

APPENDIX A

The material contained in this appendix is for clarification purposes only. The notes, illustrations, etc. are numbered to correspond to the number of the rule as it appears in the text of the code.

A-50.10-50.25 FORMS. The following forms (SB2, 8, 8A, 118, 198, 224B and SBD-4927) are referred to in sections Ind 50.10, 50.12, 50.14, 50.18, 50.20 and 50.25. Copies of these forms are available from the Division of Safety and Buildings, P.O. Box 7946, Madison, Wisconsin 53707.

SB-2
REV. 7/74

Department of Industry, Labor and Human Relations

Inspection Report and Orders

INSPECTION DATE		FILE NO.		
OWNERS NAME		OCCUPANCY INSPECTED		
MAILING ADDRESS		LOCATED AT (STREET ADDRESS)		
CITY	STATE	ZIP CODE	CITY	COUNTY

An inspection of the above occupancy discloses violations of orders of the Dept. of Industry, Labor & Human Relations promulgated under authority of Chapter 101 of the Revised Statutes of Wisconsin.

SEE REVERSE SIDE FOR APPLICABLE WISCONSIN STATUTES

NOTE	ITEM	ORDER	REQUIREMENTS	Building		Safety	

IMPORTANT

- Please report when orders are completed • Avoid Delay
- Forfeiture for violations are \$10 to \$100 each day for each violation
- Keep us informed

"Failure of an employer reasonably to enforce compliance by employees with such statute or order of the Department shall constitute failure by the employer to comply with such statute or order." Sec. 102.57 Wis. Stats.

COMPLIANCE DATE	VIOLATIONS EXPLAINED TO:	TITLE
By	Deputy	DISTRICT NO.

Address all Correspondence Safety and Buildings Division, Department of Industry, Labor and Human Relations, P.O. Box 7946 Madison, Wisconsin 53707

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SB-8(7/76)
PETITION FOR MODIFICATION
OF A RULE IN THE
WISCONSIN ADMINISTRATIVE CODE

WISCONSIN DEPARTMENT OF
INDUSTRY, LABOR AND HUMAN RELATIONS
DIVISION OF SAFETY & BUILDINGS
P. O. BOX 794, MADISON, WI 53707

PETITION REVIEW FEE -- \$50.00

Name of Owner	Building Occupancy or Use	Agent, Architect or Engineering Firm
Company	Tenant Name, if any	Street & No.
Street & No.	Building Location, Street & No.	City State & Zip
City State & Zip	City County	Phone

1. Rule Ind. _____ of the Wisconsin Administrative code cannot be entirely satisfied because:

2. In lieu of complying exactly with the rule, the following alternative is proposed as a means of providing an equivalent degree of safety:

3. Supporting arguments are:

Verification by owner

_____, being duly sworn, says he is the petitioner herein, thus he has read the foregoing petition and that the same is true, as he verily believes.

signature of owner

subscribed and sworn to me this ____ day of _____, 19____, in _____ County, Wisconsin.

Notary Public

My commission expires: _____

Commission Action	
Secretary	Date

-PETITION IS VALID ONLY IF NOTARIZED

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PLANS APPROVAL APPLICATION
 SB-118 (Rev. 5/76)

Department of
INDUSTRY, LABOR AND HUMAN RELATIONS

Safety & Building Division
 Box 7946
 201 E. Washington Avenue
 Madison, Wisconsin 53707

INSTRUCTIONS: Fill in all applicable data. Submittal of Plan Approval Application form is required with each plan submittal. Examination and inspection fees, as determined on back of form, are required to be submitted with a minimum of three sets of plans. Data required on plans is described in code section Ind 50.10. Codes can be purchased from the Department of Administration, Document Sales, 202 S. Thornton Ave., Madison, 53703

1. THIS APPLICATION IS FOR: Building Plan Approval Heating Plan Approval Other _____
2. PLANS FOR: New Building Addition Alteration Structural Footing & Foundation
 Revision to previously approved plans Other _____

3. PROJECT INFORMATION

Name of Owner		Building Occupancy or Use		Designer or Design Firm	
Company		Tenant Name, if any		Street & No.	
Street & No.		Building Location, Street & No.		City State & Zip	
City	State & Zip	City Village Town	County	Phone	
Previous Owner if any		Return Plans to <input type="checkbox"/> Owner <input type="checkbox"/> Designer			

**4. DETERMINATION OF FEES SEE CHAP. IND. 69 FOR FULL FEE SCHEDULE
 SEE BACK OF PAGE FOR FEE CALCULATION AND ABBREVIATED FEE SCHEDULE**

Total Volume	4a Building Plan Fee	\$ _____
_____	4b Heating-Ventilation Fee	\$ _____
	4c Other	\$ _____
	4d Inspection	\$ _____
	4e TOTAL	\$ _____

FOR OFFICE USE ONLY

Amount Rec'd _____
 Date Rec'd _____
 Receipt No. _____

5. OTHER INFORMATION

- 5a Type of Construction
 Fire Resistive Type A Metal Frame Protected Exterior Masonry Wood Frame Protected
 Fire Resistive Type B Heavy Timber Metal Frame Unprotected Wood Frame Unprotected
- 5b Mechanical Information: Type of Heating _____ Net Rating of Heating Units _____

5c SOIL BEARING CAPACITY (See Ind. 53.21)

Method used to determine capacity:	Yes	No
Check One- Verified <input type="checkbox"/> Presumptive <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Sprinkler System Provided?
Check Value Used- PSF 2000 <input type="checkbox"/> , 3000 <input type="checkbox"/> , 4000 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Fire Alarm Provided?
6000 <input type="checkbox"/> , 12000 <input type="checkbox"/> , Other _____	<input type="checkbox"/>	<input type="checkbox"/> Other Detection System Provided?
	<input type="checkbox"/>	<input type="checkbox"/> Emergency Power Provided?

