

# Finishing Your Basement

Sponsored by



SAFE**built.**

# Do I need a building permit?

## REQUIRED

A PERMIT IS REQUIRED WHENEVER:

- ALTERING PLUMBING,
- ELECTRICAL, HEATING OR FRAMING SYSTEMS .



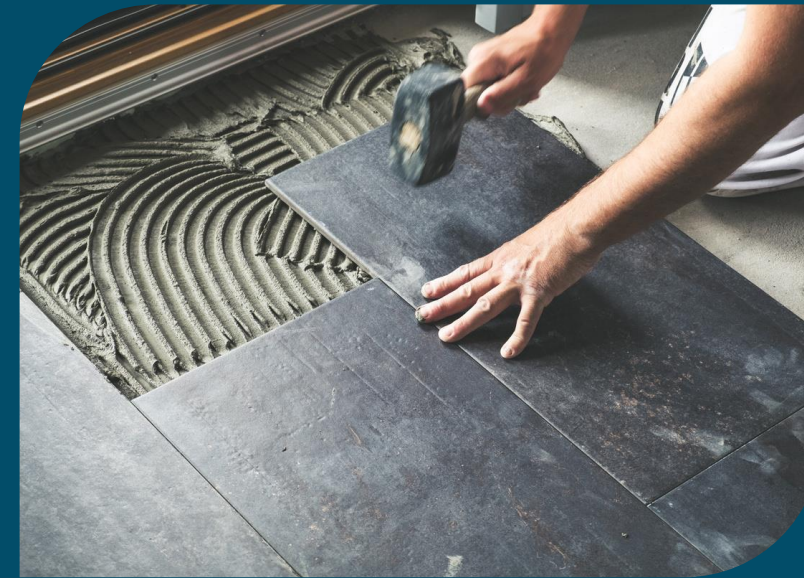
## EXCEPTION

A PERMIT IS NOT REQUIRED FOR MINOR REPAIR WORK.

# WHEN IS A PERMIT NOT REQUIRED?



PAINTING



TILING



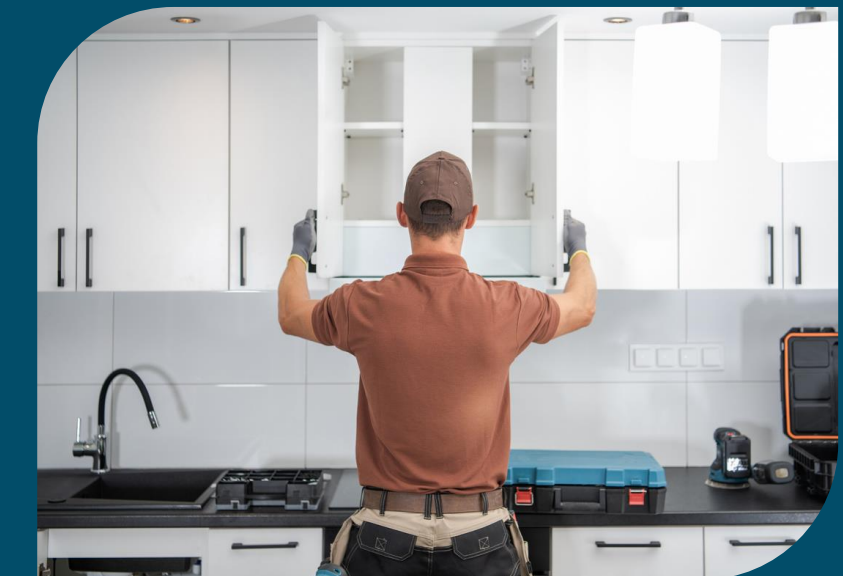
WOOD FLOORS



WALLPAPER



MINOR PLUMBING  
REPAIRS



CABINET INSTALLATION

# WHY DO I NEED A PERMIT

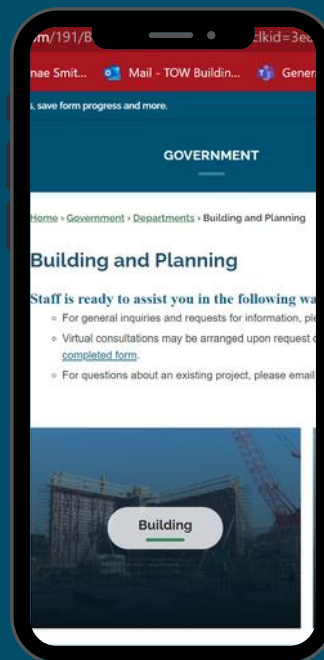
Sleep better at night knowing the work was installed to code and inspected by a certified individual.



