avoid storing materials at the site for extended periods and helps to assure that needed materials are on hand at the correct time.
- Fully integrating the construction team to understand your vision/ sustainability story and, if you use one, your OPR so that everyone is operating as one when it comes to understanding what materials are allowed on the site and how construction should proceed. Often when something like a specified, non-toxic adhesive runs out on site, someone will have one ‘on the truck’ that may be extremely toxic and therefore not acceptable; letting everyone know what is acceptable helps avoid problems.
- Identifying low to zero embodied carbon materials.
- Supporting an all-electric construction site.
- Rigorous safety protocols.
- Equitable pay and benefit scales for workers.

21. **DO** Develop a sustainable purchasing SOP (Standard Operating Procedure) to guide selection of supplies and materials based first on non-toxic and then on: durability, longevity, low maintenance, appropriateness, and aesthetics. The materials should be environmentally aware and support a circular economy. This SOP should require products to be:

- Non-toxic avoiding all identified chemicals on the International Living Future RedList (see General Design Callout Box for link).
- Crafted from recycled, and be able to be recycled, disassembled, composted or biodegraded after their useful life.
- FSC-certified sustainably harvested wood and/ or rapidly renewable, bio-based materials
- Low-embodied carbon materials and those whose components have zero ozone-depleting potential and zero global warming potential.
- This should include identifying providers to partner with for waste services including composting and recycling.
- Certified as Green Seal to reduce exposure to toxins; this is especially important in selecting cleaning supplies.
- Consider construction materials and design that will minimize the infiltration of pests

22. **DO** Plan for the center to provide gross motor space that will meet the square footage requirements for licensing of such space. See Classroom Square Footage Requirements below. Note that: Public outdoor spaces or playgrounds will not be considered gross motor space for the center’s license to operate. (DHS 3270.62)

ZONING PERMIT

One of the first and most important steps prior to leasing, renovating, expanding, or building a childcare center is to determine zoning. Find how a property in Philadelphia is zoned [here](#). You can find the zoning of any property in the City of Philadelphia through the site listed above, but you will need to enter the exact street address. Usually, this system requires the use of the correct Bureau of Revenue and Taxes (BRT) address. Some facilities, especially churches and schools, may be difficult to locate in this system.

1. Submit zoning a application to the City of Philadelphia Licenses and Inspections (L&I) [here](#). Your zoning application needs to address specific areas such as: whether the program will care for more than five children under the age of 2 ½, center signage, fencing, driveway and parking plans for the center. The application must also indicate a use “with accompanying prep and serve of food” (see the Health Codes and Food Service Operation section for more information regarding food prep and serve). This list is not all inclusive of the information that may be included in a zoning application.
2. If the childcare center is located in an allowable zoning district, i.e. CMX-2 and other allowable districts, you will be able to get your zoning permit as a matter of right.
3. If the current zoning district does not allow a childcare center, your application will be rejected. If you decide to appeal to the Zoning Board of Adjustment (ZBA), this decision involves a significant amount of time, money, and input from community members and the Registered Community Organization (RCO). If you are a nonprofit, LLC, or a corporation, you MUST be represented by an attorney. For information on registered community organizations see [here](#).
4. Note that you may or may not be successful in your appeal.

A Bit About Zoning Codes

The [Philadelphia Zoning Code](#) regulates development and change of use within the city. Zoning permits authorize a particular use of the building or ground. More than one zoning permit may be required before a building permit can be issued by L&I for construction or demolition, or before a Certificate of Occupancy can be issued to occupy a building.

Zoning regulations govern:

- Land use
- The height and bulk of buildings
- Population density
- Parking requirements
- Placement of signs
- Character of development on private property
- Development in protected areas and on steep slopes

BUILDING CERTIFICATE OF OCCUPANCY (CO)

As mentioned in the Planning section of the guide, prior to beginning new construction, expansion, or renovations, professionals such as architects and/or engineers should

be engaged to discuss your plans for the building. It is advisable that you develop an estimated timeline for the completion of all required permitting with your attorney and architect to ensure that all the approvals will be in place to facilitate your anticipated opening date. It is advisable that you submit your preliminary plans to L&I (Philadelphia Licensing and Inspections) prior to signing a lease or entering into a sales agreement for the facility. An L&I plans examiner can guide you on the requirements for the City of Philadelphia and all applicable building codes required for facilities in the city. A zoning application should not be completed until you are reasonably sure you have the time and funding, which may be considerable, to initiate the construction/improvements you will need to satisfy building codes and obtain your certificate of occupancy (CO).

1. Building code challenges for CO include:
 - a. fire code upgrades,
 - b. accessibility requirements,
 - c. sprinklers,
 - d. direct egress at grade level for more than five children under 2 ½ years old.
 - e. Stories above or below grade with limited egress
2. Fire Safety Inspection: Ensure that fire safety equipment, emergency lighting, and lighted exit signs are present and functioning. Each of these systems will need to be inspected by a licensed professional before you can receive your CO. Each of these systems must be inspected annually and will need to be budgeted for in the center's operating budget. The inspections may be the responsibility of the owner of the facility or may be passed on to the childcare tenant. *This responsibility should be clarified in the lease for the facility.*
3. Existing zoning and CO documents for your facility may be located at the Zoning Archive Online [here](#). If the facility use you desire is listed on an existing CO document, this is most helpful. It is important to note that if an existing zoning or CO is to be relied upon, you must be certain that the prior approvals allow for the establishment of a childcare center. If it is not listed, then detailed, current and complete architectural drawings will need to be submitted for a new CO.
4. Building permits are required prior to the beginning of a project. Building permit

The CO process is multi-stepped and includes:

1. Preliminary plan review with L&I
 2. Zoning permit submission
 3. Zoning approval
 4. Building permit submission
 5. Building permit approval
 6. Construction in accordance with approved building permit documents.
 7. Final inspection by L&I
 8. Issuance by L&I of CO confirming compliance with the permitted design.
 9. Closure of building permit
- Your design team can provide an estimated schedule for completion.

information can be found online [here](#).

HEALTH CODES AND FOOD SERVICE OPERATION

All childcare centers in Philadelphia are required to obtain a Food Preparation and Serving License (FPSL). The FPSL is issued by L&I, following approval from the Philadelphia Department of Public Health (PDPH). Prepare and submit the food plan review application as early as possible and have completed kitchen drawings and the food handlers course completed for submission with your application. The FPSL is a required document that needs to accompany the application for the DHS childcare license.

A license eligibility report (LER) is issued by the PDPH, Office of Food Protection once the following steps are completed:

1. Submission of a stationary plan review to the PDPH. It is imperative that the plan review application be submitted *after zoning approval and before any construction on the location begins*. Questions related to this requirement should be addressed to the Office of Food Protection. Find more information [here](#).
2. Completion of a food safety certification course, such as ServSafe.
3. Site Inspection by the Office of Food Protection. Contact the Office of Food Protection at (215) 685-7495.

Before issuing an LER, the Office of Food Protection must approve your plans, verify the completion of a food safety certification course, and conduct a site inspection. The applicant then takes the LER to L&I, licensing issuance desk at the Municipal Services Building, along with a completed application for a Food Prep and Serve License, which is a required attachment to the application for the DHS Certificate of Compliance (childcare license).

Assure for adequate ventilation either mechanical or via windows. Opt for non-gas cooking equipment to reduce indoor particulates.

CLASSROOM SQUARE FOOTAGE REQUIREMENTS AND CONFIGURATION

Regulatory Requirements

The minimum interior square footage requirements for a childcare center are established by DHS and are currently established at 40 square feet per child. The number of children allowable in each classroom is calculated by taking the square footage of a room and dividing by 40. The indoor space is measured within the permanent stationary partitions or walls of a classroom. Measured space within a classroom excludes halls, restrooms, offices, kitchens, and any locker rooms.

Best Practice Recommendations

When developing a high-quality childcare center, the architect needs to consider calculating the square footage of a classroom space using the dictates of best practice in the profession. To allow for optimal classroom configuration and spacing, the design of classrooms should aim for the following average square footage allotments:

	State Licensing Requirements	Best Practice
• Infants	40	85 – 95
• Young Toddlers	40	50 – 65
• Older Toddlers	40	50 – 65
• Preschool	40	45 – 55
• School Age	40	45 – 55

Lessons Learned

A common error in the design of a childcare center or specific classrooms is a lack of consideration of all the factors that will play into the function of a classroom space. Allowing for lockers/cubbies, teacher and food preparation areas, restrooms, infant cribs, etc. is critical in the final design to meet or exceed best practice in the childcare center and licensing requirements. In addition, ancillary spaces such as reception areas, offices, staff preparation, training and lounge area(s), resource library, and adult restrooms must also be accounted for in the final square footage design and calculation. Appendix 4 demonstrates a sample space plan that was used to calculate the area/square footage requirements needed for a new or expanding center.

In addition to the square footage requirements listed, the size and the configuration of the classrooms are vital to the design.

- The design should avoid creating spaces that may cause supervision issues. L-shaped rooms or walls within the room that inhibit the supervision of children should be avoided. Renovations or expansion into existing facilities may prevent ideal layouts from being present. When this occurs, other means for supervision must be employed.
- If possible, avoid a design that produces long, narrow rooms. This configuration makes it difficult to place learning centers and activities.
- Attempt to avoid any columns within the classroom, since they create supervision and safety issues.
- Position walls, furnishings and windows to optimize daylight and views.

DESIGN CONSIDERATIONS



GENERAL DESIGN

Each age group's classroom will be the primary space where the children will spend most of their day with creative experiences, active play, eating, and resting. The design of a space must consider the safety of children and teachers and allow for proper supervision of the children at all times. The quality and selection of the equipment for each classroom age group should provide for all areas of interest as prescribed by the Early Childhood Environmental Rating System (ECERS), Infant/Toddler Environmental Rating Scale (ITERS) and NAEYC to ensure the goal of a high-quality program for children.

Regulatory Requirements

1. A minimum of 40 square feet of usable space (free and open, not including storage spaces) per child.
2. Gross Motor Space of 65 square feet per child of indoor or outdoor space (Infants: 40 square feet, Toddlers: 50 square feet). (DHS 3270.61)
3. Outdoor play spaces are separate from unsafe areas and use of fencing or other natural barriers restrict children from entering unsafe spaces (DHS 3270.63).
4. Interior stairs with three or more stairs, ramps, and porches will be equipped with handrails that are accessible to children in addition to an adult height rail. (DHS 3270.80(a))
5. Interior stairs will have non-skid surfaces (DHS 3270.80(c)).
6. Storage spaces are provided to allow for potentially harmful materials to be locked to prevent child access (DHS 3270.66).

Best Practice Recommendations

1. Provide easily navigated corridors for strollers and buggies by reducing or eliminating any barriers AND provide storage space for strollers and buggies to support families who may need to leave them at the facility during the day.
2. Ideally provide outdoor and indoor gross motor space as able to allow for variation and gross motor activities during inclement weather. Outdoor spaces should be designed with spaces for shelter from extreme heat that include solid roofed areas such as tents or canopies.
3. Incorporate strategies to increase the connection to outdoors and nature with natural textures and colors, scenes of woodlands, meadows, sky and grassy areas/ flowers. This could include:
 - a. Incorporating sounds for transition; crickets and other night sounds to begin nap time and birdsong to end nap time

- b. Dedicating a counter or portion of the window area for growing seedlings in the classroom such as sprouts and carrots and for conducting nature studies.
- c. Incorporating an aquarium to bring creatures into the space including silkworms on mulberry leaves, turtles or hamsters.
- d. Selecting nature reflective colors such as greens, blues and yellows
- e. Displaying nature scenes on walls.

4. Be mindful and intentional when selecting materials especially surfaces that the children will encounter on a daily basis and avoid toxins. Often the ingredients of products are hidden or unavailable or are present in coatings in low concentrations yet are highly available to children.
5. Design a traffic pattern that allows for children to get to the gross motor play space safely. Consider a door leading directly from the classroom area into the gross motor play space.
6. Develop the classroom spaces to allow for quiet and active play, eating, and sleeping and taking into consideration the materials used in those areas along with the supervision during these activities.

Napping/sleeping areas should provide an opportunity to rest without distraction. Provide storage of pillows and blankets away from walkway areas that may introduce contaminants should be included.

7. Provide clearly visible documentation spaces that exhibit the children’s artwork/ classroom projects (NAEYC 9.A.09).
8. Provide mailboxes dedicated to the needs of families/ staff.
9. Provide a central, relaxed location that promotes the investigation, conversation, and collaboration between families in a home-like setting (NAEYC 9.A.09 and 9.A.10).
10. Provide private spaces for conferencing of staff, children and/ or families (NAEYC 4.E.03).
11. Provide spaces for teacher preparation, including wall mounted telephone and computer data outlets at an adult height surface for use in documentation.
12. Allow and plan for adequate storage:
 - a. Each classroom should provide locked storage for the teacher’s coat and personal items (ITERS 34, 5.2).
 - b. A general storage area, inaccessible to children, should be provided to store cots, bedding, and classroom materials.

Some resources for understanding the health impacts of materials:

- International Living Future Institutes (ILFI) RedList. Available [here](#).
- ILFI Declare database that includes a tool to select materials that are pre-screened for transparency and Redlist compliance. Available [here](#).
- U.S. General Services Administration (GSA_ Design Guide for Child Care Centers that flags specific harmful ingredients to avoid. Available [here](#).

Lessons Learned

1. Sound absorbing materials, such as higher-grade acoustical tiles, area rugs etc., should be considered to minimize noise, especially in open concept centers (NAEYC 9.D.04). Any mechanical fans should be rated for the lowest possible sones; recommend 0.3-0.9 sones; less than 28dB. Noise is a major aspect of environmental chaos, and has adverse outcomes on children. Regulating noise levels in centers can help to provide optimal child well-being. A general everyday optimal level for active periods is 10+/- sones or 60-65 dB.

The general design process needs to address all spaces that are required or desired in the planning stages. Restrooms, storage, hallways, offices, kitchens, food storage, and staff areas must be considered.

Sones are a measurement of sound, similar to decibels. The difference between sones and decibels is that sones are linear, meaning that 1.0 sone is exactly half as loud as 2.0 sones, Sones relate to how loud sounds seem to humans where decibels measure the sound pressure. Sones are a good way to measure loudness of an appliance.

FLOORING

Flooring is an important aspect of the childcare center since it is utilized daily by all and often children are in direct contact with the floor while crawling, playing, reading. Careful consideration is to be made when deciding on the flooring product, most importantly there is a great range of chemicals used to create and treat flooring which should be evaluated to avoid potential toxicity and because great expense can occur if flooring is damaged, needs repair, or is difficult to maintain and keep clean. Please consider the following:

Regulatory Requirements

1. Floors are in good repair and free from visible hazards (DHS 3270.76). Carpet edges are not rolled or frayed, increasing the risk of tripping; area rugs have non-skid backing beneath to prevent slipping; floors are clean and are not damaged, etc.
2. Interior gross motor areas with climbing equipment must have a certified shock absorbing American Society for Testing and Materials International (ASTM) surface present around the equipment to prevent injury (DHS 3270.102(b)).