6. DESIGN AND SUPERVISION (IND 50.13)

The design, plans, computations and specifications for this project have been prepared under my supervision. I am registered as an
 Architect Engineer Designer in Wisconsin as provided in Section 443.01 of the Wisconsin Statutes. I am not registered. If this building, existing and additions, contains over 50,000 cu. ft. total volume, it must be designed by a registered person.

Signature of designer	Registration Number	Date
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If this building, existing and additions, contains over 50,000 cu. ft. total volume, the construction of this project shall be under the supervision of a Wisconsin registered architect, engineer or in the case of heating and ventilating, designer.

Plans for buildings over 50,000 cu. ft. will not be approved until the name of the supervising professional is known.

Name of Supervising Professional	Registration Number
----------------------------------	---------------------

NOTE: The supervising professional shall file a written report with the Department upon completion of construction. [Ind 50.13 (3) (c)]

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4. DETERMINATION OF FEES

INSTRUCTIONS:

1. Refer to fee schedule shown below.
2. Enter area of each floor in appropriate space.
3. Enter height of each floor (Height includes attic and space between floors).
4. Compute volume of each floor/attic space and total volume for building.*
5. Compute building and/or heating fee per building.
6. Enter other fee (if any) in space per building.
7. Compute inspection fees per building.
8. Total fees and transfer information to front page.

*The "total volume" is determined by the overall outside dimensions of length, width and height.

EXAMINATION FEES PER BUILDING:

- Building Plan Fee: Fee .35 per 1000 cu. ft.
Minimum Fee \$20.00
- Heating & Ventilating Plan Fee: Fee .25 per 1000 cu. ft. Minimum Fee \$12.00
- Alterations to bldgs.: Fee \$1.50 per \$1,000 est. cost. Minimum fee \$10.00
- *Structural Plans - \$20.00
- Revision to Approved Plan \$10.00
- *Exhaust Systems \$25.00 per plan
- *Spray Booths \$15.00 per plan
- Permit to Start Construction (SB-198) \$26.00
- *Footing & Foundations Plans \$20.00 per Bldg.
- *Stadium, Grandstand, Bleacher \$8.00/1000 Seats. Minimum Fee \$8.00
- *Fire Escapes \$20.00 per fire escape

INSPECTION FEES PER BUILDING:

- Building Volume/Alt. cost
- Up to 25,000 cu. ft./dollars
- 25,001 - 100,000 cu. ft./dollars
- 100,001 - 500,000 cu. ft./dollars
- 500,001 - 1,000,000 cu. ft./dollars
- In excess of 1,000,000 cu. ft./dollars

- Fee
- \$15.00
- \$30.00
- \$45.00
- \$60.00
- \$75.00

NOTE

- (1) Heating & Ventilating plans submitted separately require an inspection fee of \$25.00
- *(2) Plans other than building or heating require an inspection fee of \$15.00.

No. of Floors	Area	Height	Total each Floor	Total Vol./1000	x	Exam Fee	=	Building Plan Fee
Basement/Ground	x	=	cu.ft.		x	.35	=	\$
1st Floor	x	=	cu.ft.	Total Vol./1000	x	Exam Fee	=	Heating Ventilating Fee
2nd	x	=	cu.ft.		x	.25	=	\$
3rd	x	=	cu.ft.	<input type="checkbox"/> Structural \$20.00	<input type="checkbox"/> Alteration \$1.50/1000			Other
4th & 5th attic & etc.	x	=	cu.ft.	<input type="checkbox"/> Permit to start \$26.00	<input type="checkbox"/> Exhaust \$25.00			\$
	Total Volume or							Inspection Fee
	Total Cost of Alteration							\$
								Total
								\$

TRANSFER ALL DOLLAR AMOUNTS AND VOLUME TO FRONT PAGE

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SB-198
Rev. 6-73



DEPARTMENT OF INDUSTRY, LABOR AND HUMAN RELATIONS
INDUSTRIAL SAFETY & BUILDINGS DIVISION
P.O. BOX 7946
MADISON, WISCONSIN 53707

PERMIT TO START CONSTRUCTION
FEE \$26.00 IN ADDITION TO EXAMINATION/INSPECTION FEES

Location of Project: _____

Owner: _____ E: _____

Street: _____ Plan File Number _____

City: _____ Date Plans Rec'd _____

County: _____

Occupancy: _____

We, the undersigned, request to begin footing and foundation work prior to approval of the plans.

Complete plans have been submitted to the Department of Industry, Labor and Human Relations, Division of Industrial Safety and Buildings, and all information requested by Code Ind 50.10 has been included with the submittal.

We have reviewed the specific code requirements for the building or structure, including Ind 54.01 (construction, height, and allowable area), Ind 50.12, Ind 51.03, Ind 53, Ind 55.02, and Ind 57.50 when applicable and have shown compliance on the drawings.