# WHAT CODE HAS THE TOWN ADOPTED?



# WHERE DO I APPLY FOR PERMIT?



ONLINE

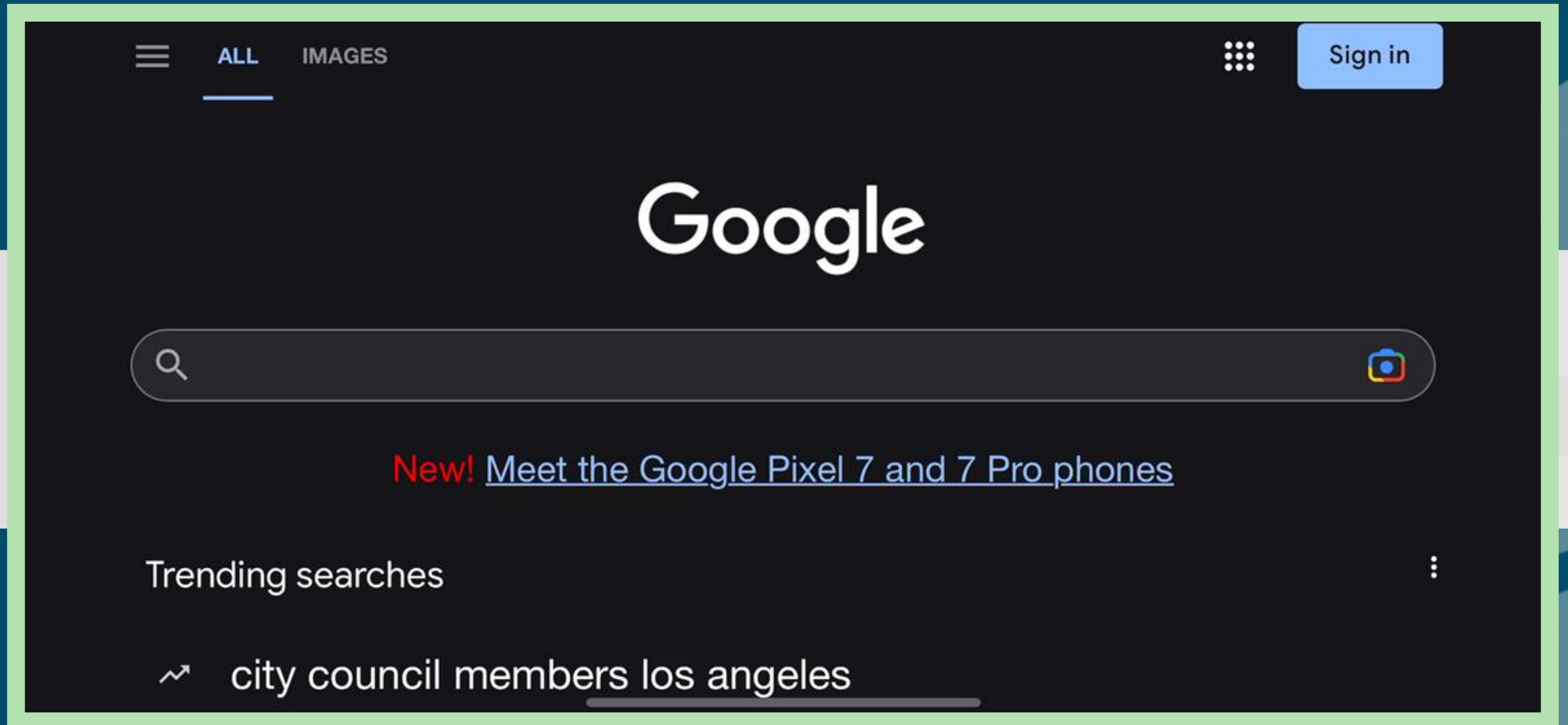
REGISTER IN COMMUNITY CORE  
FOR FREE AS A TIMNATH  
COMMUNITY MEMBER



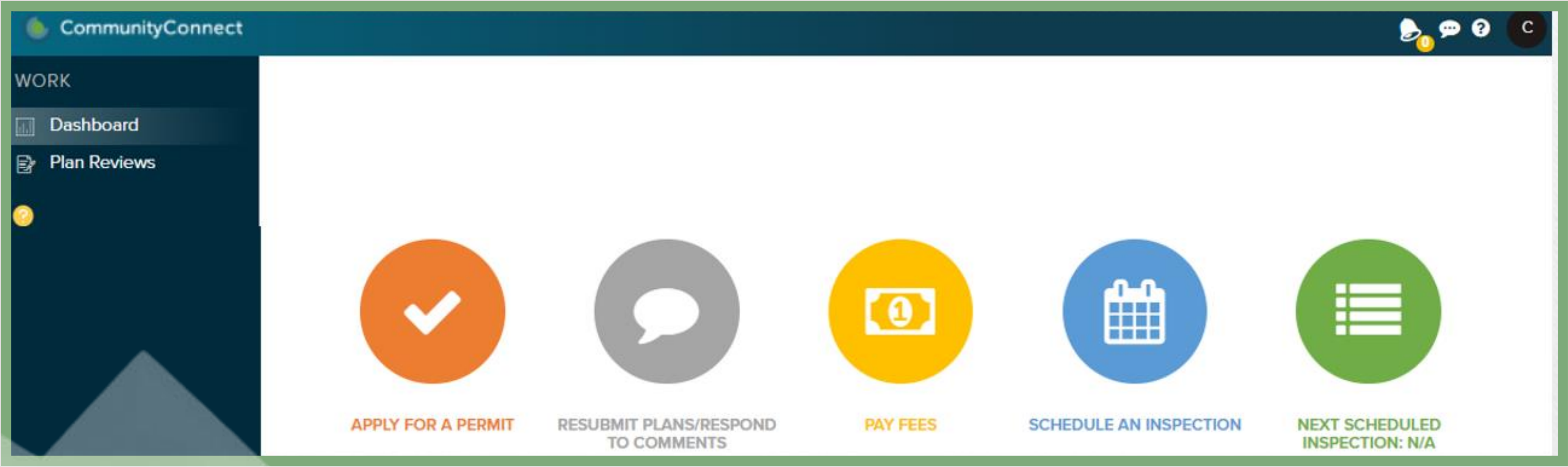
MUNICIPAL SERVICES  
BUILDING

4750 Signal Tree Drive  
TIMNATH COLORADO  
HOURS 8AM - 5:00PM M-TH  
FRIDAYS 8AM - NOON

# ACCESSING ONLINE PORTAL



# COMMUNITY CONNECT WEBSITE





## PERMIT APPLICATION

\*Include valuation (materials and labor)

## DETAILED FLOOR PLAN

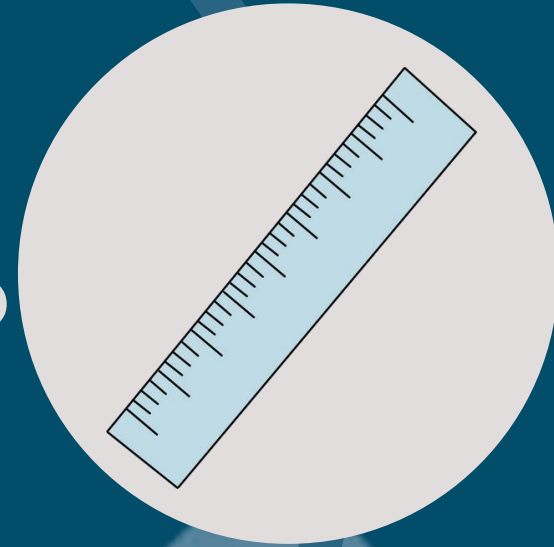
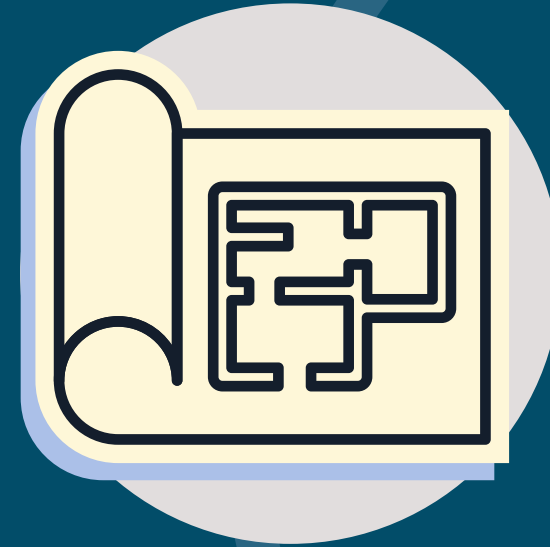
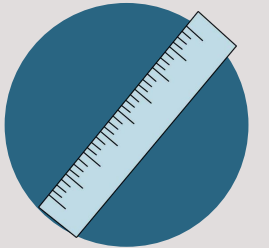
\*\*Label rooms, fixtures/appliances, and show doors & windows  
\*Gas line drawing if applicable

