

RESIDENTIAL FINISHED BASEMENTS **BUILDING PERMIT REQUIREMENTS**

This guideline is intended to provide the homeowner/contractor with the basic information needed to apply for a building permit to finish or partially finish most existing residential basements. For larger more complex basement finishing projects having several rooms, it is recommended that the homeowner/ contractor also obtain a copy of St. Louis County's "Single-Family Dwelling Check list" to aid in the preparation of plans required for submittal.

1. Fill out and sign application for a building permit.
2. Obtain zoning approval from the Department of Public Works, if an unincorporated area, or from municipality. In municipalities site plans must be marked "Approved" and Municipal Approval Form submitted with application.
3. Submit four (4) separate complete sets of detailed building construction plans drawn to scale and containing the following:
 - Floor plans @ 1/4" = 1'-0"
 - Wall Sections(s) @ 3/4" = 1'-0"
 - Other Sections & Details @ 3/4" = 1'-0"
4. If a pre-fab fireplace or wood burning stove will be installed, include a section drawing at 3/4"= 1'-0" scale in your plan submittal and also provide one (1) copy of the manufacturer's installation instructions. (The unit shall be tested and certified by a nationally recognized and approved testing agency and bear that agency's label.) It is recommended that you obtain a copy of St. Louis County's "Building Permit Guidelines For Pre-fabricated Wood Burning Fireplaces or Stoves" for more detailed information. If you are extending through the exterior basement wall with either the firebox or chimney for a proposed fireplace or stove, you must also provide four (4) copies of a current site plan, drawn to scale, showing the firebox/chimney projection on the outside of the house and the perpendicular distance to the nearest lot line.
5. When the existing house is served by a septic or other on-site sewage disposal system, finished basements having new bedrooms or any new habitable room which could be converted to use as a bedroom, requires that the adequacy of the septic system be verified by the Plumbing Inspection Section. Refer to separate handouts regarding rules, regulations and procedures for septic systems.
6. All plumbing and electrical work must be performed in accordance with St. Louis County Codes and Ordinances by licensed master plumbers, licensed electrical contractors, or a pre-authorized homeowner who by examination has demonstrated the knowledge and ability to perform the work.. All mechanical work must be performed by a registered financial responsible

(bonded and insured) or licensed contractor authorized to do mechanical work. Homeowners may perform their own mechanical work within their own dwelling with no requirement to be registered or licensed.

7. It is the applicant's responsibility to check with other agencies or jurisdictions concerning their requirements that may be affected by the proposed basement remodel. Contact the appropriate agencies such as the Fire Department, Municipality, Sewer District, Subdivision Trustees, etc.
8. Issuance of a building permit for the project does not authorize construction access to the work site. If the existing driveway entrance to the site is unavailable for construction access, the owner/contractor shall apply for a permit to construct a temporary entrance from the owner of the Right-of-Way.

For additional information regarding the criteria in this handout, please contact:

	<u>Contact</u>
General Information	(314) 615-5184
Permit Processing	(314) 615-7155
Zoning Review	(314) 615-3763
Building Plan Review	(314) 615-5485
Right-of-Way Owner	
State	(888) 275-6636
County	(314) 615-8517
Municipality	Municipality

Refer to the attached drawings and the following general plan preparation information and listing of common code requirements pertaining to most simple residential basement finishing projects for additional information that needs to be included on the building construction plans.

General Plan Preparation Information

On basement renovation projects it is very important within the building construction plans to identify either graphically or by notation both existing and new construction. Show basement area room layout and identify use of each room/space by name and indicate both new and existing walls/partitions, as well as, furred and insulated concrete foundation walls. Rooms shown with clothes closets, etc. which resemble a bedroom or that could easily be converted to a bedroom in the future will be reviewed for bedroom requirements regardless of the room name presented on the drawing.

Habitable Room Sizes & Ceiling Heights

Habitable rooms shall have an area of not less than 70 square feet and shall not be less than 7 feet in any dimension.

Habitable rooms, bathrooms, hallways, and laundry rooms shall have a minimum ceiling height of 7'-0".

Finished box-outs for structural or decorative beams, ductwork, plumbing and electrical systems shall

have a minimum clearance of 6'-6", with a spacing of not less than 4'-0" on center.