Best Practice Recommendations

1. If the floor is on the ground floor (basement level), evaluate with your project team the need for a vapor barrier and insulation below the finished floor. This is cost effective in new construction and major renovations but may be applicable in minor renovations as well.
2. Consider installation of a heated floor that is integrated into the HVAC (heating, ventilation and air conditioning system)/or hot water system. As discussed in the HVAC section, this is an expensive option that is applicable to new construction and major renovation and should be evaluated by the project team vis-à-vis the budget.
3. When selecting a flooring material, prioritize the health impacts of the material and then investigate the maintenance costs going forward and its useful life.
4. When selecting a flooring material, specify materials with low to zero volatile organic compounds (VOC) and zero known: chemicals of concern, carcinogens, endocrine disruptors, or other compounds that have potential for bioaccumulation or adverse health impacts:
 - a. Consider materials that are sustainable (natural, recycled, recyclable)
 - b. Avoid vinyl and any materials that contain PFAS (Perfluoroalkyl and polyfluoroalkyl)

substances), PVC, or Formaldehyde. See the RedList (mentioned above) for other known harmful chemicals

- c. High-quality resilient plank, engineered wood, and tile flooring products are preferred due to their durability and low maintenance.
 - d. Traditional welded seam sheet linoleum is made of natural, mostly rapidly renewable materials. It is preferred to all vinyl products from a toxicity and environmental standpoint. Linoleum also has anti-bacterial properties that will be an added health consideration.
 - e. Rubber is a natural material. It is also very durable.
 - f. Area rugs provide comfort and are economical for inclusion in a classroom. However, careful consideration should be given to their material. As children spend lots of time sitting on or playing on area rugs, consider natural fiber rugs such as wool and jute. Loose fiber or poor-quality synthetic fiber rugs should be avoided to prevent the inadvertent ingestion of microplastic particles. Tripping/slipping hazards created by rugs must be addressed through the use of proper underlayment pads designed for rugs or by the use of effective edge binding and transitions. Non-slip surfacing on the reverse side of “throw” rugs is essential (NAEYC 9.C.07).
5. Flooring in wet areas, in general, should be slip resistant.
 - a. Ceramic tile is a durable, hard surface that is traditionally used in restrooms to allow for cleaning and disinfecting.
 - b. Larger size tiles minimize grout joints, which must be sealed upon initial installation to maintain a clean surface.
 6. Floor tile should be slip-resistant to prevent injury.

Lessons Learned

1. Installed carpeting will be limited to use only in the director’s office and staff areas and should be a dense loop with antimicrobial properties.
2. Consider use of carpet tiles to allow for replacement if heavily soiled.
 - a. Consider floor tiles that can be sent back for recycling, such as the FLOR recycling program [here](#).

CEILINGS

Regulatory Requirements

1. Ceilings are in good repair (DHS 3270.76).
 - a. Ceiling tiles that are stained are replaced, and the cause of the stain (leak) is addressed.

Best Practice Recommendations

1. Depending on the building’s structure, a standard sized, high-grade, acoustic ceiling tile is a good material selection for ceilings, because it is

easily replaced and allows for sound absorption. Avoid extensive expanses of repetitive grids of ceiling tiles and instead break up ceilings into smaller zones with the introduction of soffits of a different material and/or height.

2. Painted drywall is appropriate for use in areas with soffits, ceiling height changes, or vaults.
3. Ceiling tiles are generally fully recyclable. If you are doing a large renovation there are large scale recycling programs like Armstrong's [here](#). In Philadelphia ceiling tiles can be recycled through construction materials reclamation companies such as Richard Burns [here](#) and Revolution Recovery [here](#).
4. Maintain high light reflectance values on ceilings of all materials to promote light (daylight and electric light) diffusion through spaces.
5. General recommended ceiling heights:
 - a. Learning Environments: 9 feet
 - b. Multi-Purpose / Corridors: 10 feet to 12 feet

WALL FINISH

Regulatory Requirements

1. Walls are in good repair (DHS 3270.76).
2. Paint, plaster, and wallpaper may not be chipped or peeling (DHS 3270.77) to prevent children from removing peeled or chipped materials and consuming them, increasing the risk of choking.
3. Interior paints must be non-toxic, Zero VOC, and lead-free.
 - a. Look for Green Seal Labeled Paints and paint products.
 - b. Maintain documentation of the paint products utilized in the center.
4. When the childcare center is having paint removed from surfaces, children may not be present (DHS 3270.77). The children may return when paint removal has been completed, adequate cleaning and ventilation of the room has occurred and filters in HVAC equipment have been cleaned or changed.
5. Removal of leaded paint and paint products is completed in a manner that prevents dispersal of the leaded products into the environment. All leaded paint materials are disposed of per federal, state and local regulations (DHS 3270.77).
 - a. Maintain documentation of the removal process.
 - b. Note that: Any contractor doing renovation in PA homes older than 1978 must be a certified renovator. The purpose of lead-safe renovation is to assure that new lead hazards are not created during the work. The EPA enforces the Renovation, Repair and Painting (RRP) Rule in Pennsylvania

Best Practice Recommendations

1. Use low or non-VOC paints to reduce allergies and any chemical sensitivity.
2. Lead-free/lead-safe certification is not required by the City of Philadelphia currently but may be forthcoming and should be considered as a best practice.
3. To prevent peeling of paint, substrates should be primed with a product appropriate to the surface and the final paint product. High quality paints should be used with multiple coats per manufacturer's recommendation
4. Interior walls shall be constructed using abuse-resistant drywall.
5. Walls between the classrooms and other spaces should be insulated to reduce the sound transmission between spaces.
6. Use of materials that will buffer or reduce excessive levels of internal or external noise.

7. No sharp edges within children’s areas. All corners on trim, counters, partitions, and shelving must have rounded edges.
 - a. Corner guards shall be installed to protect squared corners from damage and lessen injury.
 - b. Any columns that are required should be protected with an impact absorbing material to reduce or eliminate any child injuries.

Lessons Learned

1. Wall colors have an impact on children’s behavior and overstimulation could be an issue with certain colors. Color selection should be warm and varied throughout the center. Accent walls within a classroom will also add to the warmth of a room. Consider the impact of color on children when making selection but *choosing earth tones may be best to tap into our biophilic tendencies and promote connection to nature.*

2. The addition of wall protectant is important to maintain the wall surface.

- a. Semi-gloss paint, linoleum or other durable non-toxic material wainscot should be used instead of vinyl or other wall coverings where possible. Vinyl is not recommended.
- b. Textiles on vertical surfaces within reach of children are not recommended but work well for surfaces such as documentation panels located above children’s reach.
 - c. Glazed ceramic tile is appropriate for wet areas such as restrooms.
- d. Display surface, i.e. chalkboards, marker boards, or magnet boards may be provided as a wainscot above 36 inches or higher.

- i. Note that according to the Washington Toxics Coalition, whiteboard markers can contain toxins: “Aromatic solvent-based markers are the most toxic – many contain xylene, a neuro-, kidney-, reproductive-, and respiratory toxicant. Alcohol-based markers contain toxins, but they’re not as potent as xylene. Avoid alcohol- and solvent-based markers, both of which are often marked “permanent” or “waterproof.” Look for water-based markers with an AP label. If you need dry-erase markers for white boards, look for those marked “low-odor,” which are alcohol-based and less toxic than other kinds. See more information [here](#).

- ii. Display systems requiring tacks are not permitted due to the risk of injury and magnetic pins should also be avoided as they are a small size and can easily be swallowed by infants and toddlers.

Some color impacts include:

- Violet – Increase creativity, intuition, wisdom, optimism, art, boosts energy level
- Indigo – Increase intuition, sensitivity, creativity, clear and holistic thought, self-reliance – Calming effect
- Green – Reduces irritability, calms, relaxes, happiness, balance and growth, eases anxiety
- Green-Yellow – Creativity and communication
- Yellow – Stimulates to action, inspiring, playful
- Yellow-Orange – Creative, intelligence, detail oriented
- Orange – Drives off lethargy, lift depression, adventurous
- Pink – Calm, restful, lowers physical strength

- iii. Use of tape or contact paper on walls is not recommended due to the damage caused to the paint and dry wall, thereby causing peeling and increased risk of children removing paint/ dry wall and mouthing or eating.
- 3. Maintain a file that includes documentation on any facility environmental assessments or reports and documentation of lead-free or lead-safe certification.

WINDOWS

The introduction of natural light into the interior space is a critical aspect of the early childhood classroom. Visual connections from the interior to the exterior of the building and visual connections within the center itself (windows between classrooms and circulation paths) are positive additions to the child’s classroom experience (NAEYC 9.C.04).

Regulatory Requirements

1. Windows above the ground floor are to be limited to opening six inches by means that would allow for an adult to remove the restriction and open the window in an emergency situation (DHS 3270.72(d)). (Note depending upon the height, some ground level windows may be included in the code).
2. If windows are to be opened, the window is equipped with screens that are in good repair (DHS 3270.72).
3. All glass lower than 36 inches above the finished floor located in a traffic area, childcare space or play space must be equipped with a vision strip, safety guard (rail/mesh) or equivalent marking device (DHS 3270.81 & CFOC 5.1.3.4).
4. Tempered glass shall be used for all glass with a bottom edge that is 24 inches or less above the finished floor in accordance with International Building Code (IBC).

Best Practice Recommendations

1. The height and scale of windows, type of glass, clear view (no horizontal members blocking the view of either adults or children), control of light, and safety factors must all be weighed.
 - a. When allowing for access to natural light, one must consider how natural light will be controlled at certain times of the day (i.e. nap, extreme heat in the classroom due to direct sunlight, etc.).
 - b. When considering energy conservation and optimizing natural daylight, on average you can expect daylight to reach into a room a distance approximately 2.5 times the height of the top of the window above the floor.
 - a. For example, if the head height of the window (the distance from the floor to the top of the window) is 6 feet, then the daylight can effectively penetrate about 15 feet (2.5 x 6 feet) into the room. This helps in designing spaces to maximize natural light, reducing the need for artificial lighting and improving energy efficiency.

2. Window treatments should be installed on all learning environment exterior

windows to control light.

- a. Attention must be paid to how the window treatments are closed to prevent long cords or other materials that can potentially harm child from being installed.
3. Horizontal mullions should not be located between 24 inches and 44 inches above the finished floor because they could be used as a climbing support.
 4. Windows have a significant impact on the heating and cooling load of a space. During the renovation or construction particular attention should be paid to the window specifications. Philadelphia is a heating dominated climate but has significant temperature variation throughout the year.
 - a) In a minor renovation, windows should:
 - (1) At least be double paned with a gas seal between the panes and have a low-e coating on the appropriate pane. If existing single paned they should be replaced or at least augmented with storm windows.
 - (2) The weather stripping and caulking should be in good repair and completely seal the opening to air and water.
 - (3) Weep holes on the window frame should be left open for drainage
 - b) In a major renovation or new construction, windows should:
 - (1) Be designed in accordance with integrated energy modeling taking into account heat gain, heat loss, and building mechanical equipment performance specifications.
 - (2) Be at least double paned but preferably triple paned with gas seal between the panes and low-e coating on the appropriate pane.
 - (3) The windows should be installed with gasketing that completely seals the gap between the window and the framed opening and all caulking should be complete.
 - ii) Window specification should be determined by orientation of the building – south facing windows should allow winter heat but be shaded from summer sun, north facing windows have little sun load so allowing as much heat in as possible can be good practice:
 - (1) U-Value:
 - (a) Passive House range: U 0.11 to U 0.20, R-9 to R-5
 - (b) Energy Star range: U 0.25 to U 0.35, R-4 to R-2.8
 - (c) Note U-Value is the inverse of R-Value and is used to measure resistance in windows
 - (2) SHGC: The standard U.S. practice for controlling summer heat gain is to reduce the SHGC with low emissivity (low-E) coatings, films, frosting and fritting. However, this prevents the free winter solar gains; a good rule is to stay above 0.50.

Lessons Learned

1. Where possible, window sills should provide generous space for the placement of children’s artwork, displays, artifacts, etc., but should be less than 24 inches or greater than 48 inches to prevent unsafe climbing practices but should not impede opening of the windows for natural ventilation and allowing natural sounds such as birdsong into the classrooms.
2. A minimum 10% of the square footage of the learning space interior wall can be considered for one-way viewing glass to allow for discreet family viewing of learning activities.

3. Position windows to allow daylight penetration to the floor.
4. In order to use “natural ventilation” as an air quality strategy, the open area of all windows into the room must be equal to or greater than 4% of the floor area of the room.

DOORS

Regulatory Requirements

1. Doorways leading to a stairwell without a landing shall have a door that is restricted from opening (DHS 3270.91).
2. The opening and closing direction of classroom doors should be reviewed by your architect to ensure that they comply with existing building codes pertaining to life-safety/ egress.
3. Doors to the exterior may not be obstructed, preventing exit from the interior or entry to the interior in an emergency situation (DHS 3270.91). Review the required distance to an exit from an interior space with your architect to ensure compliance with building and safety codes.
4. If gates are used in the interior space, the gate must be easily opened and not restricted (DHS3270.91).
5. Doors above ground level that open directly to the outdoors are inaccessible to children (DHS3270.72).
6. Glass doors located in high traffic areas and childcare spaces shall have a visual strip or other visual identification placed on the glass to define the barrier and prevent injury (DHS3270.81).

Best Practice Recommendations

1. Main entrance doors shall have an electronic strike release with an access control device at ADA compliant height and location, and a remote release located in a normally occupied space (director's office, administrative area, etc.).
2. Americans with Disabilities Act (ADA)-compliant, lever-type door handles shall be provided for all door locks and latch sets.
3. ADA compliant actuator buttons should be installed on entrance and exit sides of main entrance doors.
4. To prevent injury, all doors will have closers that restrict the speed of door closure (NAEYC9.C.03).
5. All children's bathroom doors (toddler and pre-school) shall be a maximum of 32 inches in height to allow for staff supervision. In addition to a half door, a half wall may also be necessary (NAEYC9.A.05).

6. Doors accessible to children must have hardware operable from both sides, with components having smooth edges and no sharp protrusions.
 - a. An exception to this recommendation is for the hardware on the toddler half bathroom doors. This hardware should allow adults to open the door from the inside of the bathroom to help prevent inadvertent access to the bathrooms by the children.
7. Doors in all interior rooms designated for use by children shall remain unlocked.
8. All doors to exterior should be properly sealed to safeguard against air and water intrusion as well as rodent/insect entry.
9. Exterior doors should be equipped with a push bar to facilitate exit from the facility. This type of hardware may be required to facilitate compliance with fire codes.