SHOW  
DIMENSIONS

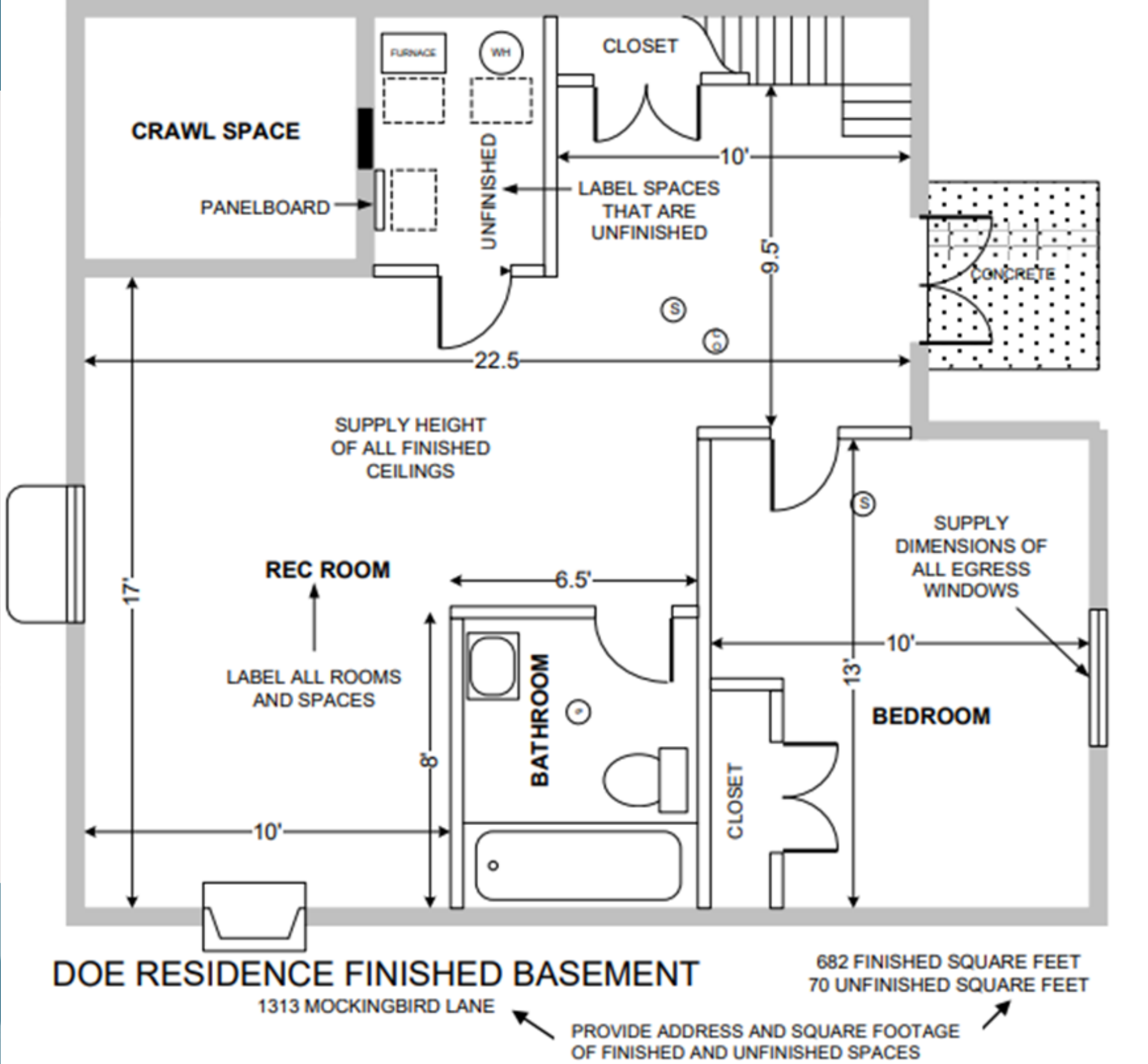
SEE SAFEbuilt BUILDING  
GUIDE

SEE TIMNATH PROJECT CHECKLIST

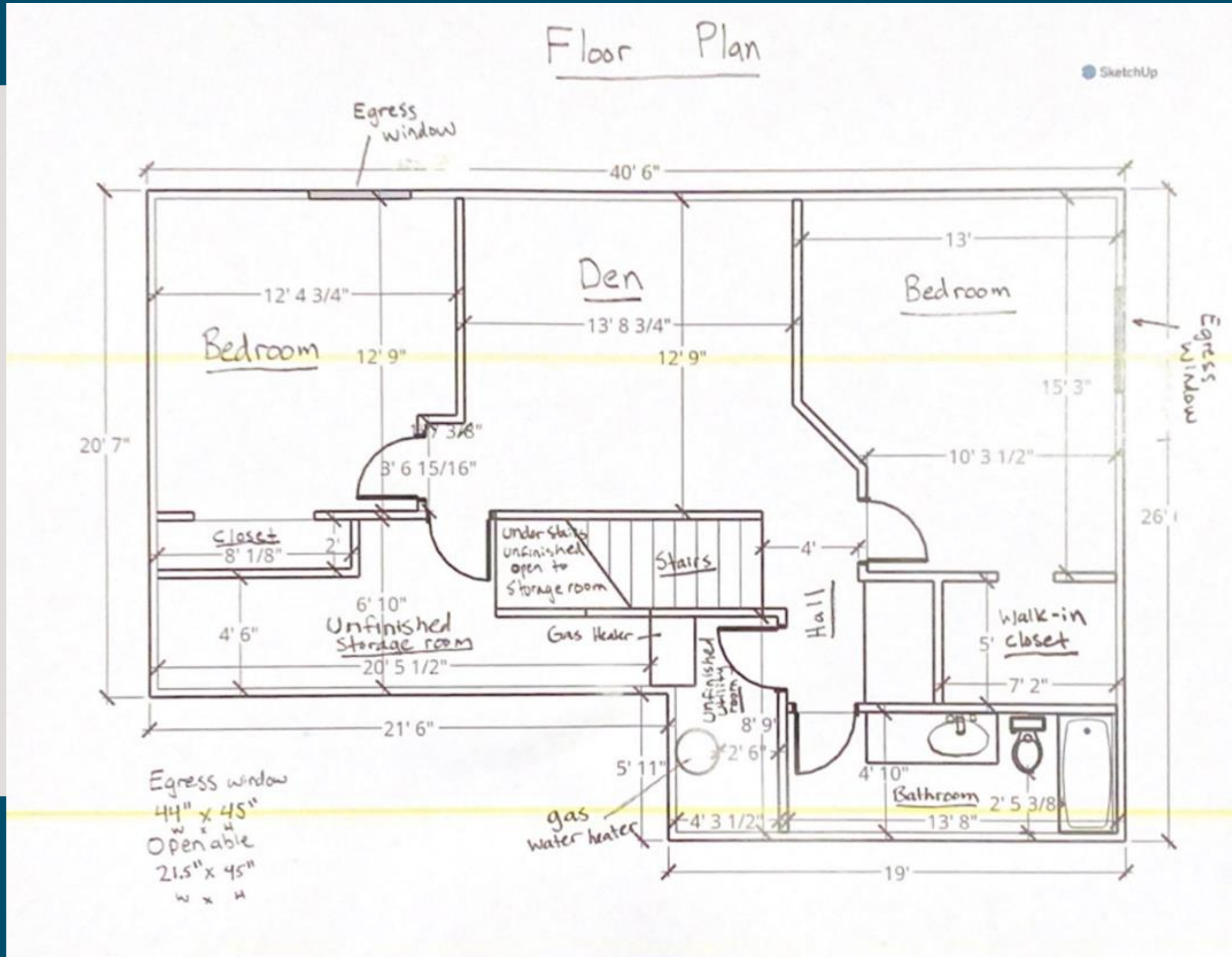
WHAT DO I NEED  
TO SUBMIT  
A PERMIT?



