



# **APPENDIX C**

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## **CHECKLISTS**

- Elementary School Laboratory Facility Design Checklist
- Middle School Laboratory Facility Design Checklist
- High School Laboratory Facility Design Checklist
- Science Facility and Safety Checklist

## Elementary School Laboratory Facility Design Checklist

The following checklist is intended to assist school districts that are considering new construction or renovation projects involving elementary school science facilities.

### (✓) Room Design

- Student workstation location*
  - perimeter of room
  - free-standing islands
  - rows of tables
- Floor surface*
  - grit surface for damp areas
  - acid-resistant
  - vinyl composite tile
  - carpet
- Room size*
  - lab—40 square feet per student
  - classroom/lab—45 square feet per student
- TAS<sup>1</sup> compliance\**
  - five-foot turning radius
  - movement around room
- Windows*
  - on outside wall
  - cover for darkening room
- Exits (two if the room is 1000 square feet or larger\*)*

### (✓) Safety Equipment

- Fire extinguisher(s)\**
  - locate by exit(s)
  - type ABC in room
- Eye/face wash station(s)\**
  - one TAS<sup>1</sup> compliant\*
  - 10-second access
- Master utility cutoff\**
- First-aid kit*
  - located near a sink
  - mounted on wall
- Safety goggles\**
  - storage
  - sanitizing cabinet
- Fire blanket*
  - located near first-aid kit
  - storage
- Emergency exhaust system*

### (✓) Live Organism Centers

- Aquarium/terrarium center*
- Animal study center*
- Plant study center*

### (✓) Furniture, Fixtures, and Accessories

- Laboratory tables*
  - perimeter or island
  - attached or moveable
  - 2–4 students
  - work surface
  - services
  - one TAS<sup>1</sup> compliant\*
- Demonstration table*
  - fixed station
  - mobile unit
- Sinks*
  - one per 4 students
  - hot/cold water
  - faucet style
- Dry marker board*
- Base cabinets*
  - doors on hinge or slide
  - drawers
- Upper case cabinets*
  - solid doors or glass
  - doors on hinge or slide
- Tall storage cabinets*
  - microscopes
  - models
  - tote trays
  - computers
  - safety goggles
  - balances
- Shelf units*
  - general storage
  - chemical storage
  - track unit
- Utility cart*

### (✓) Technology

- Communication system*
- Computer workstations*
  - laptop
  - desktop
- TV monitors*
  - ceiling or wall mounted
  - mobile
- Internet connections*
- Media systems*
  - VCR
  - Elmo
  - laservideo
  - CD player

<sup>1</sup> TAS (Texas Accessibility Standards)

\*Required by law

## Middle School Laboratory Facility Design Checklist

The following checklist is intended to assist schooldistricts that are considering new construction or renovation projects involving middle school science facilities.

### (✓) Room Design

- Student workstation location*
  - perimeter of room
  - free-standing islands
  - rows of tables
- Floor surface*
  - grit surface for damp areas
  - acid-resistant
  - vinyl composite tile
  - carpet
- Room size*
  - lab–45 square feet per student
  - classroom/lab–50 square feet per student
- TAS<sup>1</sup> compliance\**
  - five-foot turning radius
  - movement around room
- Windows*
  - on outside wall
  - cover for darkening room
- Exits* (two if the room is 1000 square feet or larger\*)

### (✓) Safety Equipment

- Fire extinguisher(s)\**
  - locate by exit(s)
  - type ABC in room
- Eyel/face wash station(s)\**
  - one TAS<sup>1</sup> compliant
  - 10-second access
- Master utility cutoff\**
- First-aid kit*
  - located near a sink
  - mounted on wall
- Safety goggles\**
  - storage
  - sanitizing cabinet
- Fire blanket*
  - located near first-aid kit
  - storage
- Emergency exhaust system*

### (✓) Live Organism Centers

- Aquarium/terrarium center*
- Animal study center*
- Plant study center*

### (✓) Furniture, Fixtures, and Accessories

- Laboratory tables*
  - perimeter or island
  - attached or moveable
  - one TAS<sup>1</sup> compliant\*
- Demonstration table*
  - fixed station
  - mobile unit
- Sinks*
  - one per 4 students
  - hot/cold water
  - faucet style
- Dry marker board*
- Base cabinets*
  - doors on hinge or slide
  - drawers
- Upper case cabinets*
  - solid doors or glass
  - doors on hinge or slide
- Tall storage cabinets*
  - microscopes
  - models
  - tote trays
- Hazardous chemical cabinets*
  - corrosives cabinet
  - flammables cabinet
- Shelf units*
  - general storage
  - chemical storage
  - track unit
- Utility cart*

### (✓) Technology

- Communication system*
- Computer workstations*
  - laptop
  - desktop
- TV monitors*
  - ceiling or wall mounted
  - mobile
- Internet connections*
- Media systems*
  - VCR
  - Elmo
  - laservideo
  - CD player

<sup>1</sup> TAS (Texas Accessibility Standards)

\*Required by law

## High School Laboratory Facility Design Checklist

The following checklist is intended to assist school districts that are considering new construction or renovation projects involving high school science facilities.