Insulation

Concrete foundation walls in finished rooms/areas shall be furred out and insulated with a minimum of R-5 insulation extending down to the basement floor slab.

Partitions/Walls

Indicate size and spacing of new partition studs and finish wall material.

Approved water-resistant gypsum backer board shall be used as a base for tiles or wall panels in bathtub and shower areas. Water-resistant gypsum backer board shall not be applied over a vapor barrier. Water-resistant gypsum backing board shall be permitted to be used on ceilings where the framing spacing does not exceed 12 inches on center for ½" thick or 16 inches for 5/8" thick gypsum board.

Interior finish materials shall not have a flame spread rating exceeding 200.

Emergency Escape & Rescue Opening and Natural Light & Ventilation

Show all new and existing window locations and indicate the overall glass size and ventilation area for each.

An emergency escape and rescue opening is required in the following situations:

- An unfinished area is converted to a finished area.
- An existing finished area is reconfigured with wall partition(s) in different locations.
- Sleeping Rooms

Exception: An emergency escape and rescue opening is not required for a proposed finished area in an existing basement without sleeping areas if A/C powered, U.L. Listed smoke detectors are installed in each finished and unfinished room or space within the basement and hardwired and interconnected together with all the detectors in the dwelling unit. All detectors outside the scope of work area shall comply with Section R313. Refer to "Smoke Detectors" heading on page 5 of this handout. Note: This exception may not be acceptable to the fire district in which the project is located.

Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Indicate the sill height, clear opening width, and clear opening height for the required emergency escape and rescue opening. This opening shall meet or exceed the following criteria:

Maximum opening height - 44"
Minimum clear opening height - 24"

Minimum clear opening width 20"
Minimum clear opening area 5.0 sq.ft.

The emergency escape and rescue opening shall be operable from the inside without the use of special knowledge, tool, or extra force, beyond that required for normal window operation.

A window well serving an emergency escape and rescue opening shall be constructed in accordance

with the following criteria:

Window wells serving a basement emergency escape and rescue shall be a minimum of 9 square feet in horizontal area with a minimum horizontal projection width of 36". The window well shall also be large enough to allow the emergency escape and rescue opening to be fully opened.

Window wells with a vertical depth greater than 44 inches shall have a permanent ladder or steps. The ladder, if applicable, shall be at least 12" wide, project a minimum of 3" from the wall and have rungs spaced not more than 18" on center vertically for the full vertical depth of the window well.

A 36" high guard with no openings greater than 4" is required to separate a path, drive, walking surface within 24" of the high side of a window well greater than 48" in vertical depth. Window wells adjacent to a patio slab or deck shall be protected with this guardrail if the vertical depth of the well exceeds 30 inches. Window wells shall be placed in locations that do not require a guard completely around the well.

Window wells in excess of 48" in depth require structural calculations to verify the structure can retain soil of this height.

Exception: Window wells that have an ICC-ES Research Report addressing the structural adequacy of the walls.

Window areaway drains less than 10 square feet in area shall be served by a 2" pipe drained to daylight or a sump pit served by an approved pump installation. Window areaway drains 10 square feet or greater but less than 100 square feet in area shall be served by a 3" pipe drained in the same manor. Areaways greater than 100 square feet require the drain to be sized in accordance with Table 11-2 of the Plumbing Code. The presence of a cover over the areaway does not negate the need for a drain.

Glass area in habitable rooms shall not be less than 8% of floor area served. One-half of this area (4%) must be available for unobstructed ventilation with screens included. Artificial lights and/or mechanical ventilation (see ventilation section) may be used as an alternative if the existing windows are of inadequate size.

Remaining unfinished rooms/areas shall have windows with unobstructed ventilation area equal to 1% of the floor area served or artificial ventilation in the amount of .05 CFM/sq. ft. of area.

Enclosed accessible space under stairs shall have walls, under stair surface, and any soffits protected on the enclosed side with ½" gypsum board.

Stairways

Note: Existing stairways may need to be modified with new solid risers or toe board, with possibly new replacement treads having nosings (when solid risers are provided), with new graspable handrails, and/or with new intermediate balusters for open stair guards to meet current code requirements as

noted below:

Risers must be solid or have a toe board which limits the riser opening to less than 4". Open risers without a toe board are prohibited.