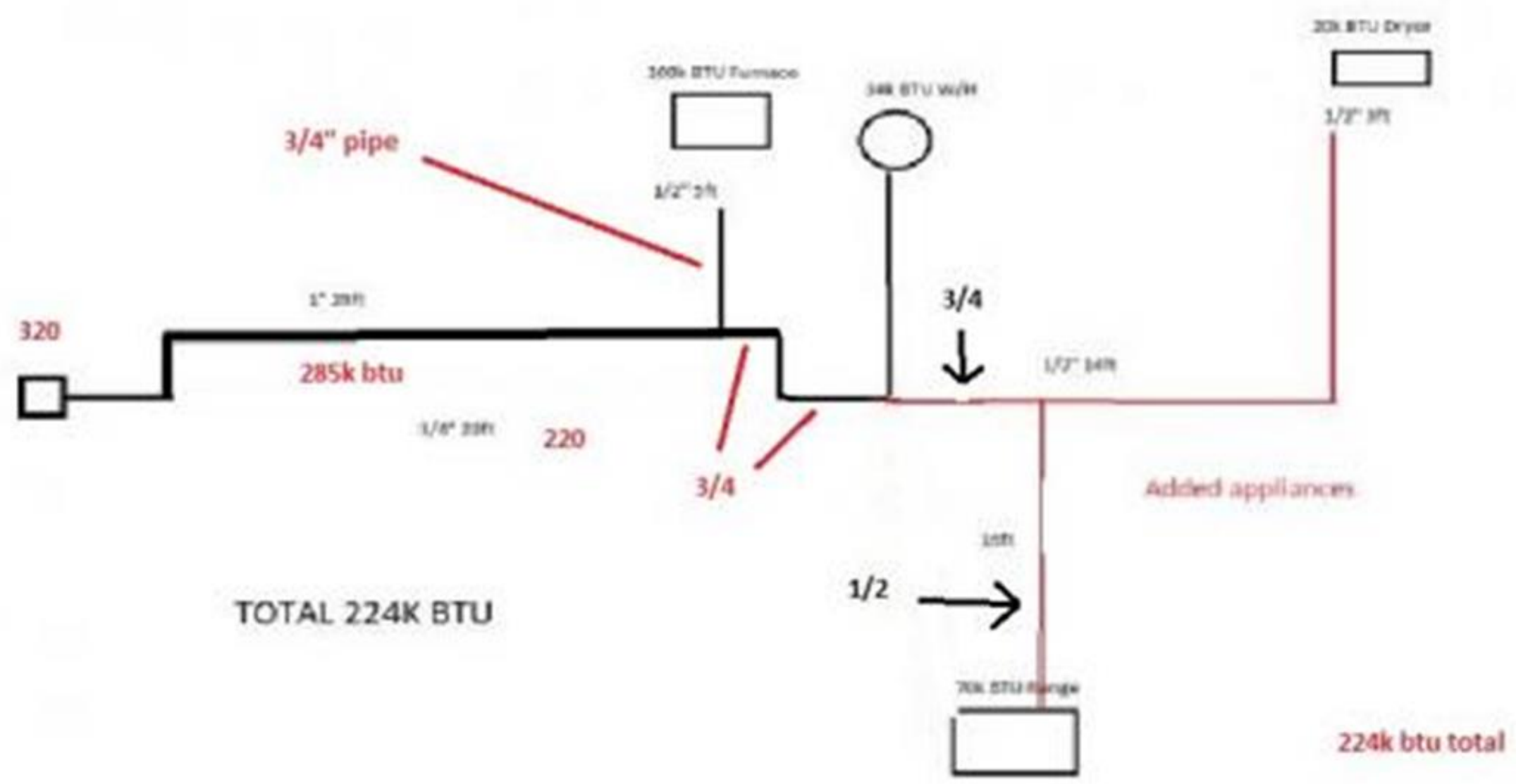
# EXAMPLE FLOOR PLAN



# HAND DRAFTED FLOOR PLAN

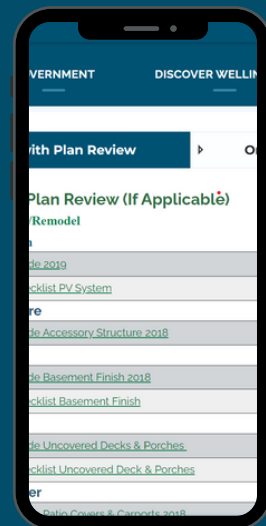


# ONE LINE DRAWING

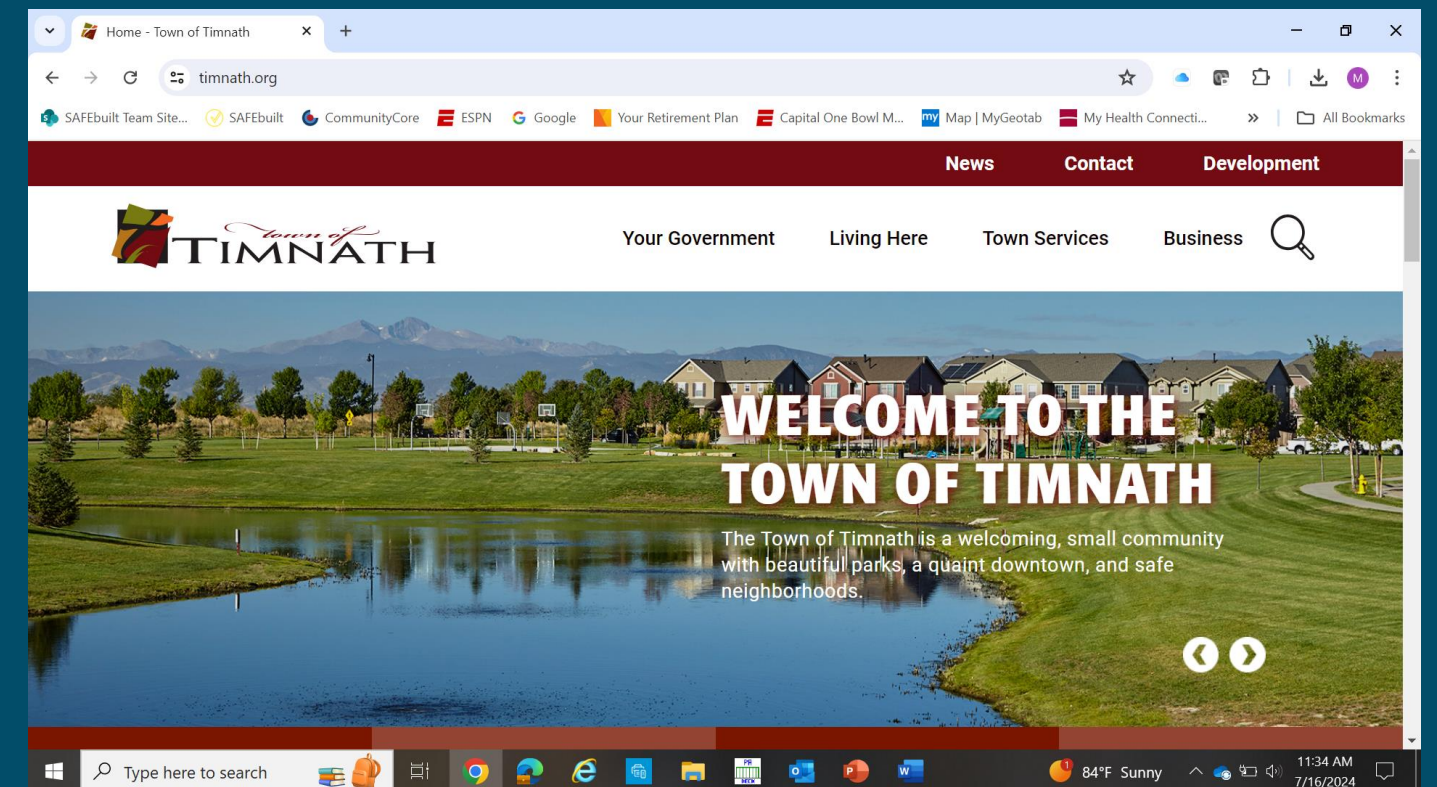


# WHAT IS A BUILDING GUIDE AND HOW CAN I GET ONE?

Town Website



ONLINE



# CHECK ALL REDLINE NOTES ON APPROVED PLANS!



## WHAT'S NEXT

Important information will be identified on plans in red



## PRINT COPIES

Color printed approved plans will need to be onsite at time of all inspections.



## REVIEW

Please review all red lined notes before starting construction

# INSPECTION INFORMATION



1

.....  
Post permit card.



2

.....  
Work not to be concealed prior to inspection.



3

.....  
Permits become null and void if longer than 180 days before start of inspections or between inspections.



4

.....  
Have approved plans on site at time of inspection.



5

.....  
Applicant to provide access to project. Resident or contractor on site to be 18 years or older

IF YOU HAVE QUESTIONS REGARDING YOUR SCHEDULED INSPECTION PLEASE FEEL FREE TO REACH OUT TO STAFF.

# HOW TO SCHEDULE INSPECTIONS

SCHEDULE ONLINE THROUGH COMMUNITY CORE

Or call SAFEbuilt Inspection line at 970-674-1036

- 01 PERMIT NUMBER**
- 02 PHYSICAL ADDRESS**
- 03 DATE TO SCHEDULE INPECTION**
- 04 AM OR PM TIME FRAME**
- 05 CONTACTS PHONE NUMBER**

Inspection requests received by 4:00 PM Monday through Friday will be scheduled for the next business day.





# SEQUENCE OF INSPECTIONS

**01** Underground plumbing

**02** Rough Inspections  
(framing, electrical, plumbing, and heating/cooling)  
\*Gas line if applicable

**03** Insulation / Fire-blocking

**04** Finals



# LET'S GET STARTED



Underground  
plumbing



Framing



Rough plumbing



HVAC



Rough electric



Gas



Insulation  
Firestopping



Final Inspections



# UNDERGROUND PLUMBING

- Sometimes pipes must be relocated to accommodate a new floor plan.
- Back-flow device must be accessible.
- Properly bed pipes.
- Check slope of pipes.
- Call for an inspection prior to covering.
- 5lb air test or 10 foot head of water.

# BACK WATER DEVICE

Back Water valve protects all basement plumbing fixtures from town sewer.

Only basement fixtures can be drained through backwater valve.

Backwater valve to be accessible.



# FRAMING

● TREATED SOLE PLATE

● HALLWAY WIDTH

● BEDROOM LOCATIONS

● ON CENTER SPACING OF STUDS

● FIRE-BLOCKING

● FLOATING WALLS

● MECHANICAL ROOM DOOR WIDTH



# FRAMING

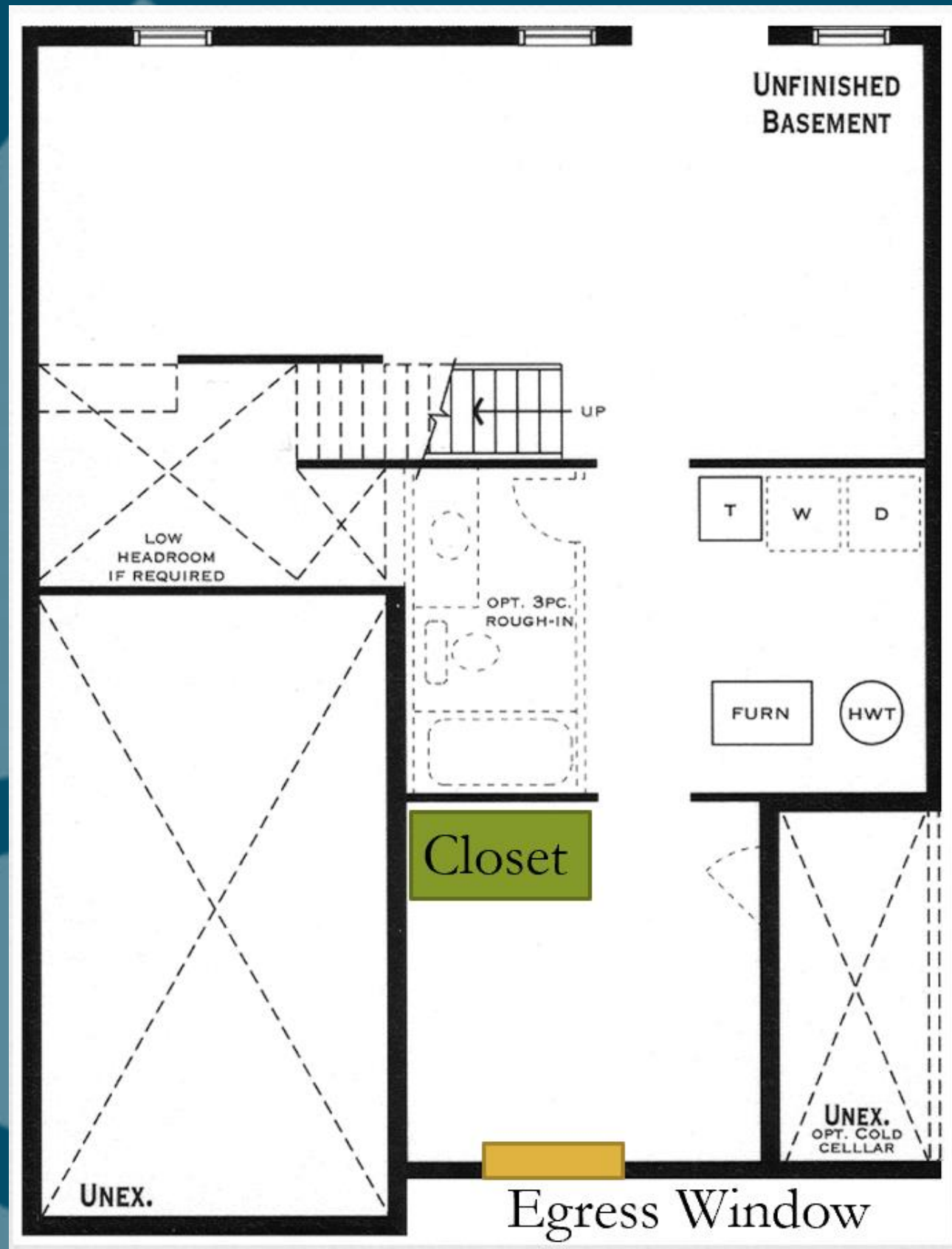




# CEILING HEIGHTS

- Minimum ceiling height 7ft. (measured from finished floor)
- Exceptions:
  - Portions of basement that do not contain habitable space or hallways shall have a ceiling height not less than 6ft 8"
- At beams, girders, or ducts, shall not be less than 6ft 4"

# BEDROOM LOCATION



**"Sleeping Room" (Bedroom)** is any enclosed habitable space within a dwelling unit, which complies with the minimum room dimension (7x10) and contains a closet, an area that is useable as a closet, or an area that is readily convertible for use as a closet. Living rooms, family rooms and other similar habitable areas that are so situated and designed so as to clearly indicate these intended uses, shall not be interpreted as sleeping rooms.