Providers may have issues with this type of hardware since it can allow children to exit to other spaces. It is suggested that the center install a door release system that will only allow center staff to unlock the door (usually placed 60 inches from the floor). This system will disengage if the fire alarm system is activated so that children and staff may safely exit the facility.
10. Exterior Doors, like windows, have a significant impact on energy utilization and to IAQ (Indoor air quality); gaps in the weather sealing and under the sill allow particulate pollution and drafts into the space.
 - (a) In a minor renovation:
 - (i) Weather stripping should be installed to block all drafts around the sides and top of the door
 - (ii) The seal at the bottom should be inspected for completeness and efficacy. It can be replaced with a slide-on or screw-on door sweep to reduce infiltration.
 - (iii) A door sock could be placed along the door bottom.
 - (b) In a major renovation or new construction:
 - (i) Door U-values are not as low as windows. They typically have more frame components (stiles and rails) with higher U-values, because they are not insulated. Look for U-values at or below U 0.89 (R-1.2).
 - (ii) A fully interlocking door sill will reduce under door drafts and pollution – if this is allowed in the regulations

Lessons Learned

1. Children’s fingers must be protected from being crushed or otherwise injured in the hinge space of a door by installing protective hinge guards or continuous hinges on all doors that children pass through (entry doors, bathroom doors, classroom doors).
2. Door openings intended for adult only use shall have hardware installed at ADA compliant adult height.

3. All classroom doors shall have large, see-through windows for viewing into and out of each space.

HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

Center temperature and air quality are important to the children and staff while present in the center space and will ultimately affect how they feel and perform throughout the day. Indoor Air Quality (IAQ) and Indoor Environmental Quality (IEQ) are gaining attention as sources of improving health and cognitive development. State mandated temperatures must be maintained to allow for the center to be operational. High levels of thermal comfort and indoor air quality will also reduce child and staff turnover over centers with poor air quality.

Regulatory Requirements

1. The following are the DHS acceptable indoor temperature ranges for childcare centers (DHS 3270.70):
 - a. 65°F – 75°F during the winter months
 - b. 74°F – 82°F during the summer months
 - i. If the temperature is greater than 82°F a means of mechanical air circulation must be present and kept out of reach of children.
2. Code required ventilation per International Mechanical Code (IMC) 2018

Occupancy	CFM/ Person	CFM/ SF	Exhaust Airflow Rate (CFM/ SF)
Childcare (through Age 4)	25	0.18	-
Classrooms (Age 5-8)	25	0.18	
Art Classrooms	20	0.18	0.7
Kitchens (Warming/ Cooking)	20	0.12	0.7

3. Portable space heaters are not permitted (DHS 3270.92).

4. Fixed space heaters shall be approved in writing by a local fire safety professional. The fixed space heater is to be insulated or equipped with protective guards (DHS 3270.92).
 - a. Maintain documentation of approval on file at the childcare center.

Best Practice Recommendations

1. Licensed professionals should be engaged in the design of HVAC systems.
2. Temperature levels are measured with tamper proof sensors placed at lower-than-normal heights (one to three feet) above the floor in order to reflect the experience of children. The sensors should be linked to thermostats installed at normal height:
 - a. Individual classroom thermometers and/or thermostats are recommended to monitor and control temperature.
 - b. Controls should be inaccessible to children to prevent accidental changes in temperature.
 - c. Each classroom/ childcare room should ideally be provided with its own unit to allow for proper temperature control
3. Each classroom and some of the ancillary spaces should be equipped with individual controls for heating and cooling. Each classroom should also be equipped with humidity and CO monitors.
 - a. Humidity levels should be 30% minimum in winter and 60% maximum in summer; Humidifiers should be provided in all air handling units to maintain proper humidity levels in the learning environment.
4. Drafts should be identified and sealed to maintain the children's comfort on the floor. Typical areas where drafts are present are near large windows and doors to the exterior, especially single pane and poorly sealed double pane.
5. Ceiling fans are recommended as a supplement to standard HVAC systems. Fans can increase comfort and reduce energy bills by allowing the thermostat temperature to be increased while maintaining the same level of comfort.
6. Provide MERV-13 filters in all air handling systems (where possible).
7. If increasing the filtration level in the air handling system is not feasible, recommend providing in room air filtration. These could consist of UVGI (Upper Room UV Germicidal), in room air filters, or other technology (Bi-polar ionization).
8. When using in room recirculating air filters, select the correct size filter(s) based upon the units CADR (Clean Air Delivery Rate). Note that these rates are often listed for the highest fan speed, which can result in objectionable noise. In this case, recommend buying more larger units and running them at a lower airflow to reduce noise.
9. Radiant floor heating is an expensive option that may only be practical in new construction or major renovations. Radiant floor heating provides an efficient, effective heating solution that allows for the heat to be present where the children are most

present – at the floor level, but the cost must be weighed against the benefits.

10. Mechanical ventilation and space conditioning air delivery should be designed to not blow air directly onto children as this could adversely affect their thermal comfort.
11. Each space should be supplied with outside ventilation air for health and also to control odors to meet or exceed code minimum values. One strategy for new construction and major renovations is to use an ERV (Energy Recovery Ventilator) that is ducted separately from the main HVAC system to exhaust from bathrooms, mildly ill areas, laundry, and kitchen areas and provide fresh air to the living/playing and napping areas. Ventilation systems should be designed by a licensed professional.
 - a. If possible, 100% fresh air ventilation should be incorporated without recycling return/exhaust air back into systems.
12. Post construction, all equipment should undergo commissioning and then annual servicing and testing to assure operation as specified. Installation and operating manuals FOR ALL EQUIPMENT should be collected and maintained in a three-ring binder in the office for ease of reference and all warranty information should be submitted to manufacturers. The dates of purchase, installation should be recorded on the documentation. The submission of manuals should be specified in all contracts.
13. Radon testing should be performed and mitigation systems installed as required.
14. Fossil fuel energy sources such as natural gas and oil, in addition to having adverse environmental impact, can create unhealthy indoor air quality when used in equipment inside the building envelope. All equipment (including HVAC and hot water heating) and appliances (including cooking and laundry) inside the building envelope should be powered by electricity only.
15. Proper exhaust venting is required for the kitchen range, clothes dryer, changing stations and the mildly ill child room. If possible, the mildly ill child room should be served by its own dedicated system and have exhaust that is ducted directly to the outside.

Lessons Learned

1. Noise levels, service requirements, and energy efficiency should all be taken into consideration when locating heating and cooling equipment. For example, loud equipment and/or equipment access points or doors should not be located close to or within nap areas.
2. Building renovation projects or centers with basement locations are to complete an air quality test to ensure the safety of the children and staff.
 - a. Testing of the air quality during any construction period must also be conducted at regular intervals to ensure the safety of children and staff. This should be detailed in the Construction Guidelines discussed in the Design Considerations section above.
 - b. Maintain documentation of testing results on file in the childcare center.

PLUMBING AND ACCESSORIES

Center water quality is important to the health and well-being of the children, families, and staff in the center space and will ultimately affect how they feel and perform throughout the day. Testing and monitoring the water quality and provided filtration on a regular basis will help to maintain that quality. Water use also affects the total operating expenses; limiting usage through water saving fixtures and being aware of and repairing leaks will help to optimize those expenses.

Regulatory Requirements

1. All hot water supplies accessible to children must have controlled temperature not to exceed 110°F at the point of delivery. Hot water pipes that exceed 110°F that are accessible to children will be equipped with protective guards (DHS3270.71).
2. The City of Philadelphia childcare regulations state that 100°F is the acceptable minimum temperature at the point of delivery accessible to children and for hot water pipes that provide supply. Please note the difference between the City and DHS requirements.
3. Provide a hot water supply of 185°F for the dishwasher by utilizing a properly sized, instantaneous hot water heater.

Best Practice Requirements

1. Ensure plumbing fixtures are EPA "Water Sense" labeled. See more information [here](#).
2. Recommend providing separate piping systems for hot water to be delivered to sinks that children will be using and for a kitchen/ janitorial closet. This can be done by the use of a central thermostatic mixing valve. The water to the children's loop can be supplied at a lower temperature (110-120) and the hot water to the kitchen/ janitor sinks can be supplied at a higher temperature (140 +) as needed.
3. Recommend storing hot water at a minimum of 140 F to help control water born illness (legionella).
4. Recommend providing at a minimum point of use thermostatic mixing valves (ASSE 1070 type valve) for scald prevention. Best practice is to provide a central mixing valve (ASSE 1017) AND point of use valves at each hot water fixture.
5. Fossil fuel energy sources such as natural gas, in addition to having adverse environmental impact, can create unhealthy indoor air quality when used in equipment inside the building envelope. Hot water heaters should be electric and utilize heat-pump technology for energy efficiency when possible.
6. The center should strive to minimize water usage while providing appropriate fixtures to encourage an easily cleanable facility. One way to measure water usage is

- to conduct a water assessment that calculates the designed amount of water use versus the actual to identify ways to save water. Repeating this analysis every 4-5 years will help you continue to improve/ reduce your water use.
7. The center should specify the smallest pipe width allowed by building code.
 8. The center should identify any leaks and repair them.
 9. The center should strive to reduce the number of water outlets to those that are likely to be frequently used.
 10. The center should eliminate any 'dead legs' i.e. sections of unconnected pipe that may hold water that cannot flow, usually installed for future expansions.
 11. In new construction, locating all water uses around a central core or common wall will reduce installation cost by simplifying and reducing piping, make maintenance easier, and reduce hot water costs.
 12. Sensor operated toilets, sinks, soap dispensers, and paper towel dispensers are favored to reduce water use and cross contamination from occurring. Toilets and faucets should be WaterSense labeled using the minimum flow possible.
 - a. Specify faucet aerators labeled with maximum flow of 1.5gpm (gallons per minute); prefer 0.5gpm. That said, lavatory flows lower than 0.5 gpm (gallons per minute) can have issues with specific types of soap (ie. non foaming). Where this is of concern recommend using minimum 0.5 gpm faucets or higher.
 - b. Specify toilets labeled with maximum flow of 1.28gpf (gallons per flush) for retrofits. While ultra-low flow toilets (1.1 GPF or less) can be attractive from a water saving standpoint, there can be issues with proper removal of waste, especially in renovated buildings or where the fixtures are a long distance from the sewer main in the street.
 - c. Consider the ongoing cost of maintaining (if battery operated) and time to service (change batteries, fix jams, etc.) when you are selecting sensor operated devices. Some manufacturers offer flush valves that automatically recharge batteries every time they operate.
 13. Provide easily reached clean-outs for all waste piping.
 - a. Provide a shut-off valve inaccessible to children for each fixture/ classroom/ childcare room so maintenance does not affect multiple plumbing facilities. Shut off valves should be exercised quarterly to ensure they are in working order.
 14. Provide a floor drain in each restroom, kitchen, laundry, and water play activity area. Provide floor drains with "Waterless" or self-primed trap seal protection devices to reduce the likelihood of sewer gasses passing.
 15. Provide hot and cold water at each sink.
 16. All sinks that provide drinking water should be provided with in line filtration or a filter pitcher.

17. Centers that are renovating must have documentation stating that piping is lead- free and NSF 61 standard-compliant.
18. Sink/Countertop heights:
 - a. Adult usage: meet ADA requirements
 - b. Preschool: 24-26 inches above finished floor (AFF)
 - c. Toddler: 22 inches AFF
 - d. Diaper changing: 30 inches AFF

Lessons Learned

1. Provide areas for children to witness the inner workings of the HVAC/plumbing systems.
 - a. Dry wall can be cut out and polymer/Plexiglas installed to view these technical areas to increase awareness and encourage questioning about how these types of systems work.
2. Before occupancy, perform water testing attending to the following:
 - a. Test in at least the following locations: (1) a tap closest to the center's entrance (i.e., proximal location); (2) a tap as far and high as possible of the center's entrance (i.e. distal location); (3) a tap on any additional every floor, if the center has more than one floor.
 - b. Test tap water bypassing any existing water filtration devices.
 - c. If sample results show significant decay of free chlorine within the building, engage a water quality professional to assess the causes of quality loss. Testing for additional water quality parameters may be necessary. If no free chlorine is found in all samples, inquire with your health department about the type of disinfection used in the water supply, as chloramination may reduce or remove free chlorine from water.
 - d. If lead is above 1 ppb (parts per billion) or copper above 1.3 ppm (parts per million), engage a water specialist to determine the possible source of lead (particularly if not all samples are above the threshold) and recommend a suitable treatment, or consider installing point-of-use filters on each cold water tap that provides water for cooking and drinking.
 - e. If water treatment is installed, ensure that it is properly conditioned, and retest to confirm water quality.
 - f. Ensure that operators receive information regarding water quality, specification sheets and maintenance recommendations for any installed treatment devices, and information about any water quality specialist engaged by the design and/or construction team.
3. Periodic water testing may be required and results maintained at your center.
4. Water testing guidance:
 - a. Inquire about water quality as reported by the city [here](#).
 - b. Sample for the following parameters: lead, copper and chlorine (free and total). Free and total chlorine must be tested on-site; samples for lead and copper

measurements must be sent to a lab.

- c. Test only cold water and flush the tap for 30 seconds before testing.
- d. Determine if your center's water has fluoride, as this is information that families often need to share with their child's health care professional.

RESTROOMS

All adult restrooms are to be ADA compliant. Refer to the ADA for guidelines.

Regulatory Requirements

1. One toilet for every 15 toilet-trained children; one sink for every 25 children at appropriate heights for children (DHS 3270.82).
2. Refer to IBC (International Building Code) for adult fixture requirements as well as local plumbing code which may override IBC.
3. All hot water supplies accessible to children must have controlled temperature not to exceed 110°F at the point of delivery. Hot water pipes that exceed 110°F that are accessible to children will be equipped with protective guards (DHS 3270.71). PDPH childcare regulations state that 100°F is the required minimum temperature at the point of delivery accessible to children and for hot water pipes that provide supply. Mixing valves may need to be installed to arrive at the proper temperature to comply with both DHS and PDPH regulations.
4. Toilets and sinks are at child height or are accessible to children by means of a platform or step (DHS 3270.82).
5. Toilets may not be present in areas used for eating or cooking (DHS 3270.82).
6. Exhaust fans, toilet partitions, and ADA compliant grab bars should be included in the design. Refer to local building codes.

Best Practice Recommendations

1. See General Plumbing for recommendations about water flow rates and fixtures.
2. Restrooms to contain floor drains. Floor drains should be equipped with waterless or self-primed trap seals.
3. Although the number of toilets and sinks required are detailed clearly in the DHS regulations and are the minimum, it is strongly suggested that you consider adding additional toilets and sinks in each classroom, including handwashing sinks that are outside of the bathrooms.

4. Walls in all restrooms should be installed to resist water and moisture.
- a. PVC free Fiberglass reinforced panels 48" high is an economical product.
 - b. Ceramic tile is a durable, hard surface that is traditionally used in restrooms.
 - i. Larger size tiles minimize grout joints, which must be sealed upon initial installation to maintain a clean surface.
5. Provide shatterproof mirror surfaces when utilized in classrooms or bathrooms spaces.