We agree to make any changes required after the plans have been reviewed and to remove or replace noncode complying parts of the foundation and or footings.

We agree to proceed with the footings and foundation only and will not continue with the remainder of the building or structure until approval has been received.

Owner's Signature _____ Date _____

Name: _____

Address: _____

Accepted By _____ Date _____

Dept. of Ind., Labor & Human Relations
Div. of Industrial Safety & Buildings

Not Accepted Because _____

Designer's Signature _____ Date _____

Name: _____

Address: _____

Plans will be examined within the next _____
days.

NOTE: Footing and foundation plans submitted prior to
final building plans will not be accepted for this permit.

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DILHR-SBD-4927

CERTIFICATE OF COMPLETION

Date _____

TO: Department of Industry, Labor and Human Relations
Safety and Buildings Division
P. O. Box 7946
201 E. Washington Avenue
Madison, WI 53707

Gentlemen:

RE: File Number: _____

Plan Number: _____

Owner: _____

Occupancy: _____

Building Street Address: _____

City: _____ County: _____

This is to certify that construction of the referenced project was under my supervision, in accordance with Ind 50.10, and that to the best of my knowledge and belief it has been completed in substantial compliance with the approved plans and specifications with the following exceptions: (IF NONE, STATE NONE)

This certificate covers: Building

Heating & Ventilation

Structural

Other (Specify) _____

Name: _____

Registration Number: _____

Address: _____

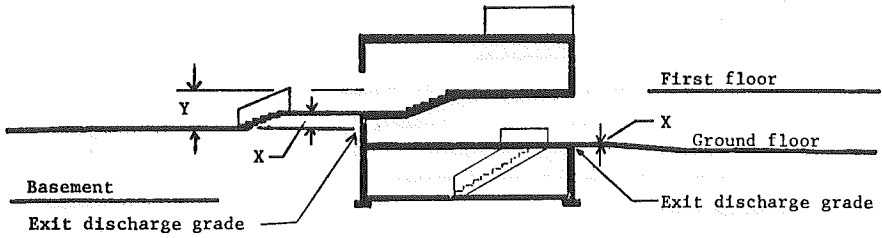
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- A-51.01 (12) **BUILDING.** The intent was to consider permanent awnings as part of a building.
- A-51.01 (42) **FAMILY.** The intent of this definition is to clarify the use of the word "family" in reference to subsection Ind 57.001 (2) (a); it is not intended as a variance to requirements stated under Ind 57.001 (2) (b).
- A-51.01 (67a) **HABITABLE ROOM.** It is the intent that rooms designated as recreation, study, den, family room, office, etc. and providing the only space for living and/or sleeping are considered habitable rooms.
- A-51.01 (115) **SETBACK.** The intent was to not include gutters, downspouts, outdoor lighting fixtures, signs and similar attachments as parts of a building.
- A-51.01 (121) **STORIES, NUMBER OF.** For further clarification, refer to A-51.02 (14).
- A-51.01 (144) **WALL (DIVISION).**
- (a) *Building division wall* is intended to denote a wall constructed in a manner sufficient to meet requirements for a party wall [see "Wall (Party)"] and is acceptable as a dividing wall or enclosing wall when determining the volume of a building as referred to in sections Ind 50.07, 50.10 and 50.12. Also see chapter A-E 2 of Wis. Adm. Code—Architects, Professional Engineers, Designers and Land Surveyors Examining Board.
 - (b) *Fire division wall* is intended to relate to construction that provides separation between portions of a building to satisfy allowable floor area limitations, separation between 2 classes of construction, or separation of hazardous occupancies. For other separations, see "occupancy separations" and isolation of hazards sections of this code.
- A-51.01 (151) **WALL (PARTY).** It is intended that a property consisting of joining plotted subdivisions owned by one individual, that can be owned by separate individuals, is included in the definition of party wall.

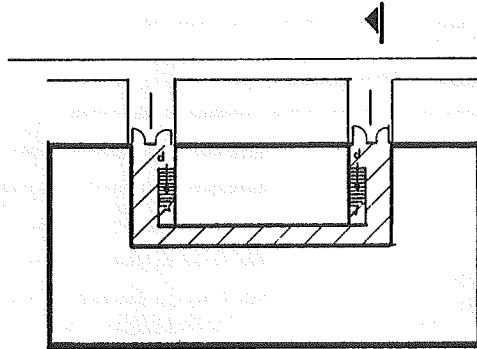
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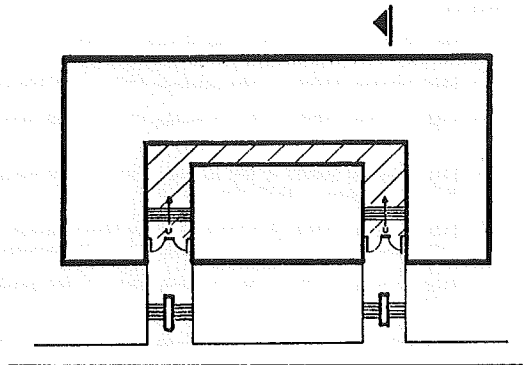
A-51.02 (14) DETERMINATION OF NUMBER OF STORIES. The following illustrations are provided to give visual aid to this rule and the definition of Ind 51.01 (121) Stories, Number of.