Any new openings in foundation or exterior framed walls will need Colorado Licenses Structural Engineered letter of approval. Required permit submittal documents.



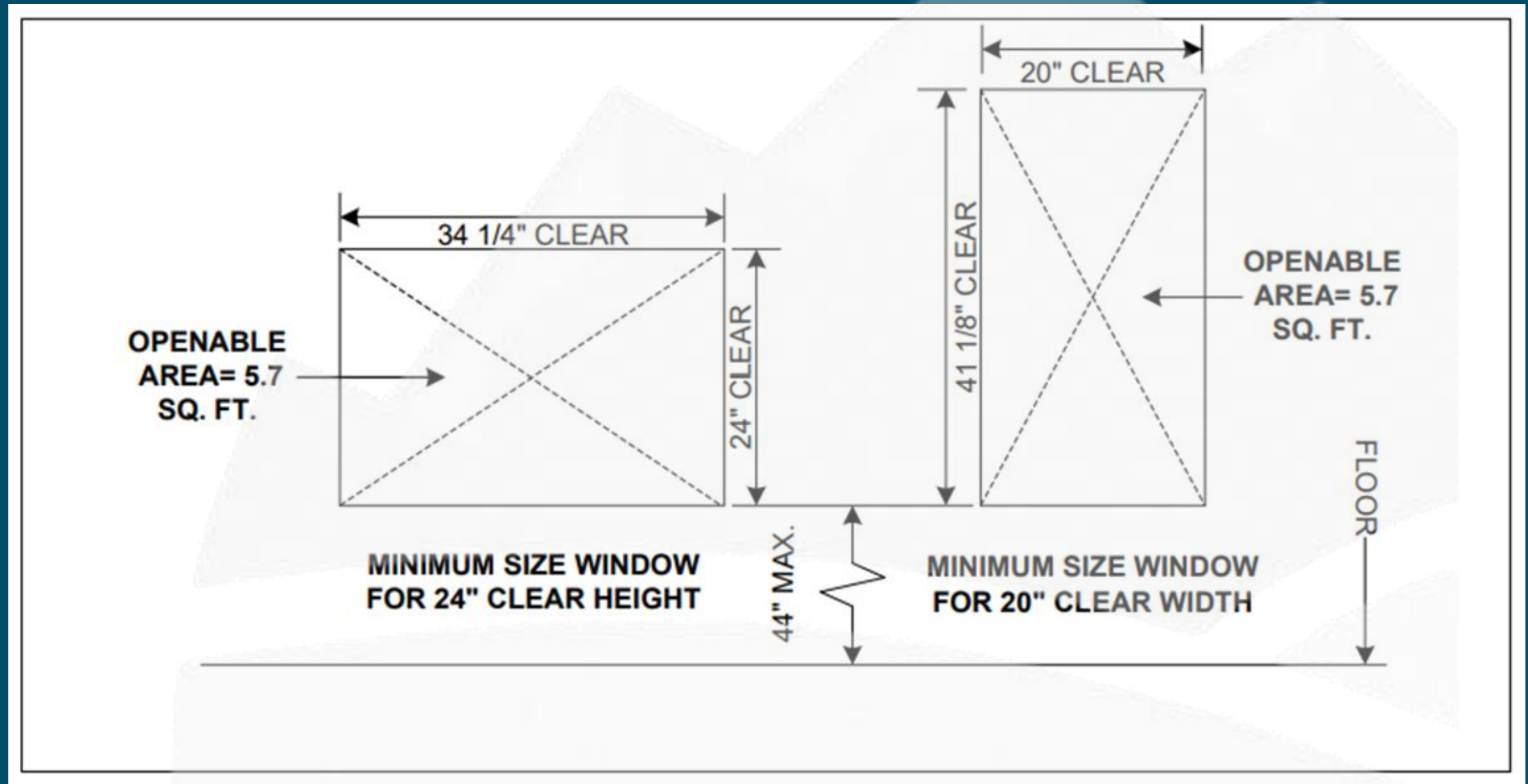
# EMERGENCY EGRESS REQUIREMENTS

01

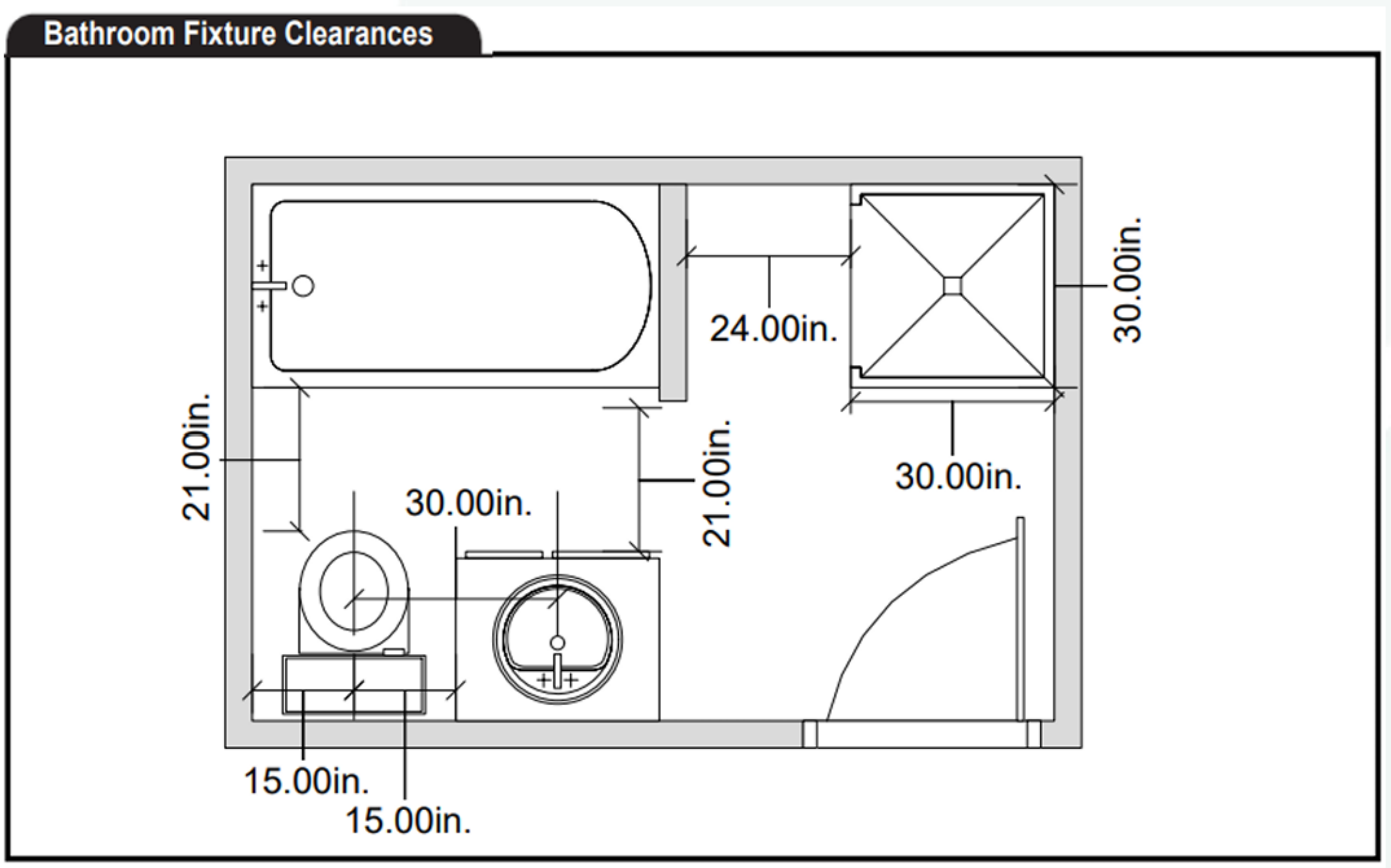
Emergency egress is required for all finished basements regardless of when the house was originally constructed.