Lessons Learned

1. In toddler and preschool classrooms, allow for bathroom spaces that have half walls and doors to facilitate supervision of the space.

ROOM NAME	BEST PRACTICES
Adults and Family Areas	
Mildly-Ill Room <i>(if needed)</i>	(1) adult sink, (1) child sink, (1) toilet, (1) floor drain
Staff Lounge	(1) adult sink, (1) dishwasher connection and drain
Restrooms (adults)	(1) adult sink, (1) toilet, (1) floor drain
Lactation Room	(1) adult sink
Learning Environments	
Infant Rooms	(2) adult sinks (hand wash/food prep, changing station), (1) dishwasher connection and drain
Young/Older Toddler Rooms	(1) adult sink, (2) child sinks (classroom, bathroom), (1) child-sized toilet, (1) floor drain
Preschool Rooms	(1) adult sink, (4) child sinks (2 restrooms, 1 classroom), (2) toilets, (2) floor drains
Atelier / Art Space	(1) child sink
ROOM NAME	PLUMBING CONNECTIONS
Service Areas	
Kitchen	(1) adult hand sink, (1) pre-rinse sink, (1) 3-compartment sink, (1) garbage disposal, (1) dishwasher connection and drain (1) floor drain
Laundry	(1) adult sink, (1) washer machine connection and drain, (1) floor drain
Janitor's Closet	(1) mop sink
Outside Areas	
Play Yard	Connections for water play, drinking fountains

ELECTRICAL

The project objective is to provide all required electrical systems including, but not limited to, power distribution, lighting control, communications, security, fire, and emergency systems to support the childcare center. All systems will be designed and installed in accordance with the latest adopted edition of the National Electrical Code (NEC) and other governing federal, state and local codes.

1. All receptacles shall be of type and in locations per governing code. The receptacles shall be tamper resistant outlets should be installed even if not required by code. Maintain documentation of the tamper resistant receptacles installed.
2. If tamper resistance receptacles are not installed, provide outlet covers to prevent electrical injury (DHS 3270.65). GFI electrical outlets to be installed near areas that are wet.
3. All lighting control switches in public spaces should have tamper-proof covers.
4. Use occupancy/vacancy sensors on the building's interior and exterior lighting fixtures for energy conservation and security--lights will brighten when the space is entered.
5. Consider adding installation of back-up power sources for passive survivability in case of power failures
6. Equipment should be EnergyStar labeled

LIGHTING

Regulatory Requirements

1. Rooms, hallways, stairways, outside steps, porches, and ramps shall be lighted by artificial or natural light in accordance with IESNA lighting level guidelines.

Best Practice Recommendations

1. All equipment should be EnergyStar labeled.
2. Use DLC (Design Lighting Consortium labeled lighting equipment, available [here](#)).
3. Correlated Color Temperature (CCT) of light is vital to support physical well-being and cognitive development. Correlated Color Temperature (CCT) should be in the 2700K to 4000K range depending on the tasks to be performed and the perceptions to be generated. Lighting fixtures with a CCT are recommended for general applications (the lighting design documents will specify the CCT locations).
4. Use sustainable lighting fixtures such as Lightly (See Appendix 6 for specification sheet).
 5. Every effort to utilize lighting equipment that is Made in the United States should be implemented to reduce the supply chain carbon footprint.
6. To the extent possible, the quality of light should remind children of a residential

- environment.
- a. Electric lighting color temperature should be in the 2700-3000K range.
 - b. In acoustic tile ceilings use indirect lighting fixtures or recessed can fixtures in lieu of direct light prismatic fixtures.
7. To achieve the maximum natural light in the learning environment, every attempt should be made to locate the rooms on the exterior perimeter of the center to allow for exterior windows.
- a. When this is not possible, adding sky lights, windows that lead to areas with natural light, or adding windows to other areas of the center allow the space to feel less constricted.
 - b. Rooms with windows that provide natural light should be equipped with daylight dimming sensors for dimmable lights to utilize daylight whenever possible.
 - c. For rooms with no or limited windows, use window-mimicking lighting fixtures such as LightGlass (See Appendix 8 for specification sheet), where possible, to approximate the physical and perceptual benefits of daylight.
8. The amount and orientation of natural light needs to be considered in the design. Lighting design studies are recommended and will include photometric calculations of the learning environments.
9. Tunable lighting systems, as specified by Circadian lighting experts, may contribute to health and perceptual well-being
10. Light in all rooms, including sleeping areas, must be maintained at a sufficient level to provide observation of the space from adjoining spaces.
- a. Use of dimmers allows for light to be lowered but present during nap times, which allows for proper observation and supervision of the children present.
 - b. When possible, multiple light switches/lighting circuits should be installed to allow for different levels of lighting in each classroom if dimmers are not used.
11. Use LED lighting rather than florescent or incandescent lighting.
12. Plan for mitigating Light Loss Factors with a lighting fixture maintenance program.
13. Plan for LED end-of-life replacement using Circular Economy for Lighting principles (See CIBSE TM66: 2021: Creating a circular economy in the lighting industry in Appendix 8).
14. Light fixtures in all learning environments are to have a protective shield in the event there is a breakage of the bulbs.
15. Parking areas, pedestrian walkways, or other exterior portions of the premises subject to night use by the center's occupants shall be illuminated to provide safe entrance/egress from the center. The process of layering light versus over-lighting

an area is more effective in promoting safety and visibility

16. At a minimum, lighting levels should be in accordance with required levels suggested in CFOC as follows
 - a. Reading, painting, and other close work areas: 50 to 100 foot-candles on the work surface; 500 lx on children's work surface for reading and close work.
 - b. Work and play areas: 30 to 50 foot-candles on the surface; 250 lx ambient light for class and play areas (additional task lighting up to 500 lx provided where appropriate).
 - c. Stairs, walkways, landings, driveways, entrances: at least 20 foot-candles on the surface; 100 lx in stairs and corridors and
 - d. Sleeping and napping areas: no more than five foot-candles during sleeping or napping except for infants and children who are resting in the same room where other children are involved with activities. Capability of being dimmed in a range of 500 lx to 50 lx for sleeping and napping areas

Lessons Learned

1. Install track lighting in certain areas of the center to create interest areas to display art or other activities.
2. Where practical, task lighting should be provided for reading, painting, and close work.

FIRE PROTECTION

Regulatory Requirements

1. The installation of a building sprinkler system must be evaluated in conjunction with your architect and a fire protection professional to ensure compliance with all building codes. At a minimum, a sprinkler system is often required if your center cares for children under the age of 2 ½ and/or your center is licensed for 100 children or more. The system should be designed per all applicable codes and Fire Marshall requirements. Building construction materials, exits, distances from exits, etc., will dictate the need for sprinklers.
 - a. Provide sprinkle guards when needed.
 - b. When sprinklers are installed, 18 inches of open space must be maintained between the sprinkler and all other materials, furnishings, or walls.
 - c. Sprinkler system to be inspected annually and serviced as needed.
2. A fire alarm system shall be installed throughout the building. The system should be designed per all applicable codes and Fire Marshall requirements. Smoke detectors should be provided throughout the center. The system should be both visual and audible. Emergency lighting must also be provided.

3. Provide fire extinguishers per local building codes.
 - a. Consider semi-recessed locations that prevent child access.
4. Fire extinguishers are to be serviced regularly to ensure functionality. Consider setting up a contract with a local company that can provide this service. Provide the cost of the service in your operating budget.

Best Practice Recommendations

1. Required exits must be clearly identified/ marked (CFOC 5.1.4.6).
2. A minimum of two exits from the childcare program must lead directly outside of the building (CFOC5.1.4.1).
3. The travel point between any point in a sleeping room and an exit access door in the room shall not exceed 50 feet.
4. Each learning and activity space should, ideally, be provided with one direct outdoor exit.
5. Provide the capacity for permanent carbon monoxide monitoring (NAEYC 9.C.11).
6. Interior/Exterior classroom doors shall utilize pushbutton or push bar release mechanisms that are located a minimum 72 inches above the finished floor. These door release mechanisms shall be tied into the building's fire alarm system and release when the system is in alarm.
7. Fire drills should occur monthly.
8. Budget for annual sprinkler system inspections. The responsibility for costs of sprinkler servicing should be addressed in your lease.
9. Ensure that check valves are installed so the fire sprinkling system is isolated from the drinking water lines

SECURITY

Best Practices

1. Limit entry to the center to one to two doorways to allow for the doors to be well observed by center staff.
2. The entry should be visible to the adults inside the center. The lobby area should be adjacent to the director's office.
3. Entry shall be controlled either manually by center personnel buzzing families in, or electronically through an access control system.
 - a. Other than entrance doors that access a vestibule with controlled access. All doors will be locked from the exterior at all times.
 - b. If manual entry by center personnel is to occur, means to allow for center staff to view the person requesting entry is necessary.

4. Provide an access control device at the entrance for authorized access to the center without relying on center personnel if budget permits. A communication system should be installed in each classroom to allow for emergency calls.
5. The design must ensure that a child will be unable to exit the center without staff knowledge.
6. To control outside personnel from entering and exiting the building, the mechanical space(s) should be located with maintenance access available from the exterior of the facility.
7. Emergency panic buttons shall be installed in areas of the building to alert authorities of unauthorized entry. These panic buttons shall be tied into the building's security system.

TELECOMMUNICATIONS/COMPUTER TECHNOLOGY

Best Practices

1. A hard-wired/wireless data network LAN connection and telephone communication system will be provided in all adult and child learning spaces.
2. All classrooms will be provided with a minimum of two data outlets for children's technology stations.
3. Phone systems are to have multiple lines and ideally be equipped with an intercom feature.
4. The administrative area will be equipped with adequate reprographic equipment.
5. A telephone/ data closet will be constructed to house all telecommunications equipment.
6. A sufficient number of wireless access points will provide coverage throughout the center.

GENERAL SAFETY

Best Practices

1. Locked storage for medications, cleaning products, or other hazardous materials must be provided in locations out of the reach of children
2. "Childproof" interior hardware devices must be mounted on the interior of cabinets and drawers within children's reach.
3. Furnishings that are top heavy shall be secured to prevent tipping.



AGE-SPECIFIC CLASSROOM SPACES

This section includes both the regulatory and best practices information in the design of age-specific spaces.

Infant

When addressing spaces for infants, one must consider the fact that infants spend much of their time on the floor, require varying times of day to sleep and eat, and have food preparation and sanitary needs that are to be incorporated into the final design. A high-quality program shall allow for 85 to 95 square feet per child.

1. Provide space for cribs in the design based on the maximum group size prescribed by the licensing agencies and best practice. Allow two feet between cribs per state licensing (DHS 3270.106(f)). The ERS dictates at least 36 inches of open space from other napping children or furniture/equipment on three sides of nap equipment. The expectation is for all children to be separated in this manner to prevent the spread of germs during sleep as well as to ensure adequate space for access in case of an emergency.
2. Design adequate work space in infant rooms for dishwasher, refrigerator, diaper storage, and a work station for food preparation.
 - a. Countertop should be made of a solid surface material that is easily cleaned and sanitized.
 - b. This space be sectioned off from the activity and sleep areas of the infant room. If the dishwasher or other appliances are open to the classroom, millwork enclosure should be incorporated into the design to limit children's access.
 - c. Allow for a counter height surface with GFI electrical outlet to allow for a bottle warmer to be present without the use of extension cords and to allow for the warmer to be maintained at a height that is not accessible to the children to prevent injury.
3. Design or placement of the diaper changing table should be accessible to the adult diaper hand washing sink and be situated to allow for supervision of infants in the classroom.
 - a. Ventilation over the infant changing area should be provided.
 - b. Allow for a solid barrier (clear) or three feet of open space around the changing table to discourage play in this location to minimize the risk of cross-contamination (NAEYC 5.A08).

4. The room should be friendly and inviting and have a variety of textures for infants to experience.
 - a. Each classroom should have lockers/cubbies, not accessible to infants enrolled and should be wall mounted, for children's coat storage, personal papers, additional diapers and wipes and change of clothing. Locker/cubbies should be located near the entry point of the classroom.
5. Infant classroom should provide for an adult bench/area and shoe rack located outside of the classroom to allow adults to remove shoes or place shoe covers before entering the room (NAEYC 5.C.06).
6. Areas of mirrored ceiling tiles in the infant areas are preferable.
7. Provide grab bars in front of mirrors for infants and toddlers within a classroom.
8. In addition to the sample furniture and fixture provided in Appendix 5, manipulative, mirrors, tunnels, balls, musical items, push toys, etc., should be provided.
9. Areas designated for infant cribs or resting cots should be separated from active spaces and have dimmable lighting. If walls separate active and sleep areas are planned, low walls that allow teachers to see, hear, and assess children at all times must be considered. Classroom space will provide an area not accessible to children for cot or mat storage (for children over 12 months of age).
10. Recommended illuminance levels for infants are different than for children and adults (See Appendix 6 for Illuminating Engineering Society's recommendations). Extra care to avoid glare should be taken.
11. Infant bodies and minds are rapidly developing and care should be taken to provide a high level of indoor environmental quality that protects them from ingestion of toxins that are commonly present in the built environment. Particular care should be taken with flooring materials avoid synthetic/plastic fibers and surfaces that could shed microplastics.
12. Providing a space to store car seats and strollers is not only convenient to families but also prevents injuries and obstruction of egress. If a place for storage is not provided, often families will place these items in areas that look appropriate but can be dangerous during emergency situations.

Toddler

As children enter the ages of 12 to 36 months, they expand their exploration both physically and cognitively. Furniture and fixtures need to be selected to be appropriate for this group of children. A high-quality program for toddlers shall allow for 60 to 70 square feet per child.

1. Design or placement of the diaper changing table should be accessible to the adult diaper hand washing sink and be situated to allow for supervision of toddlers in the classroom.
2. In all learning spaces, there shall be an attached, handicapped accessible bathroom that includes at least one toilet and one sink scaled for children (ECERS 12, 5.2). Additional toilets and sinks to assist in the daily operation of the classroom are recommended.
3. Each classroom should have lockers/cubbies, for children's coat storage, personal papers, additional diapers and wipes, lunches/snacks and change of clothing. Locker/cubbies should be located near the entry point of the classroom.
4. Classroom space will provide an area not accessible to children for cot or mat storage.
5. Children's restrooms should be open to allow for staff supervision. This may be accomplished by using half walls, half doors, etc. (NAEYC 9.A.05).
6. Provide quantity of sinks in accordance with NAEYC 5.A.09. Sink height for toddlers should be mounted 18 inches to 20 inches above the floor.
7. All countertops located in wet locations should be made of a solid surface material that is easily cleaned and sanitized.
8. Toddler bodies and minds are rapidly developing and care should be taken to provide a high level of indoor environmental quality that protects them from ingestion of toxins that are commonly present in the built environment. Particular care should be taken with flooring materials avoid synthetic/plastic fibers and surfaces that could shed microplastics.
9. Provide grab bars in front of mirrors for young toddlers within a classroom.