Minimum tread depth shall be 9" plus a $\frac{3}{4}$ " nosing for stairs with solid risers. Minimum tread depth shall be 9" with or without a nosing for stairs with a partial open riser and vertical toe board. The minimum 9" tread depth is measured from the leading edge (nosing) of one tread to the leading edge (nosing) of the next adjacent tread.

A continuous graspable handrail shall be provided along one side of the stair located 34" to 38" above the nosing. Handrails that form part of a guard on open-sided stairs shall also meet the guard criteria below. Handrails (and other projections below the handrail) shall not project more than 4-1/2" into the required 36" stairway width.

Handrails shall either meet a) circular cross section with minimum diameter of 1-1/4" but not more than 2", or b) other approved shapes having a maximum allowable horizontal width of 2-1/4", maximum graspable perimeter dimension of 6-1/4", and a minimum 4" graspable perimeter dimension.

Note: A large scale architectural cross sectional view shall be provided with critical dimensions for all shapes intended to comply with b) above.

Guards along open-sided stairs shall be a minimum of 34" in height above the leading edge of the tread and minimum of 36" in height at the stair landings. Open guards shall have intermediate vertical balusters spaced less than 4 3/8" apart.

Enclosed accessible space under stairs shall have walls, under stair surface, and any soffits protected on the enclosed side with 1/2" gypsum board.

Safety Glazing

Glazing in doors intended for human passage, patio doors, windows within 24" of a door, and shower and bathtub enclosure walls, panels or doors, tested and labeled in accordance with CPSC 16 CFR Part 1201 Standard. Glazing in sliding doors, and all glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers shall be labeled as a Type II category in accordance with this standard.

Ceiling/Floor Draftstopping

Dropped ceilings below wood joists or attached directly to wood floor trusses shall be draftstopped with 1/2" drywall or 3/8" plywood at 1000 sq.ft. intervals and parallel to framing members.

Firestopping

Firestopping consisting of 2" lumber, minimum 23/32" structural panel or approved non-combustible materials shall be provided at the ceiling line in concealed spaces of stud walls/partitions, including furred or studded-off spaces of concrete foundation walls and at soffits, dropped ceilings and similar spaces.

Smoke Detectors

AC powered, U.L. listed smoke detectors with battery backup shall be placed throughout the dwelling unit. All detectors within the dwelling shall be interconnected and hard wired so that the activation of any alarm will sound all alarms throughout the house.

Exception: Detector locations in existing areas shall not be required to be interconnected and hard wired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.

Smoke detectors shall be placed in the following locations:

Floor levels with bedrooms: A smoke detector is required in each bedroom and one centrally located detector is required outside of a group of bedrooms in the hall way.

Floor level without bedrooms: A smoke detector is required adjacent to the stair.

Heating and Air Conditioning, Ventilation, and General Mechanical

Show location of existing furnace and main supply and return ducts. Indicate location and sizes of any new sub-ducts, register and diffuser locations for the finished area. Detail any artificial ventilation that may be proposed for any room/space, such as for new or downsized furnace rooms, bathrooms or any finished room that does not have adequate windows for natural ventilation.

Combustion Air - Gas appliances (furnaces, water heaters, clothes dryers, etc.) located in closets or utility room spaces whose volume is less than 50 cubic feet/1000 BTU/hr. input rating shall have combustion and ventilation air provided.

Using inside air: 1 sq.in. shall be provided/1000 BTU/hr. each opening. Openings shall not be less than 100 sq.in. One opening shall be provided within 12" of the ceiling and within 12" above finished floor, no common ducts.

Using outside air:

- A. Horizontal openings
 - 1 sq. in./2000 BTU/hr. for ducted opening
 - 1 sq. in./4000 BTU/hr. for direct opening
- B. Vertical openings
 - 1 sq. in./4000 BTU ducted or direct

Minimum clearance from combustibles is 18 inches, unless the listed manufacturer's installation instructions allow an alternate clearance dimension. 18 inches of clearance is required at the front of the appliance for service.

Clothes dryers shall be independent of all other system, and exhaust to the exterior.