### (✓) Room Design

- Student workstation location*
  - perimeter of room
  - free-standing islands
  - rows of tables
- Floor surface*
  - grit surface (damp areas) • carpet
  - vinyl composite tile • acid-resistant
- Room size*
  - lab–50 square feet per student
  - classroom/lab–55 square feet per student
- TAS<sup>1</sup> compliance\**
  - five-foot turning radius
  - movement around room
- Windows*
  - on outside wall
  - cover for darkening room
- Exits* (two if the room is 1000 square feet or larger\*)

### (✓) Safety Equipment

- Fire extinguisher(s)\**
  - locate by exit(s)
  - type ABC in room
- Eyeface wash station(s)\**
  - one TAS<sup>1</sup> compliant\*
  - 10-second access
- Emergency shower\**
- Master utility cutoff\**
- First-aid kit*
  - located near a sink
  - mounted on wall
- Safety goggles\**
  - storage
  - sanitizing cabinet
- Fire blanket*
  - located near first-aid kit
  - storage
- Emergency exhaust system*
- Ventilation system\**
- Fume hood (chemistry laboratory\*)*

### (✓) Live Organism Centers

- Aquarium/terrarium center*
- Animal study center*
- Plant study center*

### (✓) Furniture, Fixtures, and Accessories

- Laboratory tables*
  - one TAS<sup>1</sup> compliant\*      • work surface
  - attached or moveable      • 2 or 4 students
  - perimeter or island      • services
- Demonstration table*
  - fixed station
  - mobile unit
- Sinks*
  - one per 4 students
  - hot/cold water
  - faucet style
- Dry marker board*
- Base cabinets*
  - doors on hinge or slide
  - drawers
- Upper case cabinets*
  - solid doors or glass
  - doors on hinge or slide
- Tall storage cabinets*
  - microscopes      • computers
  - models      • balances
  - tote trays      • safety goggles
- Hazardous chemical cabinets*
  - corrosives cabinet
  - flammables cabinet
- Shelf units*
  - general storage
  - chemical storage
  - track unit
- Utility cart*

### (✓) Technology

- Communication system*
- Computer workstations*
  - laptop
  - desktop
- TV monitors*
  - ceiling or wall mounted
  - mobile
- Internet connections*
- Media systems*
  - VCR      • laservideo
  - Elmo      • CD player

<sup>1</sup> TAS (Texas Accessibility Standards)

\*Required by law

# SCIENCE FACILITY AND SAFETY CHECKLIST

The science facilities in your school should be checked annually to ensure a safe learning environment for you and your students. A copy of the Science Facility and Safety Checklist should be filed with the building principal and district science coordinator so that appropriate action can be taken to correct any problem.

*Notification should be made in writing if a hazard is identified that could jeopardize the safety of an individual.*

COMMUNICATIONS			
<b><i>Communication System</i></b>	√	√	√
	K-5	6-8	9-12
• Intercom system available			
• Telephone accessible and nearby			
• General fire alarm system functioning for entire building			
• Fire-drill instructions posted in each room			
• Emergency lights available in rooms without exterior windows			
PERSONAL PROTECTION			
<b><i>Emergency Showers</i></b>	√	√	√
	K-5	6-8	9-12
• Shower (ADA compliant) present in chemistry laboratory rooms			
• Shower unobstructed			
• Valve handle functional			
• Floor drain present			
<b><i>Eye/Face Wash Stations</i></b>			
• Available in all laboratory rooms (5% ADA compliant)			
• Stations marked clearly with a sign			
• Provides simultaneous tepid (60–90°F) water treatment to both eyes			
• Stations flushed for five minutes each week			
<b><i>Protective Clothing</i></b>			
• Laboratory aprons or coats available for each student			
• Gloves (acid resistant and heat resistant) available			
<b><i>Safety Goggles</i></b>			
• Approved ANSI safety goggles available for each student and teacher			
• Materials available for disinfecting goggles after their use			
• Face shields available when appropriate			
<b><i>First Aid</i></b>			
• Kits available in each laboratory room			
• Kits clearly marked and visible			
• Kits checked on a regular basis and supplies replenished			
• Located near a sink			