Preschool

1. In all learning spaces, except infant rooms, there shall be an attached, handicapped accessible bathroom that includes at least one toilet and one sink scaled for children (ECERS 12, 5.2). Recommend additional toilets and sinks to assist in the daily operation of the classroom.
2. Children's restrooms should be open to allow for staff supervision. This may be accomplished by using half walls or half doors (NAEYC 9.A.05).
3. Provide quantity of sinks in accordance with NAEYC 5.A.09. Sink height for preschoolers should be mounted 24 inches to 26 inches above the floor.
4. All countertops located in wet locations should be made of a solid surface material that is easily cleaned and sanitized.
5. Each classroom should have lockers/cubbies for children's coat storage, personal papers, lunches/ snacks and change of clothing. Locker/cubbies should be located near the entry point of the classroom.
6. Preschool bodies and minds are rapidly developing and care should be taken to provide a high level of indoor environmental quality that protects them from ingestion of toxins that are commonly present in the built environment. Particular care should be taken with flooring materials avoid synthetic/plastic fibers and surfaces that could shed microplastics.
7. A high-quality program for preschoolers shall allow for 50 to 55 square feet per child.

School Age

1. There shall be two attached, handicapped accessible bathrooms that include at least one toilet and one sink per bathroom. Additional toilets and sinks are recommended to assist in the daily operation of the classroom.
2. School age restrooms shall have a full-sized stall door to allow for privacy.
3. Provide quantity of sinks in accordance with NAEYC 5.A.09. Sink height for school age should be mounted 30 inches above the floor.
4. All countertops located in wet locations should be made of a solid surface material that is easily cleaned and sanitized.
5. Children's bodies and minds are rapidly developing and care should be taken to provide a high level of indoor environmental quality that protect them from ingestion of toxins that are commonly present in the built environment.
6. Each classroom should have lockers/cubbies for children's coat storage, personal papers, and change of clothing. Locker/cubbies should be located near the entry point of the classroom.

ANCILLARY CENTER SPACES

Center renovations may allow for the opportunity to add ancillary spaces that are not currently present in the center. In addition, many of the spaces described below should be designed into a new center to increase the functionality of the center both for adults and children.

LOBBY AREA: In many cases, this is the first space a family will visit and can set the stage for the family's overall feel of the childcare center. This space should be designed to:

1. Feel friendly and inviting with general information about the center, accreditations, STAR level, etc., displayed for family viewing.
2. Be visible from director's or other administrative individuals' work spaces.
3. Have seating for adults and some limited activity for children to engage in.
4. Have access to the ADA compliant adult restrooms.
5. Allow opportunities for family gathering and activities.
6. Access to stroller storage

ATELIER: An atelier is defined as a workshop or studio, typically used by an artist or designer. In childcare centers, this space is often where children can create. If space is available in the project, the atelier concept is a great addition but not required by licensing or best practices.

1. The area should be designed to accommodate the maximum group size that the center offers in order to allow for all children to participate.
2. Permanent wall storage or closets should be designed to store art supplies. If not feasible, mobile equipment may be utilized.
3. Child height bulletin boards to display children art should be installed on walls.
4. Mess sinks at child height that allow for a high faucet and deep basin will be installed to allow for easy clean up in these spaces after art or science experiments occur.

NURSING ROOM: Mothers who choose to nurse their children at the childcare center shall be provided with a comfortable and private area (NAEYC 5.B.09). This area will also be used by mothers (of children in the program or mothers who are on staff) who are pumping. This area will include:

1. a hand washing sink;
2. a comfortable chair and side table;
3. electrical outlets; and

4. A refrigerator (mini-sized may be adequate).

ADMINISTRATIVE OFFICES/SPACES: Space should be provided for all administrative personnel employed at the center. Adequate room for desks, file cabinets, and computer equipment should be provided. The director or administrator of the center should also have space to conduct conferences with families and /or staff for up to four individuals. This space should include:

1. Access to computers and electrical power for equipment.
2. Wi-fi availability to access external training.
3. Access to adult and children’s restrooms.

MULTIPURPOSE/TRAINING ROOM: If possible, the design should include a multipurpose room that can be utilized for the meeting and training of staff. The size will be determined by the number of staff employed at the center. The room should:

1. Be large enough to accommodate the staff at the center comfortably with adult size table(s) and chairs.
2. Have storage for table and chairs. Alternatively, equipment may be purchased to stack or reduce space usage. This will allow for the space to have flexibility should it be needed for other activities or events.
3. Have access to computers and electrical power for equipment.
4. Have wi-fi availability.
5. Provide access to adult and children’s restrooms.

STAFF/RESOURCE ROOM: NAEYC and ERS both require a space for staff to allow for privacy and the ability to plan curriculum and activities. The size of the space will be contingent on the size of the center staff but should include the following:

1. Access to adult restrooms.
2. Adequate storage for all center resource materials.
3. Computer and wi-fi access.
4. Adult size tables and chairs for staff use.
5. Kitchenette area with a sink, refrigerator, microwave, and dishwasher to allow for staff meals.
6. Lockable staff cabinets or lockers for personal items and clothing.

MILDLY ILL ROOM: Separating a child who becomes sick while at the center can help keep all children and staff healthy while allowing for the comfort of the ill child. The room should be designed to provide the following:

1. Rest mat or cot for a sick child.
2. Adult chair or rocker for the staff person accompanying the child.
3. Adult sink for hand washing.
4. Counter to be used as a work space with an under the counter refrigerator.
5. Cabinet storage for diapers, latex gloves, and infant wipes, etc.
6. Visibility by center leadership for appropriate supervision.
7. Floors should be similar to restroom finishes – washable and resistant to moisture.

LAUNDRY ROOM: On-site washers and dryers are a bonus to staff and from a health standpoint. The ability to clean and sanitize clothing that has been soiled is advantageous, especially in programs that care for infants and toddlers.

1. The equipment installed in the laundry rooms should be able to handle high volumes and be energy efficient.
2. Floors should be similar to restroom finishes – washable and resistant to moisture.
3. If possible, a floor drain should be included in the space.
4. Ventilation/mechanical exhaust in the laundry room needs to be considered due to moisture in a limited space and the dryer needs to be vented to the exterior.
5. Shelving or cabinets should be provided to store laundry supplies.
6. A counter should be designed to allow staff to have sufficient work space. It should be a solid surface that allows for cleaning and sanitizing.
7. A full, lockable door should be installed to ensure that children do not have access to the area.

CAR SEAT AND STROLLER STORAGE: Stroller and child car/safety seat storage areas shall be provided. It is recommended that this be in an area outside but adjacent to classrooms. Center demographics will guide how much space will be needed. For example, in an urban setting where most families walk to the center, a large stroller area will be needed.

1. Millwork shelving will be installed to store car seats at 36 inches from the floor. The depth of the shelves will be approximately 24 inches to 30 inches.
2. Large hooks may also be used for hanging car seats if shelving is too costly.

3. Walls should be durable, utilizing linoleum, plastic laminate, or fiberglass reinforced panels, to limit wall damage in the space.
4. Dutch door/half door should be installed at the entry point.
5. Hooks for folding and storing strollers is to be considered to ensure adequate floor space.
6. Floor should be durable and cleanable. Concrete is acceptable. A floor drain should be included if able.

JANITOR'S CLOSET

1. The floor should be similar to flooring used in all restrooms and other wet areas.
2. Plastic laminate, fiberglass reinforced panel, or other non-porous material should be provided at a minimum 48 inches on all walls.
3. A floor drain should be provided.
4. Lockable full door should be installed.
5. A floor mounted mop sink should be installed.
6. Adequate shelving and hooks should be provided for janitorial supply storage.
7. There should be a minimum of one janitorial closet per floor of the building.

TELEPHONE/DATA/SECURITY CLOSET

1. Dedicated space with easy access for adults.
2. Should have a lockable full door.
3. Additional temperature controls may be needed due to the heat that is generated by the various systems/equipment operating in the closet.
4. Plywood or other solid material should be installed on the walls to allow for the various telephone and data lines to be secured.
5. Security or computer panels should be installed and secured.
6. A dedicated electrical outlet for each of the items listed above will need to be provided.
7. The security and fire alarm system will need to have a telephone/data outlet.

KITCHEN/FOOD PREPARATION AREA

All childcare centers in Philadelphia must work with the PDPH to obtain a Food Prep and Serve License (FPSL) that is issued by L&I if food preparation will take/ takes place in the center. The process involves submitting plans, training, inspections and fees, which need to be part of both the center’s planning and capital budgets. The FPSL must be renewed annually, for which there is a fee that needs to be included in the ongoing operating budget.

The design of the kitchen/food preparation area will depend on the type of food service the center will offer to children. Centers that use a catering service or that require families to “brown bag” their children’s lunches may have modified design and equipment needs. A center that will prepare meals on-site will need significantly more equipment, but in either case, the center will need to submit plans and conform to PDPH requirements for the operation of a food service establishment. Requests for adaptations (variances) for your particular facility need to be submitted to PDPH in writing and approved by PDPH plan review specialists. The design of a kitchen space for a full-service kitchen is more extensive and will need appropriate commercial grade equipment to provide a full-service food operation. It is strongly suggested that the center seek design assistance from a commercial kitchen design firm/provider to evaluate traffic flow, equipment needs, storage, etc., prior to the final design of the space.

For whatever level of food-service you anticipate or may want to provide in the future, you will need to submit a food plan review application to PDPH ([Here](#)). The plan needs to include a drawing of your food prep area and spec sheets for equipment, names, and model numbers of the proposed commercial equipment.

Regulatory Requirements

PDPH usually requires the following, or a written variance plan that is approved by PDPH:

1. A food safety trained staff person (such as ServSafe or other approved training) on-site at all times that children are in care.
2. Back flow diverter device in the food prep area.
3. Three-compartment sink.
4. Separate handwashing sink.
5. Commercial refrigerator, investigate NSF certification
6. Commercial freezer, investigate NSF certification
7. Storage for equipment and dry goods (usually wire shelves on wheels).
8. Safe storage for chemicals separate from food and food prep areas.

9. Convection ovens, stoves, and microwaves, if used, must be commercial.
10. Plan for recycling and composting.
11. Plan for trash removal, storage, and pick up.
12. A thermometer in each refrigerator and freezer to maintain appropriate temperatures (DHS 3270.107) that are logged daily.
13. Eating and drinking utensils that are free from cracks and chips (DHS 3270.108).
14. Disposable cups, plates, bowls and utensils are not reused (DHS 3270.108).
15. Styrofoam cups, plates, and bowls are not used (DHS 3270.108).
16. Water temperature in areas accessed by children must be at least 100°F.

Best Practice Recommendations

1. All equipment should be EnergyStar labeled.
2. No combustion fuels should be installed in the facility. In addition to environmental concerns, they can cause poor indoor air quality. See PA CHECK program for possible incentives [Here](#).
3. Participate in a composting program to reduce waste and enrich the soils.
4. Provide adequate space to accommodate equipment needs for the operation.
5. Provide space for recycled items and food waste with the approved covered trash receptacles.
6. Provide space for storage of food carts for delivery to each classroom in the design of the food service area.
7. Evaluate how deliveries will be made to the center that would not interrupt the classroom activities and a normal day's operation. And maintain the safety and security of the facility.
8. Based on your food vendor's delivery schedule/cycle, design adequate storage space for dry food, refrigerated, and freezer products for the center.
9. Recommended that floor be quarry tile; sheet vinyl should be avoided
10. Use task lighting, such as under-cabinet lighting, to supplement general lighting
11. Kitchen shall have a minimum of (1) floor drain.
12. All walls in the kitchen area are to be fiberglass reinforced panels or other durable product such as ceramic tile.
13. All commercial foodservice equipment to be NSF certified
14. Suggested ~~all~~ electric equipment listed below will depend on the type of food service provided and the licensed capacity of the center:
 - a. Commercial sanitizer

- i. Determine detergents and appropriate hookups needed.
- ii. Ensure water temperature meets unit needs in the kitchen area.
- b. Commercial upright freezer with built-in unit thermometer.
- c. Commercial upright Refrigerator with built-in unit thermometer.
- d. Commercial can opener installed on a stationary surface.
- e. Commercial 4–6 burner range
- f. Commercial microwave.
- g. Commercial convection oven.
- h. Warming cabinet.
- i. Stainless steel work tables that allow for proper cleaning and sanitizing of surfaces.
- j. Wire shelving that allows for food items to be stored a minimum of 6 inches off the floor.
- k. Three compartment sink.
- l. Hand washing sink.
- m. Food carts for meal delivery to the classrooms (folding units allow for carts to take up less space in the kitchen when not in use).
- n. All necessary small wares that are National Sanitation Foundation (NSF) approved (plates, cups, bowls, flatware).
- o. NSF approved food storage bins.

FURNISHINGS

The childcare classrooms shall include the items listed below to allow the space to meet the age group’s developmental needs, as well as provide a home-like environment for the children to thrive in. Attached as Appendix 5 are sample furniture layouts for infant, toddler, and preschool and school-age classrooms.

Regulatory Requirements

1. Furnishings and equipment within the center shall meet all applicable codes and standards.
2. Items that have been recalled are to be removed from the program immediately (DHS 3270.102).
3. Furnishings and equipment must be clean and good repair, free from rough edges, sharp corners, no pinch or crush points, and free from splinters and exposed bolts (DHS 3270.102).

4. Indoor play equipment is installed over a protective surface covering that does not interfere with the stability of the equipment (DHS 3270.102).
5. Toys and materials that are less than one inch are not accessible to children who are under 3 years of age or who are still placing items in their mouths (DHS 3270.103).
6. High chairs shall have a wide base and a T-shaped safety strap that is used at all times when a child is utilizing the high chair (DHS 3270.105).
7. Furnishings are safe and appropriately sized (DHS 3270.104).
8. Stacked cribs are not permitted (DHS 3270.106).
9. Cribs must meet all requirements of the Consumer Product Safety Commission and documentation must be maintained.
10. Crib and playpen slats may not be greater than 2 3/8 inches apart (DHS 3270.106).
11. Toys, bumper pads, pillows, blankets or other soft items may not be placed in a crib while an infant is present (DHS 3270.106).

Best Practices

1. If synthetic materials are used, use products made with recycled content, avoid finishes with polyvinyl chloride (PVC) content to the extent possible. Use products made with recycled content, avoid finishes with polyvinyl chloride (PVC) content to the extent possible.
2. Furnishings are one area where the circular economy is very evident – consider acquiring used wooden furnishings for classrooms and offices.