Residential bathrooms without windows for natural ventilation shall exhaust 50 CFM minimum to the exterior. It is not permissible to discharge exhaust to the attic or floor joist area.

Exception: Half-baths without a tub or shower may exhaust to the attic.

For finished rooms without adequate exterior openings large enough to provide 4% of the floor area in natural ventilation, outdoor air (artificial ventilation) shall be supplied at a rate of 0.35 air changes per hour or 15 cubic feet per minute per person, whichever is greater. The estimated occupant load to be used for a large common room/space such as a recreation room or a rathskeller shall be based on 2 for the first bedroom and 1 for each additional bedroom within the house.

Gas piping located outside of the room of the served appliance shall be identified at intervals of no more than 5' when placed in concealed locations.

Electrical

Show location and size of electrical panel (if new) and location of all new receptacles, lights, ceiling fans, exhaust fans and switches on the floor plans or indicate as a performance specification. Identify all 240 volt receptacles/circuits. Indicate which light and/or receptacles are controlled by switches. If proposed, show baseboard heater locations.

Ground fault circuit interrupters are required for receptacles and/or circuits installed in the following locations:

Bathrooms

Unfinished basement spaces except for laundry circuit and single receptacle dedicated to sump pumps.

Receptacles to serve counter top surfaces within 6' of a wet bar.

Receptacles are required to be installed in the following areas:

In all habitable rooms except bathrooms so that no space along a wall is more than 6' from a receptacle. All wall areas 2' wide or greater required receptacles.

In hallways of 10' or more in length.

In bathrooms installed adjacent to the basin.

At least 1 receptacle in laundry area and at least one receptacle in basement unfinished area in addition to the laundry receptacle.

Lighting is required in the following areas:

At least 1 wall switched lighting outlet shall be installed in every habitable room, bathroom, hallway, stairway and at exterior doors.

Lighting installed at interior stairways shall have an illuminated wall switch at each floor level separated by 6 or more steps.

At least 1 lighting outlet is required in each unfinished basement space or utility room that is used for storage or contains heating, air-conditioning or other equipment requiring servicing.

The light switch shall be located at the point of entry.

Lighting in clothes closets:

The use of incandescent fixtures with open or only partially enclosed lamps and the use of pendant fixtures are prohibited.

Fixtures may be located only where there are the following minimum clearances to the nearest point of storage space.

- surface mounted incandescent fixtures - 12" minimum.
- surface mounted florescent fixtures and recessed fixtures - 6" minimum.

Electrical panels:

Circuit breaker panels shall not be concealed and are not permitted in bathrooms or clothes closets.

Lighting is required in the vicinity of the electrical panel.