02

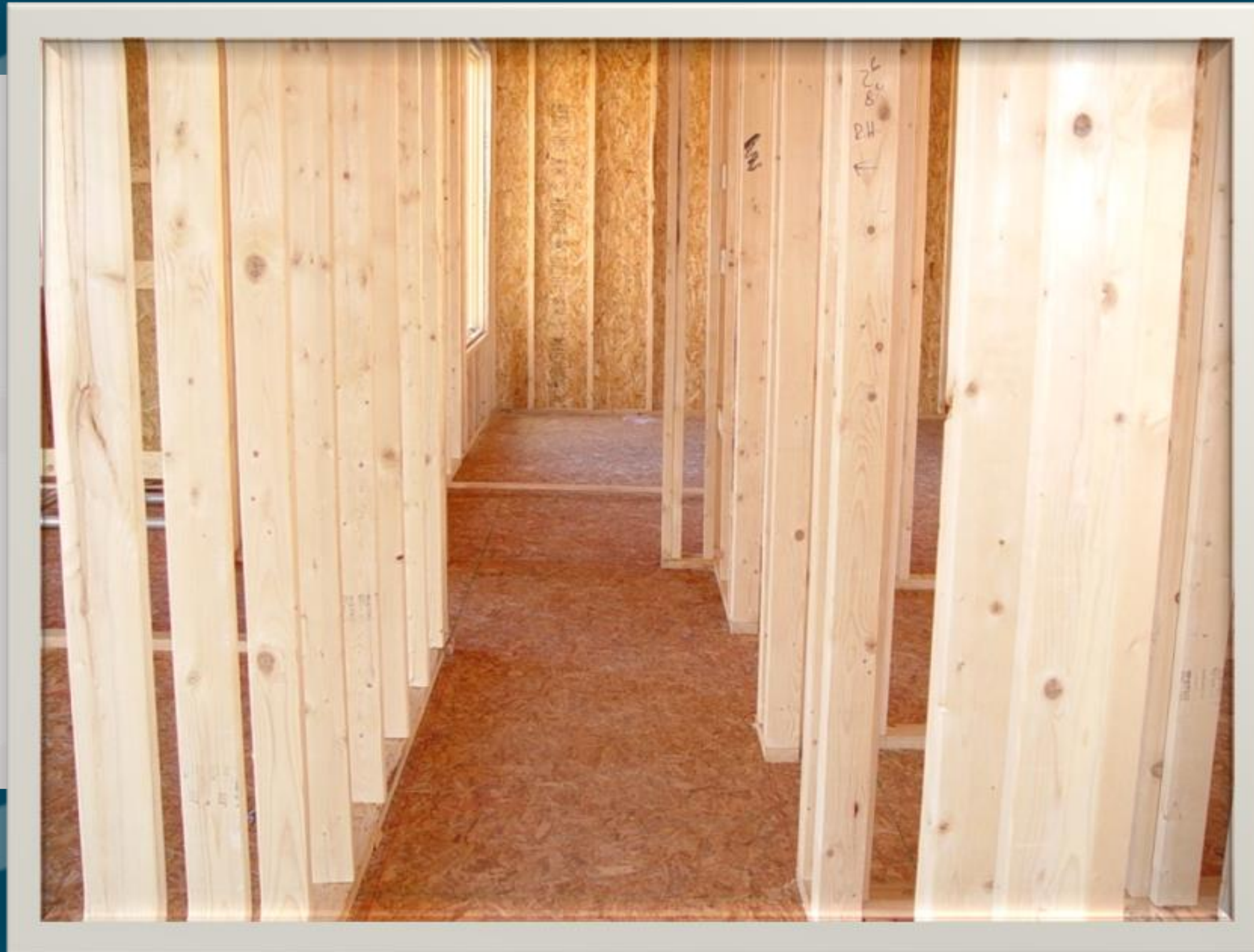
Basement Finishes with proposed bedrooms require egress windows in each sleeping room.



# BATHROOM FIXTURE CLEARANCES



# HALLWAY WIDTH



Minimum 36  
inches finished

# MECHANICAL ROOM WITH DOOR



01

Minimum 24" opening & must be wide enough to remove the largest piece of equipment.

02

Mechanical rooms containing fuel fired appliances adjacent to a bathroom or sleeping room require solid, self closing, sealed doors.

# TREATED SOLE PLATE FLOATED WALLS



01

If perimeter walls are over a spread type footing, no need to float.

02

Floating walls are required at interior walls unless documentation shows slab movement is limited based on soils report or engineered foundation plan.

# FLOATING WALLS

01

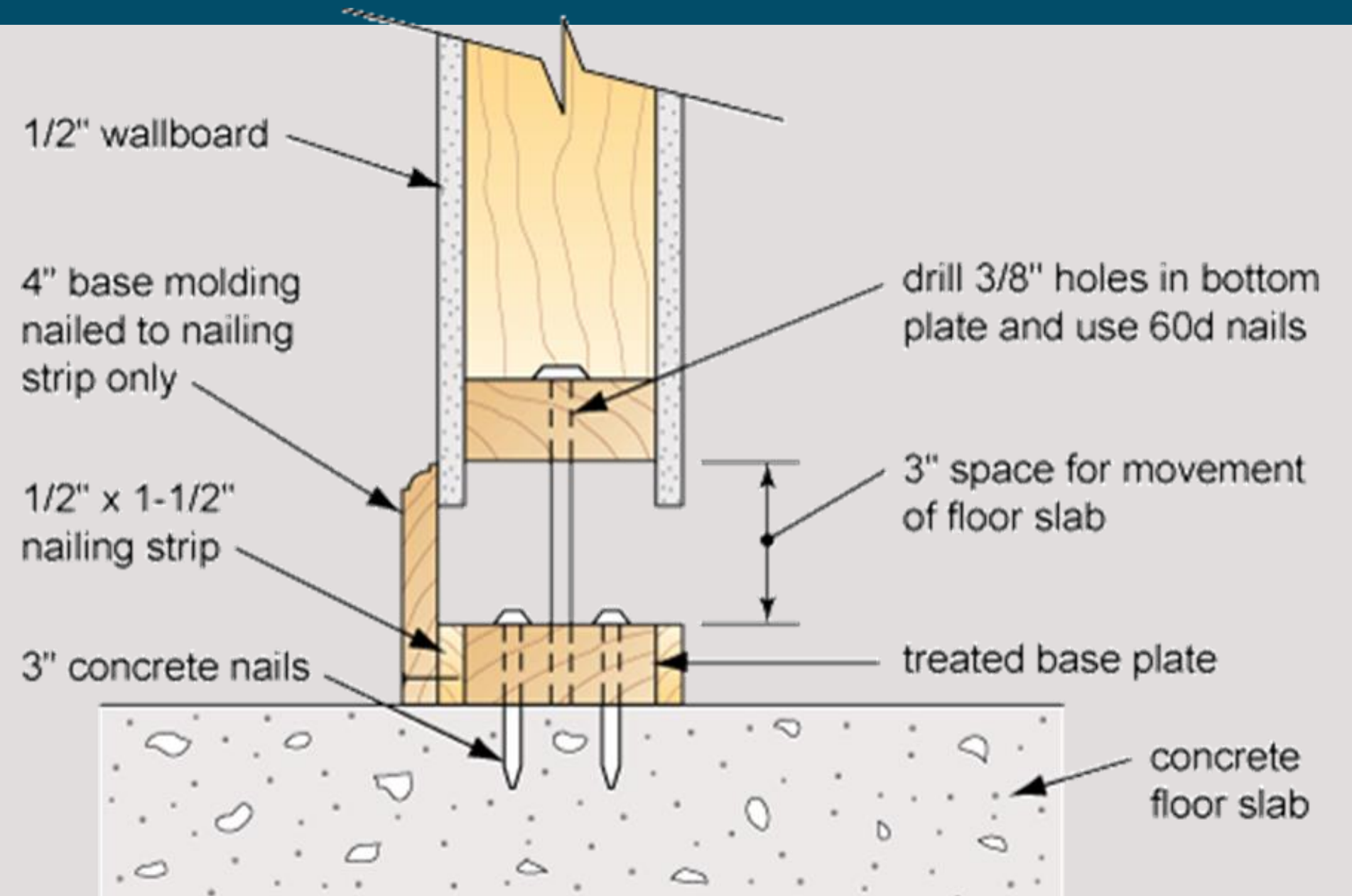
1 1/2" gap  
minimum

02

Treated bottom plate

03

Spikes every 4'  
and 2 per plate min



# FIRE BLOCKING AND WHERE IT IS REQUIRED



Drop ceilings

Soffits

Cove ceilings

Holes drilled for electric  
or plumbing

Concealed Spaced

# ON CENTER SPACING ON STUDS



Maximum 24  
inches on center  
permitted in  
basement framing



# FIRE BLOCKING

Questions on fire-blocking can be addressed by inspector at rough inspections.