DISCLAIMER

The suggestions and recommendations contained in this reference guide are provided to inform the design of a high-quality childcare center. Information related to licensing by agencies of the Commonwealth of Pennsylvania and the City of Philadelphia are developed from current documents provided by those agencies and their regulations for licensing. Changes may be put forth by these agencies and a provider should refer to the Pennsylvania Department of Human Services and the City of Philadelphia and the related agencies responsible for childcare licensing prior to starting a project. The provider should consult with professionals, including attorneys, architects, engineers, and zoning and health officials to review up-to-date promulgations that may be put forth by any and all licensing agencies. This document is not intended to be inclusive of all possible design methods and materials and should be used as a guide to developing a high-quality childcare facility.



APPENDIX 1



APPENDIX 2



APPENDIX 3

CHILDCARE CENTER LICENSING CHECKLIST

Physical Site

- Indoor space is measured to meet a minimum of 40 square feet per child. (DHS 3270.61).
- Outdoor play spaces are separate from unsafe areas and use of fencing or natural barriers restrict children from unsafe area. (DHS 3270.63).
- Preschool children may not be involved in small or large muscle activities in the group space in which children are sleeping or resting.
- Exterior walkways are free of hazards, i.e. ice, snow, leaves, equipment or other hazards (DHS3270.64).
- Electrical outlets have protective covers present when accessible to children under 5 years of age. If tamper resistant receptacles are utilized, documentation must be available to prove this product has been installed (DHS 3270.65).
- All cleaning materials or other toxic materials are locked and made inaccessible to children at all times (DHS 3270.66 (a)). All items listed as “keep out of reach of children” shall be locked and inaccessible (i.e. dish detergent, white-out, lotions, teachers’ purses, hand sanitizer, items in diaper bags). If items are in children’s personal belongings, remove and return to the family at the end of the day.
- All cleaning materials or other toxic materials are stored in their original container or in a container with labeling that specifies the contents (DHS 3270.66 (b)). When labeling cleaning products, this label will include: product EPA registration number, dilution recipe, contact time required, other directions relevant to proper usage.
- Cleaning materials and other toxins are stored away from food, food preparation areas, and childcare spaces. When storing these items in a locked cabinet, store these items on the bottom shelf so that if a spill occurs, all items beneath the cleaning or toxic materials are not contaminated (DHS 3270.66 (c)).
- No toxic plants are present in the childcare spaces. See the poison plant list to ensure for safety (DHS 3270.66 (d)).
- All arts and crafts materials shall be nontoxic. If the product label states, “keep out of reach of children” (i.e. shave cream, potting soil with fertilizer) the product may not be used (DHS 3270.66 (e)).
- Trash is removed from the facility at least once per day (DHS 3270.67 (a)) ideally twice per day to prevent the risk of cross-contamination and prevent odor.

- Trash shall be removed from the facility grounds at least once per week (DHS 3270 (b)).
- Center shall be free of insect or rodent infestation (DHS 3270.67 (c)). Use of products to control insects or rodents may not be accessible to the children.
- Trash contaminated by human secretions or excrement shall be contained in a covered, plastic lined receptacle (DHS 3270.67 (d)). These receptacles shall be easily cleaned.
- Smoking is not permitted in the childcare space, in the outdoor play space, or near food preparation areas. Ashes and cigarette butts are prohibited in all of the spaces listed above (DHS 3270.68). Add no smoking signage.
- Running water must be present.
- Adequate drinking water must be available that meets the standards set by the Pennsylvania Safe Drinking Water Act (DHS 3270.69 (a)). and made available to children of all ages throughout the day (DHS 3270.69 (b)). Inform families if fluoride is present in the tap water at your center.
- Drinking water is provided to children who are outdoors for a period exceeding one hour (DHS 3270.69 (d)).
- Hot water temperature not to exceed 110°F in areas accessible to children (DHS 3270.69 (b)).
- Hot beverages are not permitted in childcare spaces.
- Hot water pipes and other sources of heat exceeding 110°F that are accessible to children are equipped with a protective guard or shall be insulated to prevent direct contact that may result in injury (DHS 3270.71).
- Indoor temperature is no less than 65°F.
- Indoor temperature is no greater than 82°F, unless a means of mechanical air circulation is present but out of reach of children (DHS 3270.70 (b)).
- Childcare spaces have natural or mechanical ventilation.
- If windows are operable, they shall have screens and screens must be in good repair (DHS 3270.72 (b)(c)).
- Windows above the ground floor must be modified to limit opening to 6 inches or fewer (DHS 3270.(d)).
- Doors above ground level that open directly to the outdoors must be inaccessible to children (DHS 3270.72 (d)).

- Childcare facility shall have an operable telephone and published telephone number (DHS 3270.73).
- The following telephone numbers shall be posted by each telephone: nearest hospital, police department, fire department, ambulance, poison control center (DHS 3270.74).
- A first aid kit must be present in each childcare space and inaccessible to children (DHS 3270.75 (a)(b)) and will include, minimally, the following:
 - Soap
 - Adhesive bandages
 - Sterile gauze pads
 - Tweezers
 - Tape
 - Scissors
 - Disposable nonporous gloves
 - Bottle of water
- First aid kit must accompany a group of children when away from the center and when in the interior or exterior gross motor spaces (DHS 3270.75 (d)).
- Floors are in good repair. Carpets do not have frayed or rolled edges that can cause tripping. Carpets that may slip have non-skid products beneath them to prevent slipping (DHS 3270.76).
- Ceilings are in good repair. Ceiling tiles that are stained are replaced and cause of the stain (leak) addressed (DHS 3270.76).
- Center surfaces inside and on the facilities outdoor play space are in good repair, kept clean, and free from visible hazards (DHS 3270.76).
- Walls are in good repair (DHS 3270.76).
- Paint and plaster may not be chipped, wallpaper may not be peeling. Exterior paint may not be peeling, including walls and equipment paint (DHS 3270.77 (a)).
- When facility surfaces are painted, paint is lead-free (DHS 3270.77 (b)). Maintain documentation.
- Children may not be present if paint is being removed, interior or exterior (DHS 3270.77 (c)).
- Removal of leaded paint and paint products is completed in a manner that avoids dispersal of dust and debris in the environment. Abrasive methods of removal of leaded paint that release leaded particulates in the environment are prohibited (DHS 3270.77 (d)(c)). Maintain documentation.

- Dust and debris from the removal of leaded paint shall be removed and disposed of in accordance with federal, state and local regulations (DHS 3270.77 (f)).
- Children may return to the facility once removal of leaded paint is complete and all debris has been removed (DHS 3270.77 (g)).
- Rooms, hallways, stairways, outside steps, porches, and ramps shall be lighted by artificial or natural light (DHS3270.78).
- Weapons, firearms, and ammunition are prohibited in the childcare facility (DHS 3270.79).
- Stairs with three or more steps shall have a handrail (DHS 3270.80 (a)).
- A ramp shall be equipped with a handrail (DHS 3270.80 (c)).
- A porch shall be equipped with a handrail (DHS 3270.80 (d)).
- Interior steps shall be equipped with a nonskid surface (DHS 3270.80 (b)).
- Glass windows and doors located in high traffic areas, childcare spaces, or gross motor spaces shall have a visual strip or other visual identification placed on the glass to define the barrier and prevent injury (DHS 3270.81).
- Toilets are clean and in working order.
- Toilets and sinks must be at proper heights for children to use or must be easily accessible by means of platforms or steps (DHS 3270.82 (e)). Ensure that these surfaces are non-skid and easily cleaned.
- Toilets may not be present in areas used for eating or cooking (DHS 3270.82 (f)).
- Toilets and fixtures are cleaned and disinfected daily and in good repair (DHS 3270.82 (g)).
- Hand washing signage is to be posted at each toilet, diapering area, and sink indicating the following; “A facility person and an able child shall wash their hands after toileting and before eating” (DHS 3270.82(h)).
- Toileting and diapering areas shall have a clean, plastic lined, lidded, hands-free trash receptacle (DHS 3270.82 (i)).
- A source of running water for hand washing must be present in infant and toddler diapering areas (DHS 3270.82 (j)).

Fire Safety

- Exits - stairways, hallways, etc. - are unobstructed (DHS 3270.91 (a)).

- Gates are permitted if they open easily and not disapproved by building code or local ordinance (DHS 3270.91 (b)).
- If a door or doorway exits into a stairwell and there is no landing beyond the door, the door shall be restricted from opening (DHS 3270.91 (c)).
- No portable spaces heaters (DHS 3270.92 (a)).
- Fixed space heaters shall be approved for use by a local fire safety professional. Written approval of the installation and written approval for use shall be on file at the facility. A fixed space heater shall be insulated or equipped with protective guards (DHS 3270.92 (b)(c)).
- Fire drills should occur monthly but at least every 60 days. Facility persons and children in attendance shall all participate in the fire drill. All shall exit the building, weather permitting (DHS 3270.94 (a)).
- Fire drills are recorded and the following documented: date, time, the hypothetical location of the fire, evacuation time, name of the facility persons, and number children participating in the fire drill (DHS 3270.94(b)).
- Fire drills are held at a different time of the day or night (if applicable), held during various program activities (i.e. nap), and hypothetical location shall be changed for each drill (DHS 3270.94 (c)).
- Evacuation routes are posted in all rooms (DHS 3270.94(f)).
- Evacuation plans allow for all persons to be removed from the facility in a single trip, i.e. use of evacuation crib to evacuate four infants in one crib (DHS 3270.94).

Equipment

- Sufficient play equipment and materials are present and in good repair (DHS 3270.101(a)).
- Play materials shall include items from the following categories: dramatic role play, cognitive development, visual development, auditory development, art materials, large muscle development (DHS 3270.101 (c)).
- Toys and equipment, indoors and outdoors, must be clean, in good repair, free from rough edges, free from sharp corners, with no pinch or crush points, and free from splinters and exposed bolts (DHS 3270.102(b)).
- Knives and sharp objects such as teacher scissors are kept out of reach of children. Children’s scissors have rounded edges.
- All electrical cords, window treatment cords, etc., are fastened to prevent child manipulation to prevent strangulation or tripping.

- Shelving is unable to be pushed over by children. Higher shelving to be secured to the wall or other permanent structure to prevent tipping.
- Soiled toys are cleaned, rinsed, and sanitized unless soiled with human excrement, in which case the items are cleaned, rinsed, disinfected, and then rinsed prior to returning to the play space (DHS 3270.102(b)). Classroom should maintain a bin for soiled toys that is out of reach of children to remove soiled toys from the play space immediately.
- Indoor play equipment is installed over a protective surface covering that does not interfere with the stability of the equipment (DHS 3270.102(f)). This includes, but is not limited to, adding a pad under carpeting when an indoor climber is utilized. Do not utilize foam tiles without a covering as this can be bitten by a child and pose a choking risk.
- All materials or toys that have been recalled by the manufacturer or described as hazardous by the CPSC may not be used in the childcare space (DHS 3270.102(g)).
- Toys and objects with a diameter less than one inch (small broken crayons, pom poms, paper clips) are not accessible to children under 3 years of age or those who are still placing items in their mouths (DHS 3270.103).
- Infant and toddler outdoor areas are free from choking hazards, such as small rocks or mulch.
- Staples and push pins are not used in infant and toddler classrooms.
- Plastic bags are inaccessible to children.
- Styrofoam is inaccessible to children.
- Furniture is clean, safe, and appropriate for the child's size, age, and special needs (DHS 3270.104(a)).
- School-age children have access to tables and chairs that are appropriately sized for study space (DHS 3270.104(b)).
- All high chairs have a wide base and a T-shaped safety strap that is used at all times when a child is in the chair (DHS 3270.105).
- Clean and individual age-appropriate rest equipment is available to preschool, toddler and infant children. Rest equipment is labeled for the use of a specific child and cleaned prior to utilizing for another child (DHS 3270.106(a)). Label rest equipment with cot clips or other means that prevents tape or direct marking on the rest equipment to maintain sanitation and longevity of the product.
- Bed linens are not to be used alone as rest equipment (DHS 3270.106(b)).

- Bed linens are to be provided by the parent or operator per the agreement at enrollment (DHS 3270.106(e)).
- Bed linens are used only for one child.
- Bed linens are cleaned at a minimum monthly, ideally weekly, but must be cleaned prior to use in the event of soiling (DHS 3270.106(g)(h)). Keep extra crib sheets available in the event of soiling. Ensure that crib sheets fit tightly over the mattress to prevent bunching of extra fabric in the crib.
- Stacked cribs are not permitted (DHS 3270.106(c)).
- Cribs and playpens slats may not be more than 2 3/8 inches apart (DHS 3270.106(d)).
- Cribs must meet the requirements of the CPSC and proper documentation must be available to prove that they meet these requirements.
- Rest equipment is spaced to allow for two feet of open space on three sides of the equipment when in use (DHS 3270.106(f)). ERS requires at least 36 inches of open space from other napping children or furniture/equipment on three sides of nap equipment. The expectation is for all children to be separated in this manner to prevent the spread of germs during sleep and to ensure adequate space for access in case of an emergency.
- Double deck beds may not be used for children younger than 8 years of age (DHS 3270.106(i)).
- Toys, bumper pads, pillows, or other soft items are not present in the crib while an infant is sleeping or in the crib (DHS 3270.106(j)).
- Infants are placed to sleep on their back in a CPSC approved crib. Infants do not sleep in other equipment.
- Refrigerator is clean.
- The refrigerator maintains appropriate temperature (39°F), monitored with an operable thermometer (DHS 3270.107). Freezer maintains appropriate temperature (0°F). The temperature is to be logged each day.
- Eating and drinking utensils are free from cracks and chips (DHS 3270.108(a)). This is to allow for proper cleaning and sanitizing and to prevent injury.
- Disposable cups, plates, and utensils are discarded after one use (DHS 3270.108(b)).
- Styrofoam cups, plates, and bowls are not to be used (DHS 3270.108(c)).

APPENDIX 3



Owner’s Project Requirements for Health, Energy Efficiency, and Resiliency – Example

The intent of this OPR example is to help you to communicate the salient points of your project to your project team; your employees, architects, designers, builders, contractors, and suppliers. This document contains generic systems specifications and space for you to include the sustainability and resilience requirements that you developed for your Sustainability Story. The goal is for the whole team to be playing with the same rules on the same playing field so that your project looks, feels, and performs that way you envisioned – healthy, energy efficient, and resilient.

REGULATIONS – All Mission Critical

- The Project will meet all pertinent state and local regulations
- The checklist found in Appendix 3 should be referenced to ensure that licensing regulations are considered prior to the final design and construction.