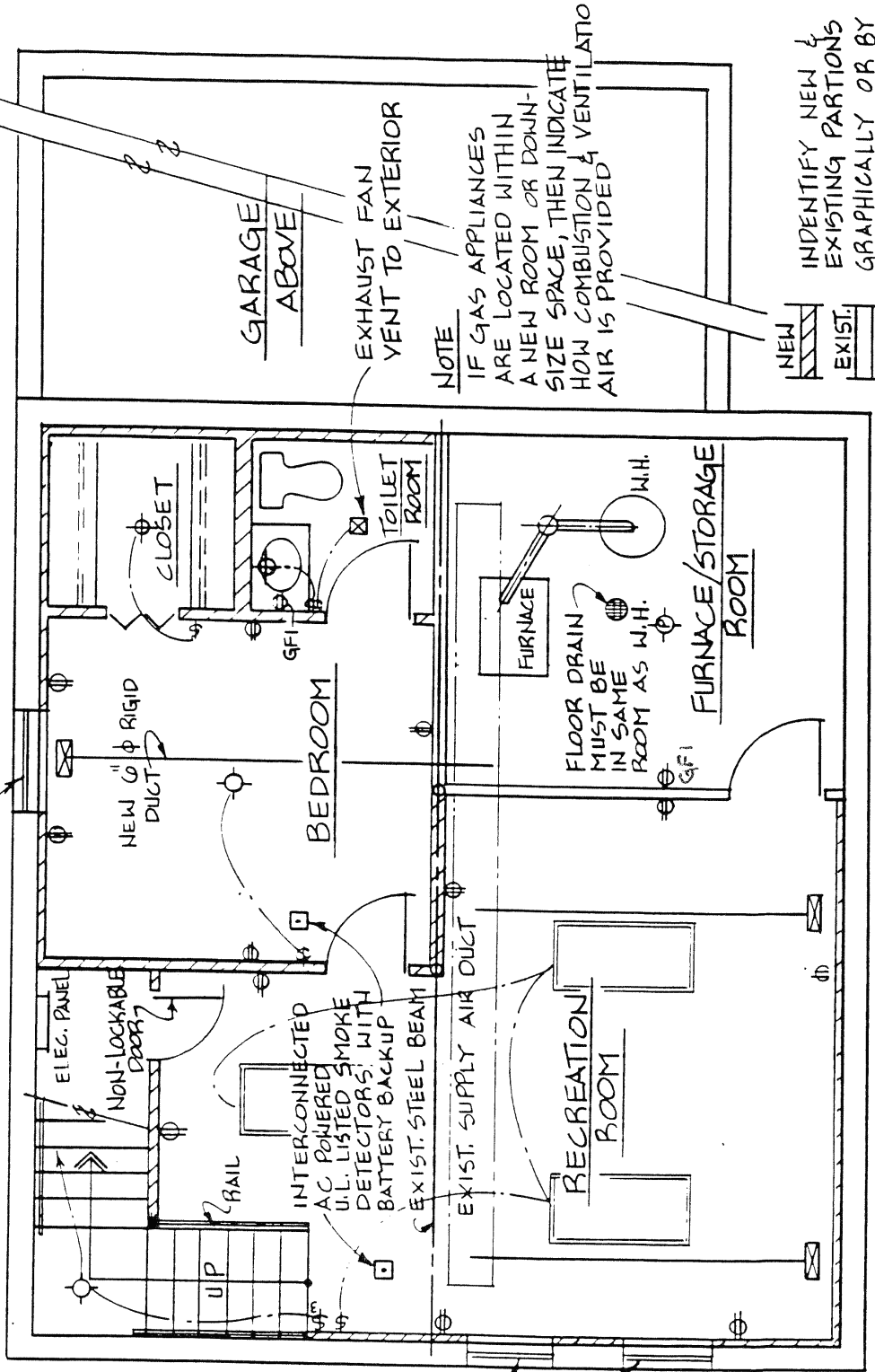
A minimum of 3' clearance is required in front of existing electrical panels.

Plumbing

Show location of any new plumbing fixture such as bar sink(s), lavatories, water closets, bathtubs, showers, hot water heater(s), floor drain(s) and other plumbing fixtures on the floor plans. Show location of plumbing chases. Show the location of new washer hose connection bibs and laundry standpipe in new laundry rooms/space.

Note: The preceding requirements apply to most simple residential basement finishing projects. However, the Plan Reviewer may determine that unusual circumstances dictate the need for additional information on any particular project. It should also be emphasized that especially on interior renovation projects many Code requirements are verified through the inspection process and are not necessarily reflected within the approve plan documents.

INDICATE: MAX. SILL HEIGHT
 MIN. CLEAR WIDTH (OPEN)
 MIN. CLEAR HEIGHT (OPEN)
 TOTAL GLASS AREA



GARAGE ABOVE

EXHAUST FAN VENT TO EXTERIOR

NOTE

IF GAS APPLIANCES ARE LOCATED WITHIN A NEW ROOM OR DOWN-SIZE SPACE, THEN INDICATE HOW COMBUSTION & VENTILATION AIR IS PROVIDED

NEW
 EXIST.

IDENTIFY NEW & EXISTING PARTIONS GRAPHICALLY OR BY NOTES

FLOOR DRAIN MUST BE IN SAME ROOM AS W.H.