Note: X = 3'-0" (maximum)
Y = 6'-0" (maximum)



Ground floor



First floor

A-51.042 (5) The use of the term "high hazard" as referred to in this section is intended to apply to the following list of operations and occupancies:

1. Aircraft hangars.
2. Dry cleaning establishments: using or storing gasoline or other volatile flammable liquids.
3. Enameling or japanning operations.
4. Mills: sugar, starch, cereal, feed, flour and grist mills.
5. Paint and varnish: manufacturing, storing, handling, spraying, and other related operations.
6. Pyroxylin products: manufacture and storage.
7. Repair garages.
8. Smoke houses.
9. Storage of: explosive gases under pressure (15 psi and over 2,500 cubic feet) such as acetylene, hydrogen, natural gas, etc.
10. Storage of: materials with a flash point under 200° F. such as celluloid products, kerosene, oils, etc.
11. Woodworking establishments.

A-51.15 (6) EXAMPLE TO DETERMINE TOTAL AGGREGATE EXIT WIDTH.

5	300
4	400
3	500
2	200
1	600
B ₁	100
B ₂	300
B ₃	400

Type No. 1 sprinklered construction.

Aggregate exit width required from a floor into the stairwell is 30 inches per 100 people on that floor; i.e.,

5th floor to stairwell = 3 x 30 = 90"

4th floor to stairwell = 4 x 30 = 120"

3rd floor to stairwell = 5 x 30 = 150"

Stair width required:

5th to 4th - 300 persons (100%) x 30"/100 persons = 90"

4th to 3rd - [400 persons (100%) + 300 persons (50%)] 30"/100 persons = 165"

3rd to 2nd - [500 persons (100%) + 400 persons (50%) + 300 persons (25%)] 30"/100 persons = 232.5"

2nd to 1st - [200 persons (100%) + 500 persons (50%) + 400 persons (25%)] 30"/100 persons = 165" (Use 232.5")

1st to exterior - [600 persons (100%) + (200 persons + 100 persons) (50%) + (500 persons + 300 persons) (25%)] 30"/100 persons = 285"

B₁ to 1st - [100 persons (100%) + 300 persons (50%) + 400 persons (25%)] 30"/100 persons = 105" (Use 150")

B₂ to B₁ - [300 persons (100%) + 400 persons (50%)] 30"/100 persons = 150"

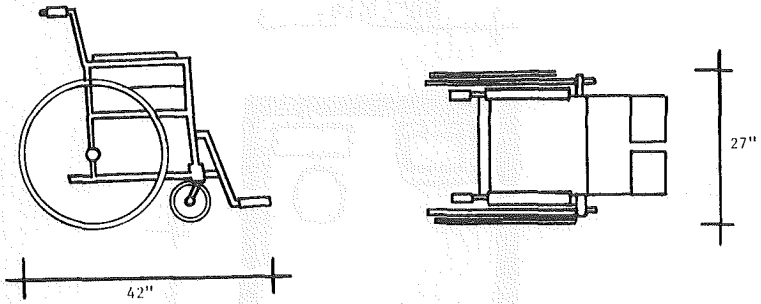
B₃ to B₂ - 400 persons (100%) x 30"/100 persons = 120"

Stair width required from B₁ to 1 is 150" as stair cannot decrease in width along path to exit [Ind 51.16 (2) (c)].

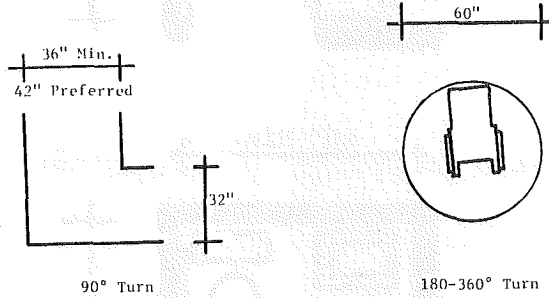
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A-52.04 REQUIREMENTS FOR BARRIER-FREE ENVIRONMENTS. The following illustrations are provided to give the designer visual aids for making facilities accessible.

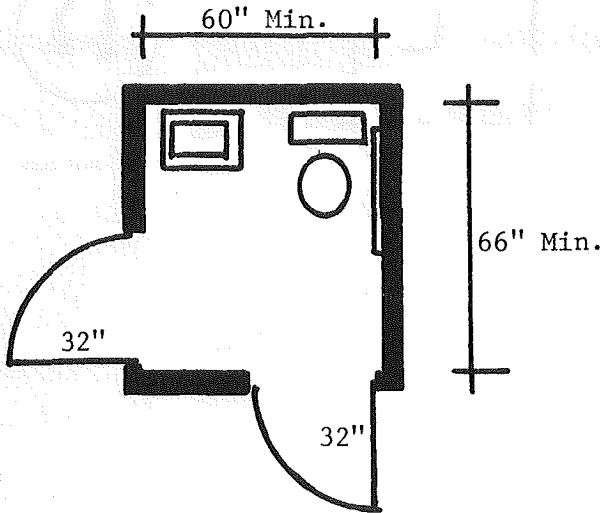
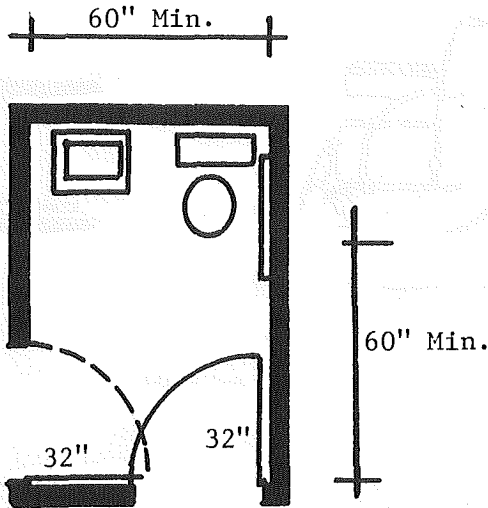
WHEELCHAIR DIMENSIONS