SUSTAINABLE CONSTRUCTION GUIDELINES [Adjust these requirements based on your needs and goals]

- Indoor Environmental Quality (IEQ) is of paramount importance during and after all construction and renovation.
 - Mission Critical:
 - This is an all-electric job site with no fossil fuel equipment permitted (as able)
 - All materials and supplies shall be Zero-VOC including all adhesives, paints, caulks, sealants, and finishes.
 - During any painting or remodeling, the area should be cordoned and sealed off with plastic sheeting, including over any air intake and distribution vents, and
 - After any work, the area should be completely cleaned before the sheeting is removed. This cleaning protocol should include complete wipe down of all floors, edges, ledges, surfaces, furnishings and objects and a thorough vacuuming of all upholstered furnishings, rugs and carpeting.
 -
 - Important Elements:
 - All occupied spaces will be isolated from the acoustical impacts of construction
 - Continuous air filtration should be provided in the work space at negative pressure by the contractor
 - The entire facility should be ventilated at high speed for 24 hours and the filters should be changed before children return (either done by Owner or GC).
 - For new construction or major renovations, the center should be allowed to off-gas for a week and then be ventilated mechanically with filter changes before occupancy/ re-occupancy to clear VOCs (Volatile Organic Compounds) and particulate matter from the center’s air.
- Practices:
 - Mission Critical:
 - General contractor must be a certified lead safe renovator.
 - All maintenance and installation manuals, warranty forms, and spare parts for all materials, equipment, and fixtures must be provided to the center.
 - Important:
 - The Center strives for zero waste. Engaging a construction and demolition recycling company for the waste generated by the project is preferred.

HVAC [Adjust these requirements based on your needs and goals]

- Mission Critical:
 - Air tight construction to be able to control the quality and conditioning of the indoor environment.
 - Code required ventilation per IMC 2018

Occupancy	M/ Person	M/ SF	Exhaust Airflow Rate (CFM/ SF)
Childcare (through Age 4)		8	
Classrooms (Age 5-8)		8	
Art Classrooms		8	

Kitchens (Warming/ Cooking)		2	
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- All equipment will be electric, no fossil fuels.
- All equipment will be EnergyStar rated.
- 30% minimum humidity should be provided. Proper exhaust venting is required for the kitchen range, clothes dryer, changing stations and the mildly ill child room. If possible, the mildly ill child room should be served by its own dedicated system and have exhaust that is ducted directly to the outside.
- Post construction, all equipment shall undergo commissioning and then annual servicing and testing to assure operation as specified. This should be written into the installation contract. The HVAC system should be looked at 2x per year and the hot water.

- Important:
 - If the basement slab is impacted in the construction, install a vapor barrier and insulation below the finished floor.
 - All equipment should be placed to avoid noise in the classrooms.
 - Ceiling fans should be provided.
 - If possible, 100% fresh air ventilation should be incorporated without recycling return/exhaust air back into systems.
 - Individual classroom thermometers and/or thermostats shall be installed to monitor and control temperature. Tamper proof sensors placed at lower-than-normal heights (1-3') will be linked to the controls to reflect the experience of the children.

LIGHTING [Adjust these requirements based on your needs and goals]

- Mission Critical:
 - Prioritize natural daylight
 - All fixtures and lamps to be EnergyStar rated and use LED technology.
- Important:
 - Provide ceiling materials that maintain high light reflectance values to promote light (daylight and electric light) diffusion through the space(s).
 - Provide Correlated Color Temperature (CCT) in the 2700K to 4000K range depending on the tasks to be performed

PLUMBING [Adjust these requirements based on your needs and goals]

- Mission Critical:
 - All fixtures to be WaterSense certified and, if applicable, EnergyStar rated.
 - Hot water heaters shall be all electric. Preference given to heat-pump technology.
 - Specify faucet aerators with maximum flow of 1.5gpm (gallons per minute); prefer 0.5gpm. Specify toilets labeled with maximum flow of 1.28gpf (gallons per flush).
 - Set hot water storage at a minimum of 140 F to help control water born illness (legionella).
 - Provide a shut-off valve inaccessible to children for each fixture/ classroom/ childcare room so maintenance does not affect multiple plumbing facilities.
 - Provide a floor drain in each restroom, kitchen, laundry, and water play activity area. Provide floor drains with "Waterless" or self-primed trap seal protection devices to reduce the likelihood of sewer gasses passing (if not cost prohibitive)
 - Before occupancy, flush tap water and conduct pre-occupancy water testing to assess water treatment needs
 - Sink/Countertop heights:
 - Adult usage: meet ADA requirements
 - Preschool: 24-26 inches above finished floor (AFF)
 - Toddler: 22 inches AFF
 - Diaper changing: 30 inches AFF
- Important:
 - Prefer that all water uses be located around a center core to reduce installation costs and ease of maintenance.

- Prefer separate piping systems be provided for hot water delivered to sinks that children will be using and for a kitchen/ janitorial closet. This can be done by the use of a central thermostatic mixing valve. The water to the children’s loop can be supplied at a lower temperature (110-120) and the hot water to the kitchen/ janitor sinks can be supplied at a higher temperature (140 +) as needed.
- Recommend providing at a minimum point of use thermostatic mixing valves (ASSE 1070 type valve) for scald prevention. Best practice is to provide a central mixing valve (ASSE 1017) AND point of use valves at each hot water fixture.
- All sinks that provide drinking water should be provided with in line filtration or a filter pitcher.

WINDOWS [\[Adjust these requirements based on your needs and goals\]](#)

- Important:
 - If windows will be replaced or provided, they should be specified with following:
 - SHGC >0.50
 - U-value 0.25 to U 0.35, R-4 to R-2.8
 - At least double glazed
 - Installation should be fully gasketed completely seals the gap between the window and the framed opening and all caulking should be complete.
 - Weep holes on the window frame should be left open for drainage
 - Position windows to allow daylight penetration to the floor.
 - To use “natural ventilation” as an air quality strategy, the open area of all windows into the room must be equal to or greater than 4% of the floor area of the room.
 - If doors will be replaced or provided, they should be specified with following:
 - U-values at or below U 0.89 (R-1.2).
- Mission Critical:
 - In a minor renovation:
 - Weather stripping should be installed to block all drafts around the sides and top of the door
 - The seal at the bottom should be inspected for completeness and efficacy. It can be replaced with a slide-on or screw-on door sweep to reduce infiltration.

MATERIALS [\[Adjust these requirements based on your needs and goals\]](#)

- Mission Critical:
 - Specify low to zero embodied carbon materials.
 - Specify non-toxic, zero-VOC materials in accordance with the Living Future RedList and/or Green Seal Certified. Prefer materials that are sustainable.
- Important:
 - Specify FSC certified wood products
 - Specify repurposed or recycled materials and furnishings where possible and identify the potential to recycle or repurpose materials at end-of-life

APPENDIX 4



SAMPLE SPACE PLAN GRID

50 Child Care Center

Program Assumptions					Interior Space Requirements (SF)									
Space Name	# of Rooms	Required SF per Area	Required Activity SF per Child	Licensed Occupancy	Activity	Crib/Nap	Cubbies	Diaper Changing Station	Restroom	Activity Counter	Food Prep	Storage	Nursing Area	Total Required SF
Ancillary Spaces														
Lobby	1	100			100									100
Director's Office	1	120			120									120
Assistant Director	1	50			50									50
Conference Room	1	75			75									75
Staff Lounge	1	100			75						25			100
Central Storage	1	25										25		25
Ancillary Space Area Subtotals:				0	420	0	0	0	0	0	25	25	0	470
Classroom Spaces														
Infant Rooms	1		40	8	320	280		32			40	25	50	747
Young Toddler Rooms	1		40	10	400		15	32	40	20		25		532
Older Toddler Rooms	1		40	12	480		15	32	40	20		25		612
Preschool Rooms	1		40	20	800		20		80	20		25		945
Classroom Space Area Subtotals:				50	2,000	280	50	96	160	60	40	100	50	2,836
Support Spaces														
Kitchen & Pantry	1	275									206	69		275
Laundry	1	25			25									25
Support Space Area Subtotals:				0	25	0	0	0	0	0	206	69	0	300
Totals:				50	50	280	50	96	160	60	271	194	50	3,606

Total Children and Net Interior Area: 50 3,606 sq. ft.
 Net to Gross Factor ¹: 35% 1,262 sq. ft.
 Total Exterior Gross Building Area ²: **4,868** sq. ft.

97 sq. ft. / child

1. Gross Building Factor includes the building walls, mechanical / electrical equipment spaces, circulation and adult restrooms.