Large areas of horizontal air space may need to be draft stopped

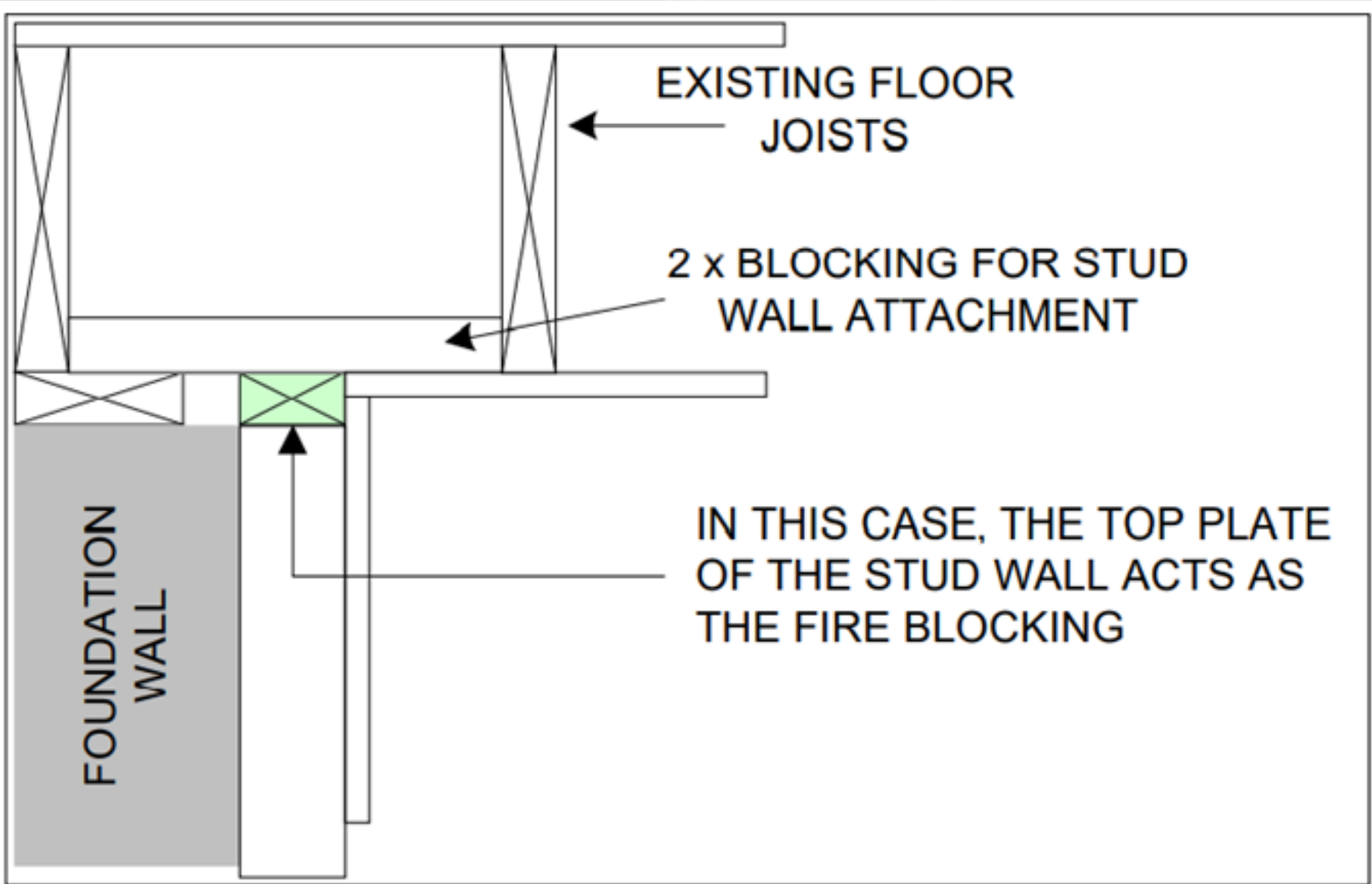
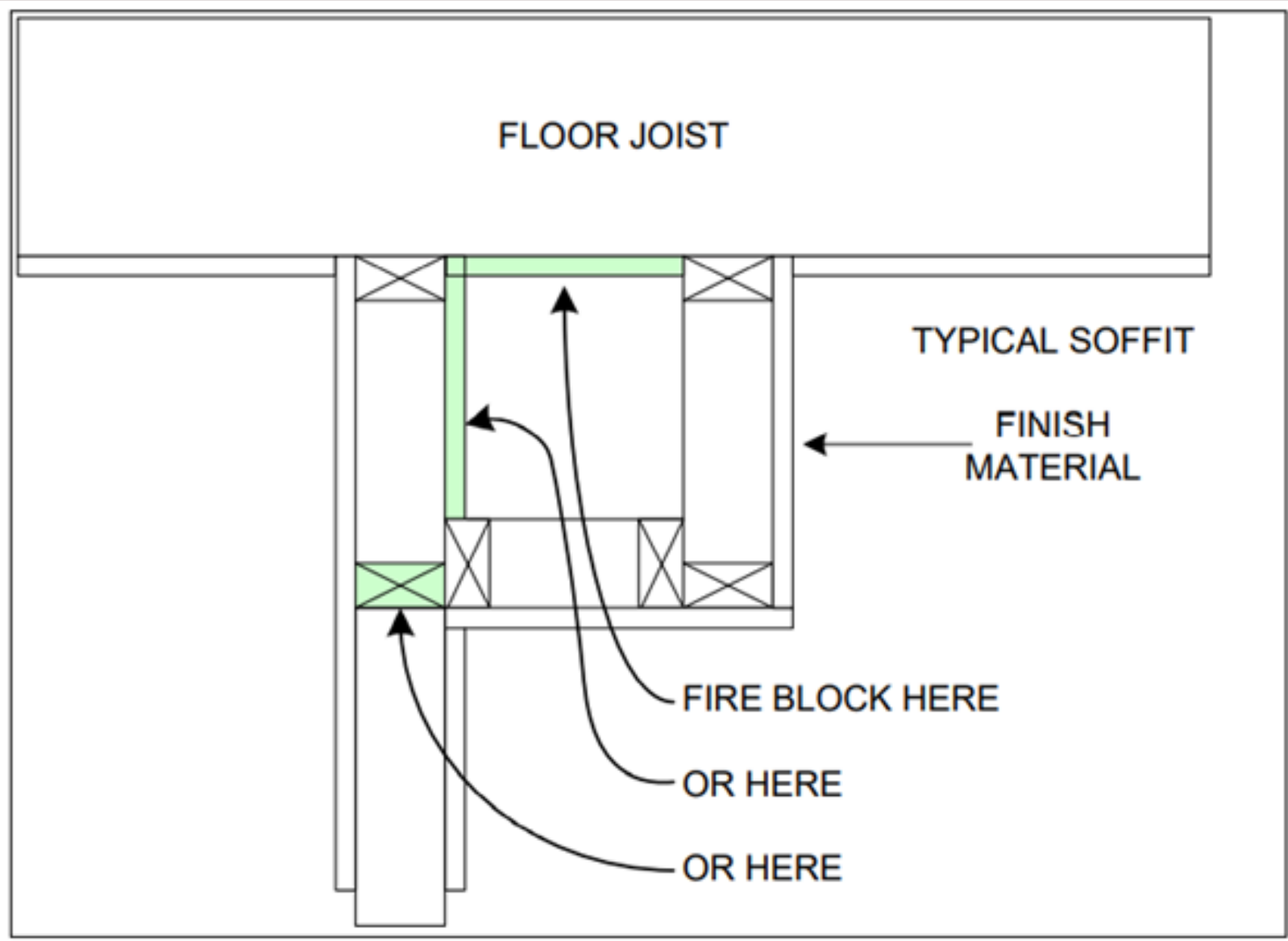
All spaces between a wall cavity and a ceiling cavity must be fire blocked

Un-faced Insulation may be used as a fire block

Approved fire-blocking materials:

- Two-inch nominal lumber.
- 3/4" Plywood
- Half-inch drywall.
- Mineral wool or fiber installation installed to be securely retained in place.