TURNING SPACE

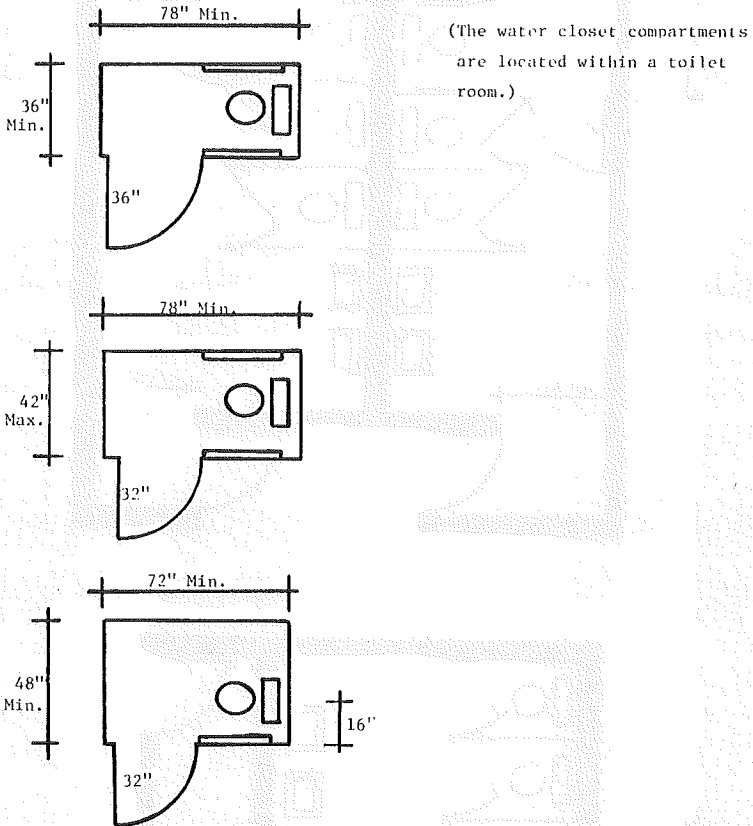


EXAMPLES OF ACCESSIBLE TOILET ROOMS
CONTAINING ONE LAVATORY AND ONE WATER CLOSET

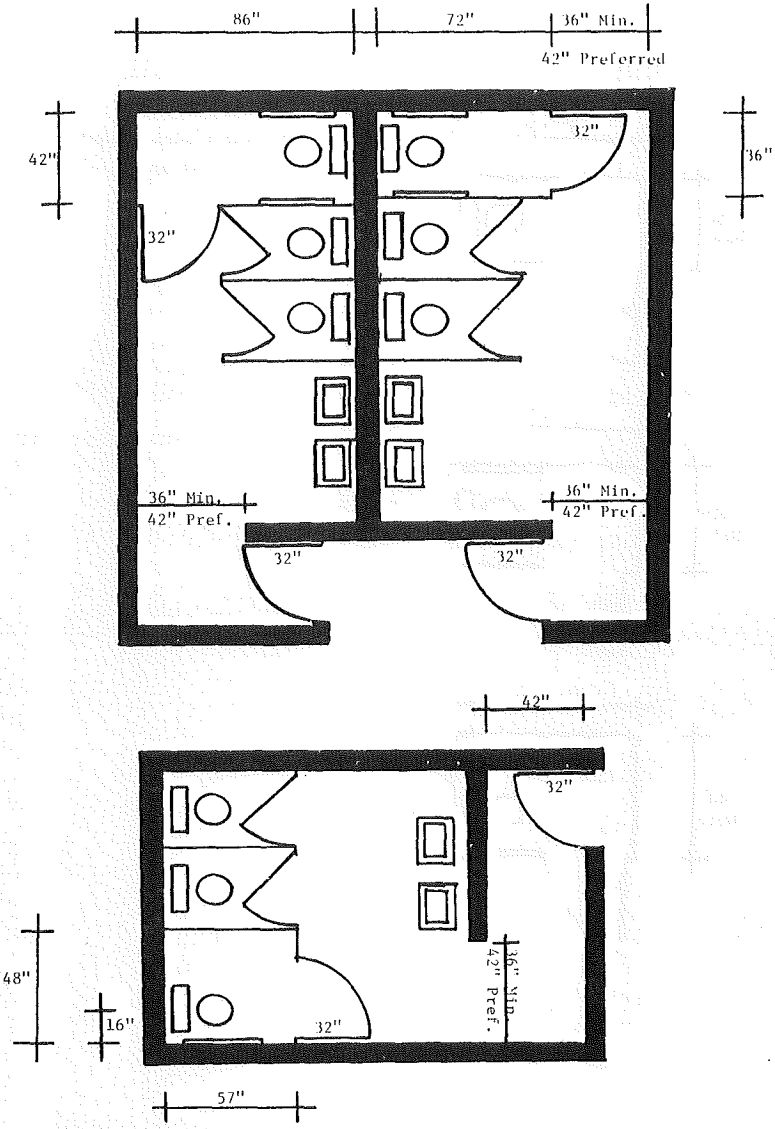


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EXAMPLES OF WATER CLOSET COMPARTMENTS
WITH A SIDE ENTRANCE APPROACH

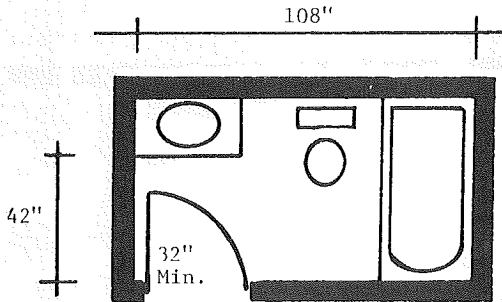
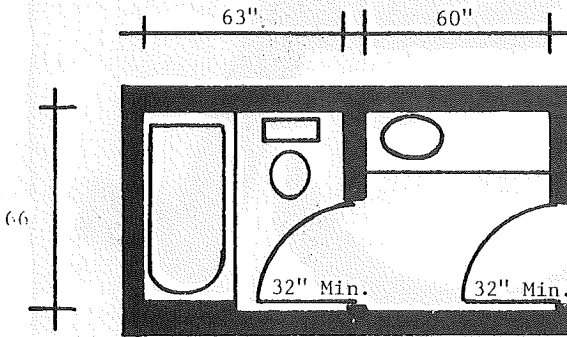
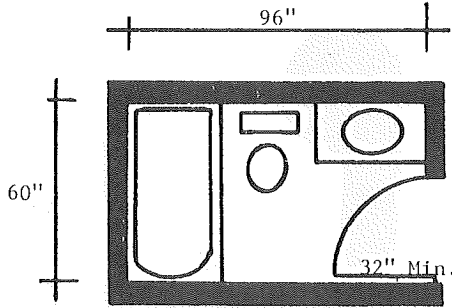


EXAMPLES OF ACCESSIBLE TOILET ROOMS



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EXAMPLES OF ACCESSIBLE BATHROOM LAYOUTS
FOR MOTELS AND RESIDENTIAL LIVING UNITS

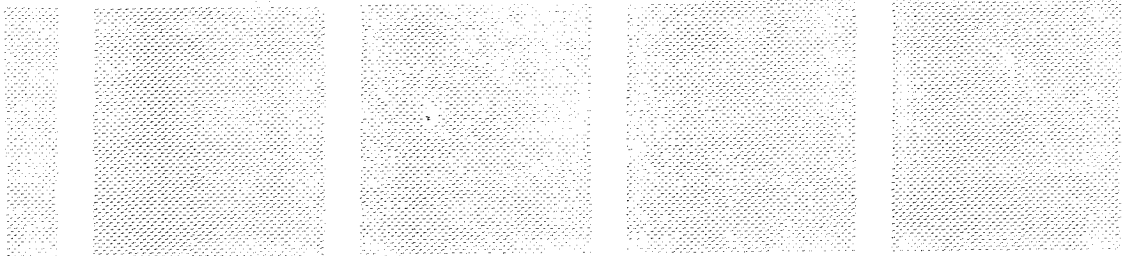


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INTERNATIONAL SYMBOL FOR BARRIER-FREE ENVIRONMENTS

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A-57.18 The intent of this section is to apply to floor levels not more than one story below grade (at building).

A-57.18 (6) It is the intent of this subsection that each living unit needs only one means of exit from within the unit and that the entire building be provided with no less than 2 exits.

A-60.19 (4). The standard is available from the National Fire Protection Association, 470 Atlantic Ave. Boston, Massachusetts 02210.

A-60.24 Class A fires are fires in ordinary combustible materials such as wood, cloth, paper, rubber, and many plastics. Class B fires are fires in flammable liquids, gases and greases.

A-60.35 See A-60.24.

A-60.36 (1) (a). See A-60.19 (4).

A-64.20. EQUIPMENT RATINGS AND SAFETY CONTROLS. The department recognizes the following reference standards for the testing and installation of heating and ventilating equipment:

- (1) National Fire Protection Association, 470 Atlantic Ave., Boston, Mass. 02210:
 - (a) OIL-BURNING EQUIPMENT, NFPA No. 31;
 - (b) NATIONAL FUEL GAS CODE, NFPA No. 54.
- (2) American National Standards Institute, Inc., 1430 Broadway, New York, N.Y. 10018:
 - (a) GAS-FIRED ROOM HEATERS, Vol. 1, ANSI Z21.11.1;
 - (b) GAS-FIRED LOW PRESSURE STEAM AND HOT WATER BOILERS, ANSI Z21.13;
 - (c) GAS UNIT HEATERS, ANSI Z21.16;
 - (d) DOMESTIC GAS CONVERSION BURNERS, ANSI Z21.17;
 - (e) GAS APPLIANCE PRESSURE REGULATORS, ANSI Z21.18;
 - (f) AUTOMATIC GAS IGNITION SYSTEMS AND COMPONENTS, ANSI Z21.20;
 - (g) AUTOMATIC GAS VALVES, ANSI Z21.21;
 - (h) RELIEF VALVES AND AUTOMATIC GAS SHUTOFF DEVICES FOR HOT WATER SYSTEMS, ANSI Z21.22;
 - (i) GAS APPLIANCE THERMOSTATS, ANSI Z21.23;
 - (j) GAS-FIRED DUCT FURNACES, ANSI Z21.34;
 - (k) GAS FILTERS ON APPLIANCES, ANSI Z21.35;
 - (l) GAS-FIRED GRAVITY AND FAN TYPE DIRECT VENT WALL FURNACES, ANSI Z21.44;
 - (m) GAS-FIRED GRAVITY AND FORCED AIR CENTRAL FURNACES, ANSI Z21.47;
 - (n) GAS-FIRED GRAVITY AND FAN TYPE FLOOR FURNACES, ANSI Z21.48;
 - (o) GAS-FIRED GRAVITY AND FAN TYPE VENTED WALL FURNACES, ANSI Z21.49;
 - (p) VENTED DECORATIVE GAS APPLIANCES, ANSI Z21.50;
 - (q) GAS-FIRED SINGLE FIREBOX BOILERS, ANSI Z21.52;
 - (r) GAS-FIRED HIGH PRESSURE STEAM AND HOT WATER BOILERS (Inputs not over 400,000 Btu/hour), ANSI Z21.59;
 - (s) DECORATIVE GAS APPLIANCES FOR INSTALLATION IN VENTED FIREPLACES, ANSI Z21.60;
 - (t) DIRECT GAS-FIRED MAKE-UP AIR HEATERS, ANSI Z83.4;
 - (u) GAS-FIRED HEAVY DUTY FORCED AIR HEATERS, ANSI Z83.5;
 - (v) GAS-FIRED INFRARED HEATERS, ANSI Z83.6.
- (3) Underwriters' Laboratories, Inc., 207 East Ohio St., Chicago, Illinois 60611:
 - (a) OIL BURNERS, UL 296;
 - (b) CONTROLS, PRIMARY SAFETY FOR GAS- AND OIL-FIRED APPLIANCES, UL 372;
 - (c) HEATING APPLIANCES, ELECTRIC, UL 499;
 - (d) HEAT PUMPS, UL 559;
 - (e) OIL-FIRED BOILER ASSEMBLIES, UL 726;
 - (f) OIL-FIRED CENTRAL FURNACES, UL 727;
 - (g) HEATERS, AIR, AND DIRECT-FIRED HEATERS, OIL-FIRED, UL 733;
 - (h) COMMERCIAL-INDUSTRIAL GAS HEATING EQUIPMENT (Inputs over 400,000 Btu/hour), UL 795;
 - (i) HEATERS, ELECTRIC, FOR USE IN HAZARDOUS LOCATIONS; Class I, Groups A, B, C and D, and Class II, Groups E, F and G, UL 823;
 - (j) ELECTRIC BOILERS, UL 834;
 - (k) HEATERS, ELECTRIC DRY BATH, UL 875;
 - (l) FAN COIL UNITS AND ROOM FAN HEATER UNITS, UL 883;

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- (m) HEATERS, ELECTRIC AIR, UL 1025;
- (n) HEATING EQUIPMENT, ELECTRIC BASEBOARD, UL 1042;
- (o) HEATING EQUIPMENT, ELECTRIC CENTRAL AIR, UL 1096.

Note: The table on the following page is a tabular summary of UL 296 and UL 795.