APPENDIX 5

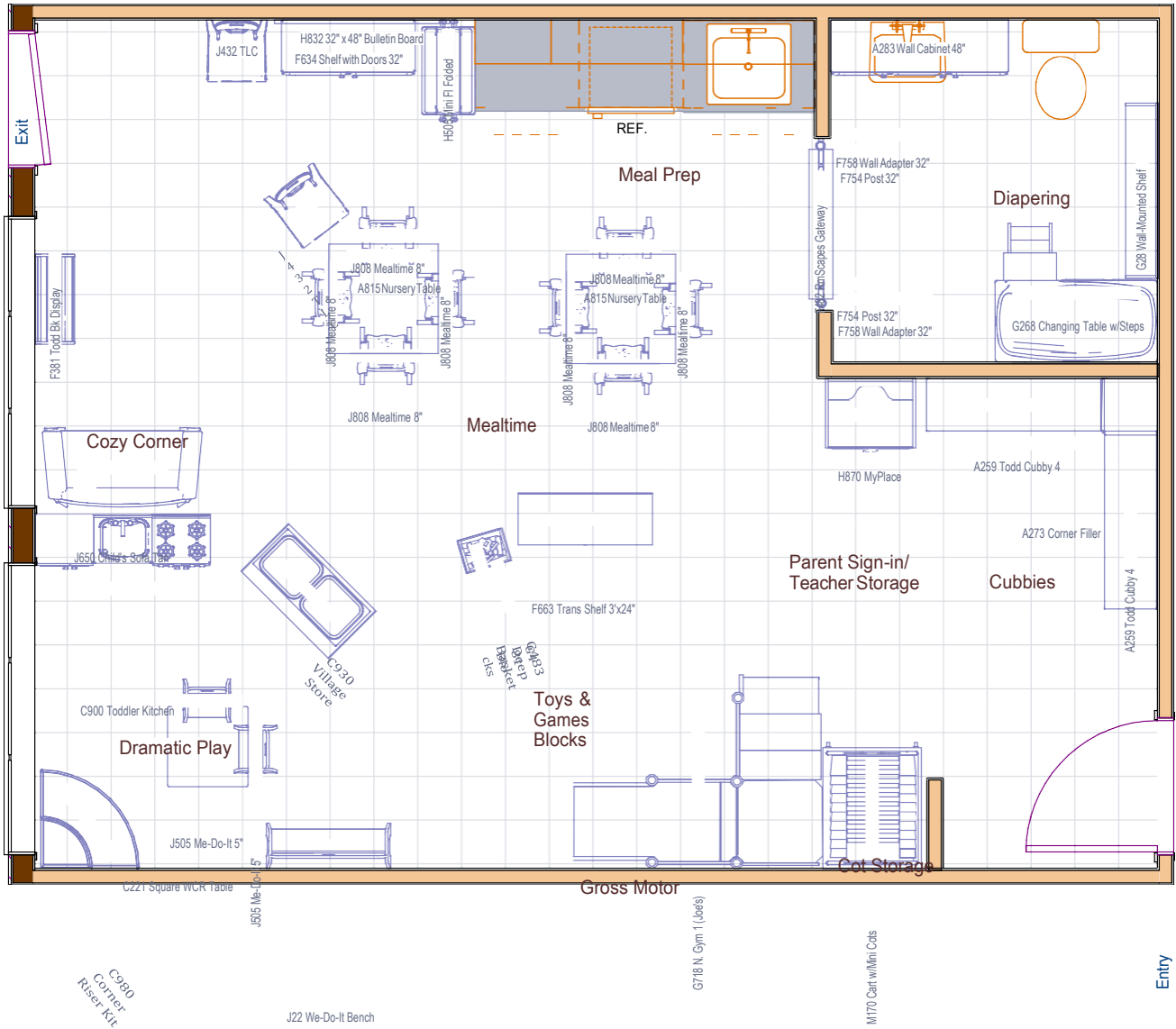


SAMPLE FURNITURE LAYOUTS



Sample Young Toddler
8 Children/2 Caregivers
Approximately 500sq ft

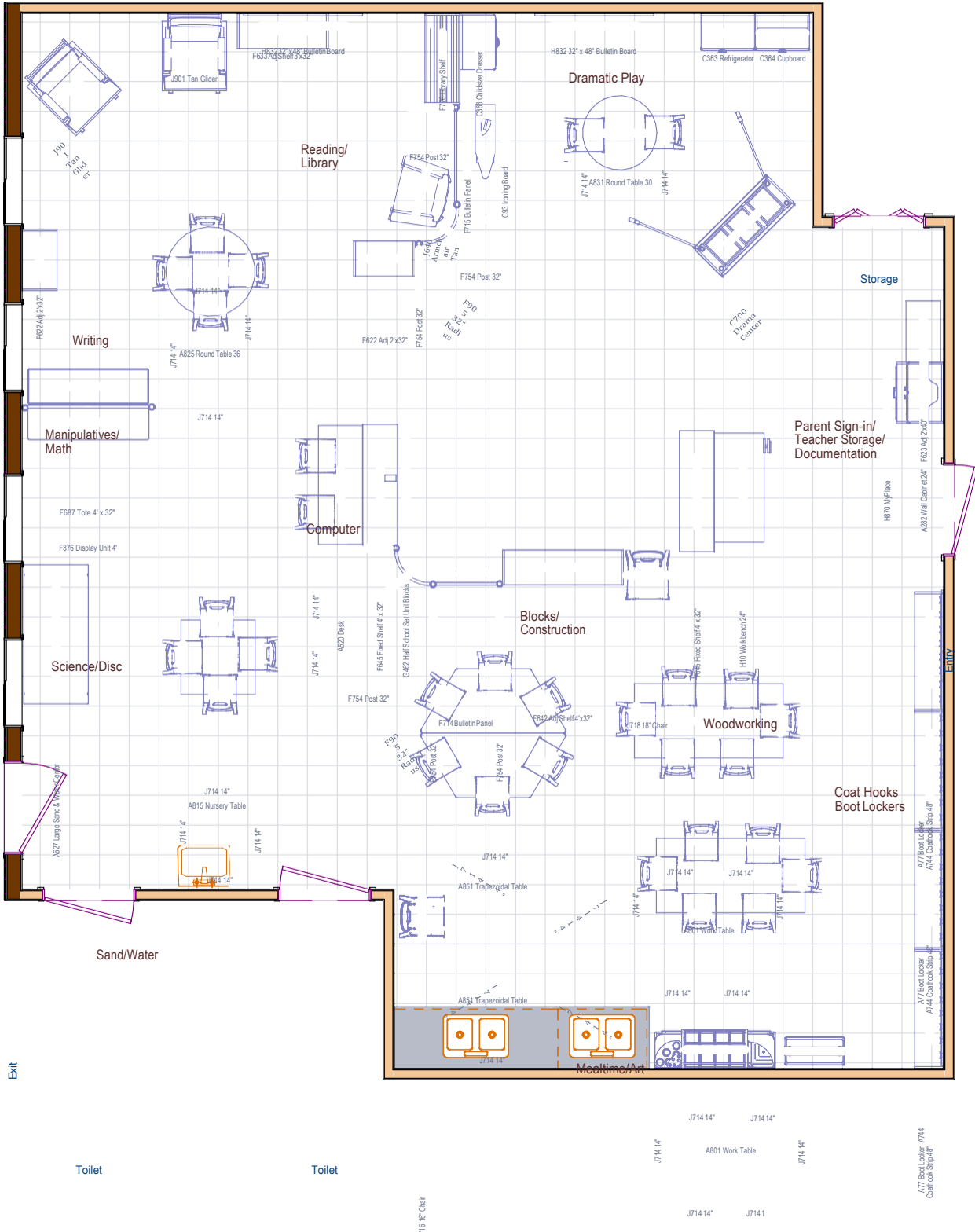
3/21/2017
1 Square = 1 sq foot





Sample School Age
20 Children/2 Caregivers
Approximately 1000sq ft

3/20/2017
1 Square = 1 sq foot





Sample Older Toddler
12 Children/3 Caregivers
Approximately 600sqft

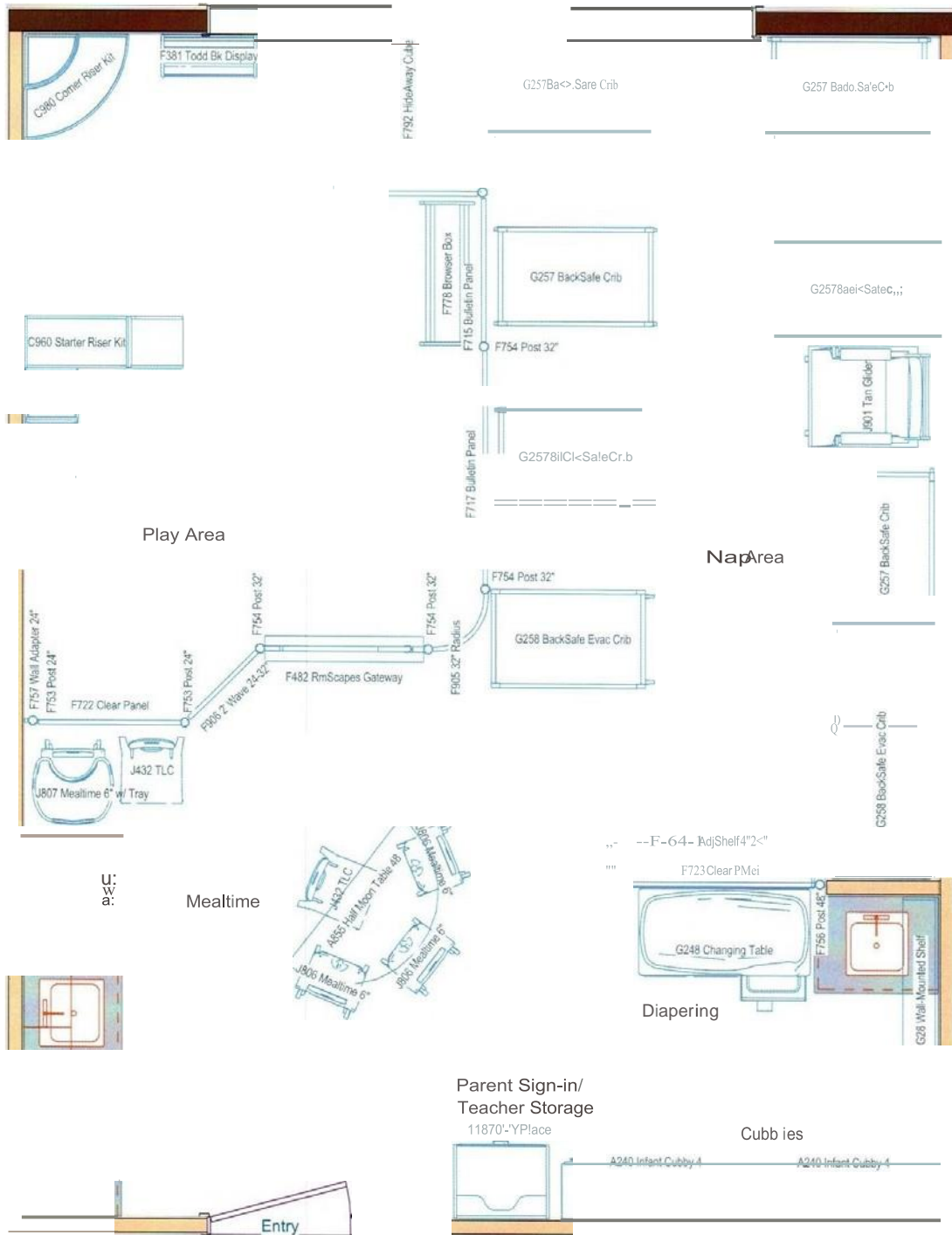
4/17/2017
1 Square = 1 sqfoot



11

Sample Infant Classroom
 8 Children/2 Caregivers
 Approximately 500sq ft

3/21/2017
 1 Square = 1 sq foot



APPENDIX 6

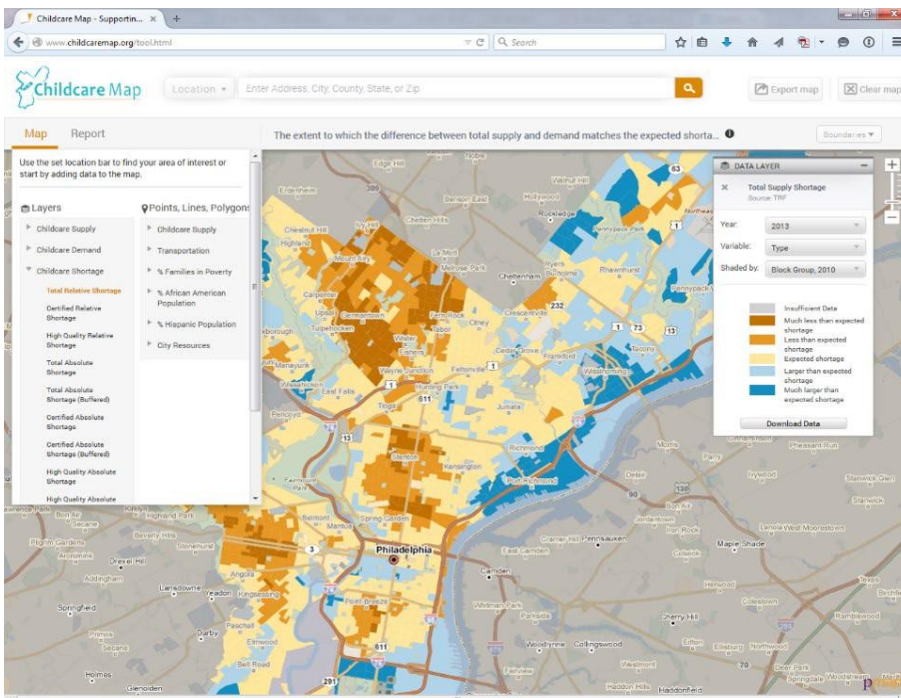


CHILDCARE MAP

High-quality early learning experiences support positive child development and prepare children for success in school and beyond. Access to quality childcare is especially critical for low- and moderate-income families, allowing parents to maintain employment while also giving their kids a strong foundation. Given the enormous importance of high-quality care for children and families, Reinvestment Fund’s Policy Solutions team has developed an analytic approach to help cities identify gaps in access. The results help practitioners, policy makers, lenders, and parents make decisions about childcare, and can be used for research, planning, exploration and investment.

Policy Solutions estimated gaps in access to high quality child care with the support of the William Penn Foundation. The analysis used six different databases to estimate the universe of childcare establishments and capacity in Philadelphia (approximately 25% of which is not certified by the Commonwealth of Pennsylvania). The Keystone STARS program, Pennsylvania’s QRIS, provides a metric of childcare quality along a one-to-four star scale.

The methodology was designed and tested in Philadelphia in close consultation with a stakeholder group of 25+ subject matter experts (including policymakers, practitioners, investors, government officials and technical assistance providers). An interactive map presenting the results, created in partnership with Reinvestment Fund’s affiliate, PolicyMap, is available to the public at: www.childcaremap.org



APPENDIX 7

LIGHTING RECOMMENDATIONS

CHAPTER 10: TECHNICAL CRITERIA

Table 10.2: Lighting Requirements

Space	Natural Light	Lighting (in lux) (lx)		Natural light	300 - 750
Vestibule	View	200 - 250	School-Age Activity Area (Quiet areas dimmable) Food Preparation		300 - 750
Reception	View	250 - 350	Eating	Natural light	300 - 500
Main Circulation		100 - 350	Cubby Storage Area/Locker		300 - 500
Director's Office	View	500	Children's Art Sink (Dimmable)	Natural light	500 - 750
Sick Bay (Dimmable)		300 - 500	Sleeping/Crib/Napping (Dimmable)		50 - 500
Staff Lounge	View	500 (Dimmable)	Diapering Station		300 - 500
Parent/Teacher Conference		500 (Dimmable)	Children's Toilet		300 - 500
Adult Toilet		150 - 250	Children's Handwashing Sink		300 - 500
Central Storage		250 - 350	Children's Private Toilet		300 - 500
Laundry		300 - 400	Minimize exterior light pollution, as described in LEED Version 2.0, by designing lighting as follows:		
Kitchen		300 - 500	<ul style="list-style-type: none"> Exterior lighting not to exceed Illuminating Engineering Society of North America (IESNA) footcandle level requirements, as stated in the Recommended Practice Manual: Lighting for Exterior Environments. Interior and exterior lighting such that zero direct-beam illumination leaves the building site. Design lighting controls to provide a high level of occupant control over interior lighting levels, including controls at child height where appropriate. Use compact fluorescent lamps (CFLs) instead of incandescent lamps as a general rule. CFLs should meet, at a minimum, the efficiency standards of the EPA Energy Star program. Exit signs should use LED technology and should also be EPA Energy Star labeled. 		
Janitor's Closet		300 - 400			
Telephone Closet		400 - 500			
Multiple-Purpose Space					
Play Area		300 - 500			
Meeting Area (Dimmable)		300 - 500			
Play Yard Storage		300 - 500			
Infant Activity Area (Quiet areas dimmable)	Natural light	250 - 500			
Toddler Activity Area (Quiet areas dimmable)	Natural light	300 - 500			
Pre-Schooler Activity Area (Quiet areas dimmable)	Natural light	300 - 500			

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APPENDIX 8



Lighting Resources

Light Box to Mimic Daylight

FEATURES



DYNAMIC
Simulated daylight that changes color and intensity throughout the day, just like sunlight through a real window.



CUSTOMIZABLE
Standard and custom sizes available in multiple finishes to fit any project and match any design.



COMPACT
Prefabricated units require only 3.75" of depth for installation in standard wall and ceiling applications.



SUSTAINABLE
RoHS list approved, energy efficient, and made to last for decades.



EVIDENCE-BASED
Implementing the latest research on circadian lighting, seasonal affective disorder, and biophilic design.

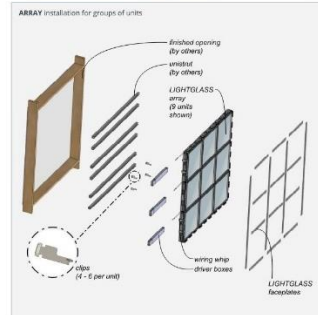
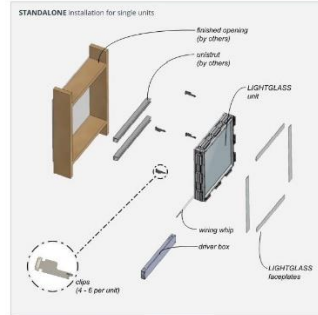


BIOPHILIC
Create connections to nature to benefit people spending hours indoors.

TRANSFORMATIVE



EASY TO INSTALL



LIGHTGLASS
Transforming Windowless Spaces

It's not a window.

It's LIGHTGLASS - an architectural element that recreates both the light quality and spatial experience of an actual window.

Architectural Record
Architectural Lighting Product of the Year

METROPOLIS
"A breakthrough in biophilic design."

BUILDING DESIGN + CONSTRUCTION
"Any space can now incorporate the experience of a bright window regardless of its proximity to the outdoors."

ARCHITECTURAL SSL
Product Innovation Award Winner



PRODUCT OVERVIEW

LOCATION	INTERIOR
DEPTH	3.75", 5.5"
MATERIALS	ALUMINUM, GLASS
DIMMING	DOWN TO 0.1%
CCT	2200K - 6500K
RATING	UL DAMP, DRY, NON FERROUS, ANTI-LICHTURE
SOURCE	LED, AREA

CONFIGURATIONS

STANDALONE ARRAY

APPLICATIONS

WINDOWS CLERESTORIES SKYLIGHTS

SIZES

STANDARD	CUSTOM
72x48	12" x W x 48"
48x48	12" x H x 96"
48x24	18" x H x 24"
48x18	

FINISHES

CLEAR ANODIZED DARK BRONZE WHITE RAL

lightglasslighting.com



Additional Resources:

- [Lightly Butterfly Linear Pendant SpecSheet](#). Lightly, 11 July 2024, lightly.com/products/butterfly/
- ["TM66 Creating a Circular Economy in the Lighting Industry \(2021\)."](#) CIBSE, www.cibse.org/knowledge-research/knowledge-portal/tm66-creating-a-circular-economy-in-the-lighting-industry.

ACKNOWLEDGMENTS

This guide was made possible by generous support from William Penn Foundation and Vanguard Strong Start for Kids Program™.



Credits

Fund for Quality wishes to thank William Grant for lending his expertise to the research and development of this childcare center design/development recommendations guide.

We are grateful to Marion Brown for reviewing the original guide and providing helpful comments and suggestions throughout its creation.

We would like to thank Green Building United for leading the efforts to update this guide in 2024 to incorporate best practices around environmental health, environmental sustainability, and climate resilience. Thank you to the International WELL Building Institute – for providing Water and Materials consulting; to Fredda Lippes for reviewing the guide and providing insight into biophilic design; to Stephen Wayland for reviewing the guide and providing insights into HVAC design; to Lorna Rosenberg and Women for a Healthy Environment for reviewing the guide and providing insightful comments and suggestions throughout; to Robin Miller from Miller Design Group for lighting guidance; to Drew Lavine, from Re:Vision Architecture focused on net-zero energy; to Living Building Challenge; and to Passive House.

Thank you to Stephen Crout for contributing all of the photographs in this guide. Additional thanks to the following Fund for Quality centers for agreeing to be photographed: Children’s Playhouse, Community Concern #13: Multiple Purpose Learning Center, and Creative Learning Environments.

Lastly, we also appreciate the assistance of Roni Lagin & Co., who designed the final publication.

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