## CHEMICAL STORAGE ROOM

	√	√	√
	K-5	6-8	9-12
<b>Combination BC Fire Extinguisher (flammable liquids &amp; electrical)</b>			
• Extinguisher located in room where chemicals are stored			
• Fire extinguisher properly charged, checked quarterly, safety seal intact			
• Located near exit, clearly visible, and marked with a sign			
<b>Class D Fire Extinguisher (flammable solids)</b>			
• Extinguisher properly charged			
• Extinguisher in rooms using metals (sodium, potassium)			
<b>Fire Blankets</b>			
• Standard fireproof blanket in each chemical storage room			
• Blankets located at eye level, clearly visible, and marked with a sign			
<b>Fire or Emergency Exits</b>			
• Two emergency exits; visible sign marking exits			
• Emergency exits unobstructed and unlocked to traffic moving out of the room			
<b>Other Fire Protection</b>			
• Exit signs clearly visible			
• Emergency lights available in rooms without exterior windows			
• General fire-alarm system functioning for building			
• Fire-drill procedures posted in storage rooms			
• 4- to 9-liter container of dry sand or absorbant clay (cat litter)			
• Utility carts available to transport chemicals			
<b>Ventilation</b>			
• Six air changes per hour			

## PREPARATION AND EQUIPMENT STORAGE ROOMS

	√	√	√
	K-5	6-8	9-12
<b>General Storage Requirements</b>			
• Combination BC extinguisher in preparatory rooms			
• Work surface of nonporous chemical-resistant materials			
• Large sink with hot water available			
• Emergency shower accessible			
• Material Safety Data Sheets (MSDS) available			
• Room well lighted and clutter-free			
• Space to store chemicals			
• Chemical waste container and broken glass container available			
• Two emergency exits, with locks on doors			
• Smoke detectors present			
• Refrigerator marked "For Chemical Storage Only—No Food Allowed"			
• Adequate storage space (15 square feet per student)			
• Ventilation—six air changes per hour			

## LABORATORY ROOM

	√	√	√
	K-5	6-8	9-12
<b>Laboratory Work Stations</b>			
• Number of students does not exceed the number of work stations			
• Work surfaces nonporous and chemical resistant			
• At least one work station that is ADA compliant			
<b>Master Utility Controls</b>			
• Natural gas shut-off valve present, labeled with room identification			
• Electrical shut-off valve present, labeled with room identification			
• Water shut-off valve present, labeled with room identification			
<b>Fume Hood</b>			
• Located in rooms where hazardous chemicals are used (ADA compliant)			
• Not used for storage			
• Correct air movement provided at hood face			
• Vented to outside above roof level away from intake vent			
• Located away from doors and windows			
<b>Spill Control Kits</b>			
• Chemical spill kits available			
• 4- to 9-liter container of dry sand or absorbent clay (cat litter)			
<b>Sinks</b>			
• One available for every 4 students (15" x 15" minimum size)			
• One equipped with hot water			
• 5% of sinks ADA compliant			
<b>Ventilation</b>			
• Forced floor to ceiling			
• Six air changes per hour			
• Emergency exhaust fan available			
<b>General Safety Requirements</b>			
• 40 square feet of space per student for elementary schools; 45 square feet of space per student for middle and high schools			
• Safety rules posted and visible			
• Space available for chemical storage			
• Material Safety Data Sheets (MSDS) readily accessible			
• Broken glass container present			
• Two emergency exits in laboratory rooms larger than 1000 square feet			
• Safety and exit signs posted and visible			
• Room not cluttered; movement in work area unobstructed			

## LABORATORY ROOM

	√	√	√
<i>Fire Protection</i>	K-5	6-8	9-12
• Type ABC (dry chemical) fire extinguisher located by exit			
• Class D (flammable solids) available in rooms using metals			
• Extinguishers properly charged, checked quarterly, and marked with a sign			
• Fireproof blanket available, located at eye level, and marked with a sign			

## LABORATORY AND CHEMICAL AND EQUIPMENT STORAGE ROOMS

	√	√	√
<i>Electrical System</i>	K-5	6-8	9-12
• Electrical outlets equipped with ground fault circuit interrupter (GFCI)			
• Sufficient electrical outlets to eliminate extension cords			
• Electrical outlets located away from water source (faucets, sinks)			
• Electrical system equipped with accessible circuit breaker box			
• Circuit breakers identified by area or item controlled			

This information represents an assessment of the school's science facilities and should serve as a guide for establishing a safe working and learning environment.

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Teacher

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Date