FURNACE/STORAGE ROOM

BEDROOM

CLOSET

TOILET ROOM

RECREATION ROOM

ELEC. PANEL
 NON-LOCKABLE DOOR

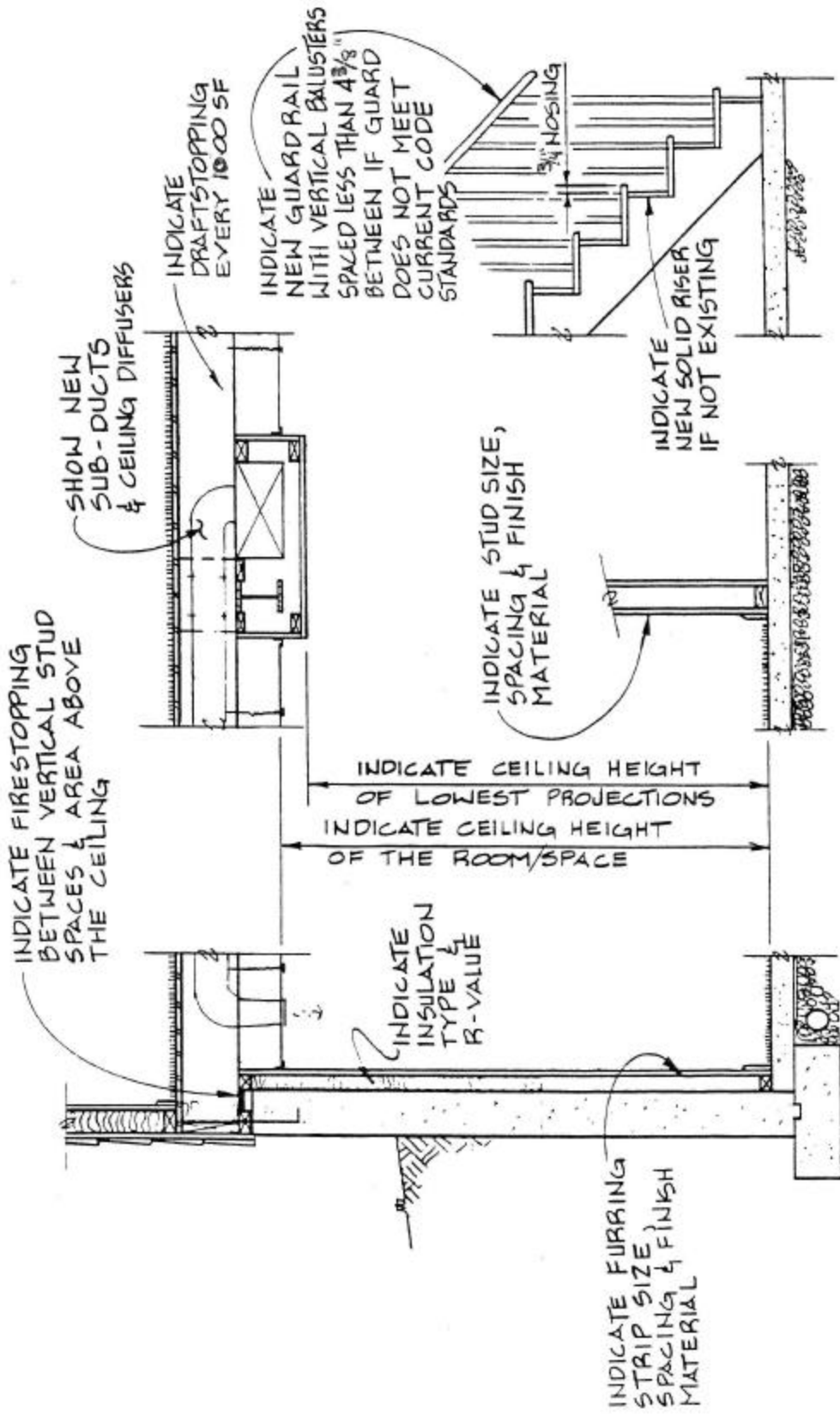
INTERCONNECTED A.C. POWERED SMOKE U.L. LISTED SMOKE DETECTORS WITH BATTERY BACKUP

EXIST. STEEL BEAM
 EXIST. SUPPLY AIR DUCT

INDICATE TOTAL GLASS AREA AND VENT AREA

RESIDENTIAL FINISHED BASEMENT PLAN

SCALE: 1/4" = 1'-0"



RESIDENTIAL FINISHED BASEMENT DETAILS

SCALE: 1/2" = 1'-0"