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TABULAR SUMMARY UL STANDARD 296 AND UL STANDARD 795

FUNCTION/BURNER INPUTS	OIL BURNERS UL 296			COMMERCIAL/INDUSTRIAL GAS UL 795					
	3 GPH 400,000 Btu or less	7 GPH 1 million Btu or less	20 GPH 3 million Btu or less	Over 20 GPH 3 million Btu	Over 400,000 to 2,500,000	Over 2,500,000 to 5,000,000	Over 5,000,000 to 12,500,000	Over 12,500,000	ATM Draft
Prepurge timing	--	--	--	--	4	4	4	4	90 sec ³
Air changes	--	--	--	--	4	4	4	4	--
Interlock Controls (Recycle)	Yes	Yes	rYes	Yes	Yes	Yes	Yes	Yes	Yes
Proven combustion air	B	B	B	B	Yes	Yes	Yes	Yes	Yes
Valve seal overtravel ⁹	--	--	--	--	Optional	Optional	Optional	Optional	13
Low gas pressure	--	--	--	--	Yes ²⁰	Yes ²⁰	Yes ²⁰	Yes ²⁰	13
High gas pressure	--	--	--	--	Yes ²⁰	Yes ²⁰	Yes ²⁰	Yes ²⁰	13
Low fire start	11	11	11	11	11	11	11	11	13
High limit (press. or temp.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Low water cutoff	Boilers ²¹	Boilers ²¹	Boilers ²¹	Boilers ²¹	Boilers	Boilers	Boilers	Boilers	Yes
Pilot - Intermittent	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	13
Pilot - Interrupted	13	19	13	13	Optional	Optional	Optional	Optional	13
Direct spark ignition	Yes	Yes	Yes	Yes ⁵	--	--	--	--	2, 10
System & sequence approved	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
safety control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Approved safety shutoff	IN	BURNER	DESIGN	DESIGN	Yes ¹⁴	Yes ¹⁴	Yes ¹⁴	Yes ¹⁴	Yes ^{13, 14}
valves (SSOV)	18	18	18	18	--	--	--	--	13
No vent valve	Optional	Optional	Optional	Optional	Yes ⁵	Yes	Yes	Yes	Yes
Pilot valve	17	17	17	17	Yes	Yes	Yes	Yes	Yes
Proved pilot	17	17	17	17	Yes	Yes	Yes	Yes	Yes
Trial for pilot	90 sec ^{2,17}	30 sec ^{2, 17}	15 sec ^{2, 17}	15 sec	15 sec	10 sec	10 sec	10 sec	13
Trial for main flame	90 sec ¹⁷	4 sec max ^{16,17}	4 sec max ^{15,17}	10/30 sec ⁷	15 sec ²²	10 sec	10 sec	10 sec	13
Flame failure response time	23	23	23	23	4 sec max	4 sec max	4 sec max	4 sec max	13
Valve closing time (max.)	17	17	17	17	5 sec max	1 sec max	1 sec max	1 sec max	13
Supervise main flame	17	17	17	17	Yes ²	Yes ²	Yes ²	Yes ²	2, 10
Action on flame failure	Recycle	Recycle	Recycle	Lockout or recycle	Lockout or recycle ⁶	Lockout or recycle	Lockout or recycle	Lockout or recycle	13
Action on limit open	optional ¹	1	1	1	Close SSOV	Close SSOV	Close SSOV	Close SSOV	13

See following page for footnotes.

FOOTNOTES TO TABULAR SUMMARY UL
STANDARD 296 AND UL STANDARD 795:

SSOV=Safety shutoff valve.

¹May relight if ignition is re-energized within 0.8 sec. See 15 and 16.

²Where intermittent pilot is desired, it is allowable to switch from pilot detector to main flame detector if main flame detector responds to main flame only.

³Without shutters, no prepurge required.

⁴Options (whichever is chosen, a minimum of 4 air changes must be provided): 30 sec at high fire rate; OR
60 sec at 1/2 high fire rate; OR
90 sec at 1/2 high fire rate.

⁵With 2-stage lightoff, direct ignition is permitted if first stage is 20 gph or less (requirements for 20 gph or less apply). Pilot is required if igniting more than 20 gph.

⁶Lockout on interrupted pilot applications; recycle on intermittent pilot applications.

⁷10 sec for distillate fuel (No. 1 or No. 2); 30 sec for residual fuel (No. 4, 5, 6).

⁸Conventional type pressure burner—none needed. Needed for applications with combustion air supply separate from oil supply.

⁹Valve seal overtravel switch can be wired into either the start circuit or pre-ignition interlock circuit (if provided).

¹⁰Interrupted pilot over 2.5 million Btuh if modulating or high/low firing rate. Otherwise over 5 million Btuh.

¹¹If low fire start is not proved, UL will test for smooth lightoff at high fire.

¹²Intermittent up to 5 million Btuh unless firing rate control is over 2,500,000 Btuh.

¹³Requirements same as mechanical draft burners.

¹⁴See Table 1 at end of footnotes for main gas valves.

¹⁵Up to 15 sec is permitted if intermittent ignition is employed, or if the ignition system is re-energized in not more than 0.8 sec after flame is extinguished.

¹⁶Up to 30 sec is permitted if intermittent ignition is employed, or if the ignition system is re-energized in not more than 0.8 sec after flame is extinguished.

¹⁷If proved pilot igniter is used, timings for over 20 gal flame safeguard control may be applied.

¹⁸Required for electrically ignited, gas-piloted systems.

¹⁹Interrupted pilot may be required if using flame safeguard control with a proved pilot. Otherwise, interrupted pilot is optional.

²⁰Safety shutdown by this limit can be accomplished either by manual reset limits or in the programmer limit circuit.

²¹Required on boilers fired by oil burners—not a requirement of UL 296.

²²If intermittent pilot is used, no main burner flame-establishing period is required.

²³If a separate oil valve is used, it must close within 5 sec max when de-energized.

TABLE 1—AUTOMATIC MAIN GAS SAFETY SHUTOFF VALVES (SSOV) FOR MECHANICAL OR ATMOSPHERIC BURNERS—UL 795 REQUIREMENTS, EFFECTIVE OCTOBER 1, 1974

	400,000 to 2,500,000 BTUH	Over 2,500,000 to 5,000,000 BTUH	Over 5,000,000 to 12,500,000 BTUH	Over 12,500,000 BTUH
Main Valve Requirement	One valve rated for safety shutoff services (SSOV). Closing time 5 sec.	Two SSOV's in series, or one SSOV of the type incorporating a valve seal overtravel interlock. Closing time 1 sec max.	Two SSOV's in series, one of which incorporates a valve seal overtravel interlock. Closing time 1 sec max.	Two SSOV's in series, one of which incorporates a valve seal overtravel interlock. When fuel gas has specific gravity of less than 1.0, include a N.O. ¼ inch or larger electrically operated valve in a vent line between the two SSOV's.