# FIRE BLOCKING



AT THE SOFFIT

# VENTING OF FIXTURES

**01** Every trap shall be vented

**02** Trap arm length

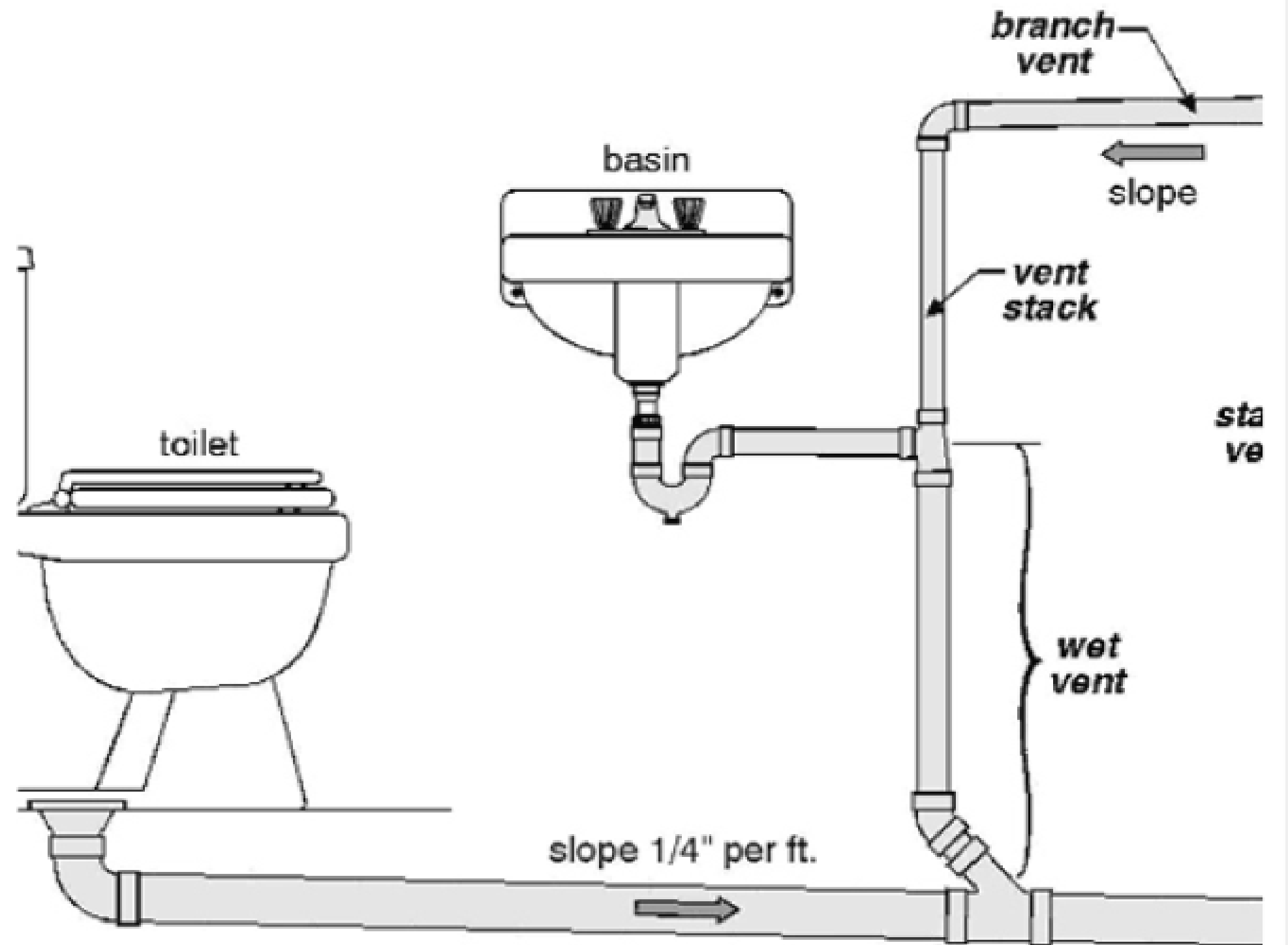
**03** 1 ¼ inch pipe – 5 ft

**04** 1 ½ inch pipe – 6 ft

**05** 2-inch pipe – 8 ft

**06** 3-inch pipe – 12 ft

## terminology



# AIR ADMITTANCE VALVES



# AIR ADMITTANCE VALVES

01

Must be accessible

02

Must be installed per manufactures guidelines.

03

Located a minimum of 4 inches above the horizontal drain(except washer standpipes)

04

Air admittance valves should only vent fixtures on the same floor level.

# WATER LINES



Joints in plastic pipes shall be with approved fittings

## Support:

- Plastic – 32 inches horizontal, mid-story for vertical
- Copper – 12 ft horizontal, each story vertical

# PIPE PROTECTION

**01** When edge of hole is within 1 ¼ from stud face

**02** Extend 2 inches above sole or below top plates

**03** Min .057 inches thick or Number 16 gauge.



# PIPE PROTECTION

**04** Must provide protection for entire width of pipe

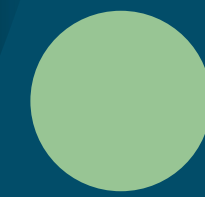
**5** Includes plastic gas piping.



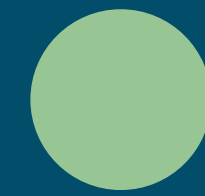




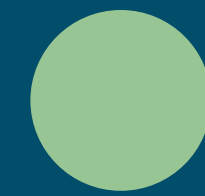
# WATER HEATER



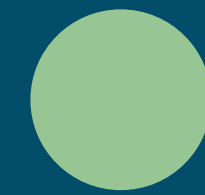
- Shall not be installed in a closet unless listed.



- A level workspace not less than 30" wide, and 30" deep on the service side of the appliance.



- Clearances per manufacture



- If accessed through a bedroom or bathroom-shall be in a sealed enclosure (weather stripped door) with a self closing device, and with all combustion air from exterior

# FUEL FIRE APPLIANCE

## FURNANCE AND WATER HEATER LOCATION



Shall not be located in

- Sleeping rooms
- Bathrooms
- Toilet rooms
- Storage rooms

# FUEL FIRE APPLIANCE

## FURNANCE AND WATER HEATER LOCATION

A level workspace not less than 30" wide, and 30" deep on the service side of the appliance.

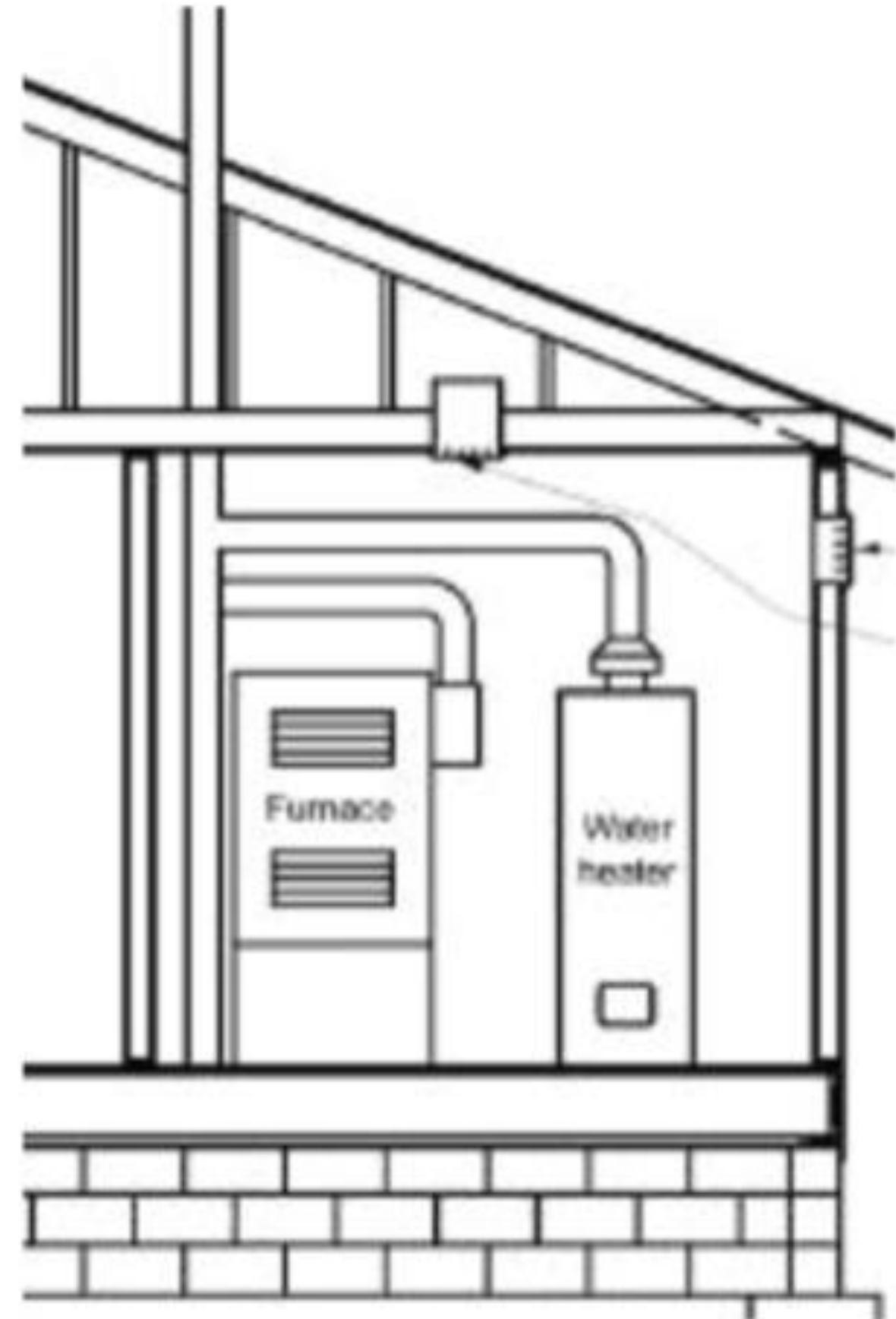
### Exception:

- Direct vent
- Self closing sealed door.
- Installed per manufacture's instructions.



# FLUE CLEARANCE from combustibles

MINIMUM 6 INCHES FOR  
SINGLE WALL PIPE



# COMBUSTION AIR



Confined space

50 cu ft per 1000 BTU

Minimum of 50% of air from the outside

Single opening, high low, or shared air.

Fresh outside air dilutes any carbon monoxide produced by fuel burning appliances.

# AIR SUPPLY

- Shall be capable of maintaining a temperature of 68 degrees at a point 3 feet above the floor and 2 feet from exterior walls

- Conditioned crawlspace

- Cannot share supply/ return air from floor to floor.



# DUCT SEALANT

Shall be made  
substantially tight with  
approved tapes, mastics or  
other approved means  
Duct tape is no longer  
approved



# ELECTRICAL IN RETURNS

- May run horizontally through a return air bay, but not vertically (perpendicular to the flow of air only)
  - Seal entry and exit





# ROUGH ELECTRIC



01

Outlet spacing

02

Nail Plates

03

GFCI Protection

04

AFCI Protection

05

Tamper Resistant Outlets

# ROUGH ELECTRIC

06

Smoke Detectors

07

Carbon Monoxide Detectors

08

Bathroom

09

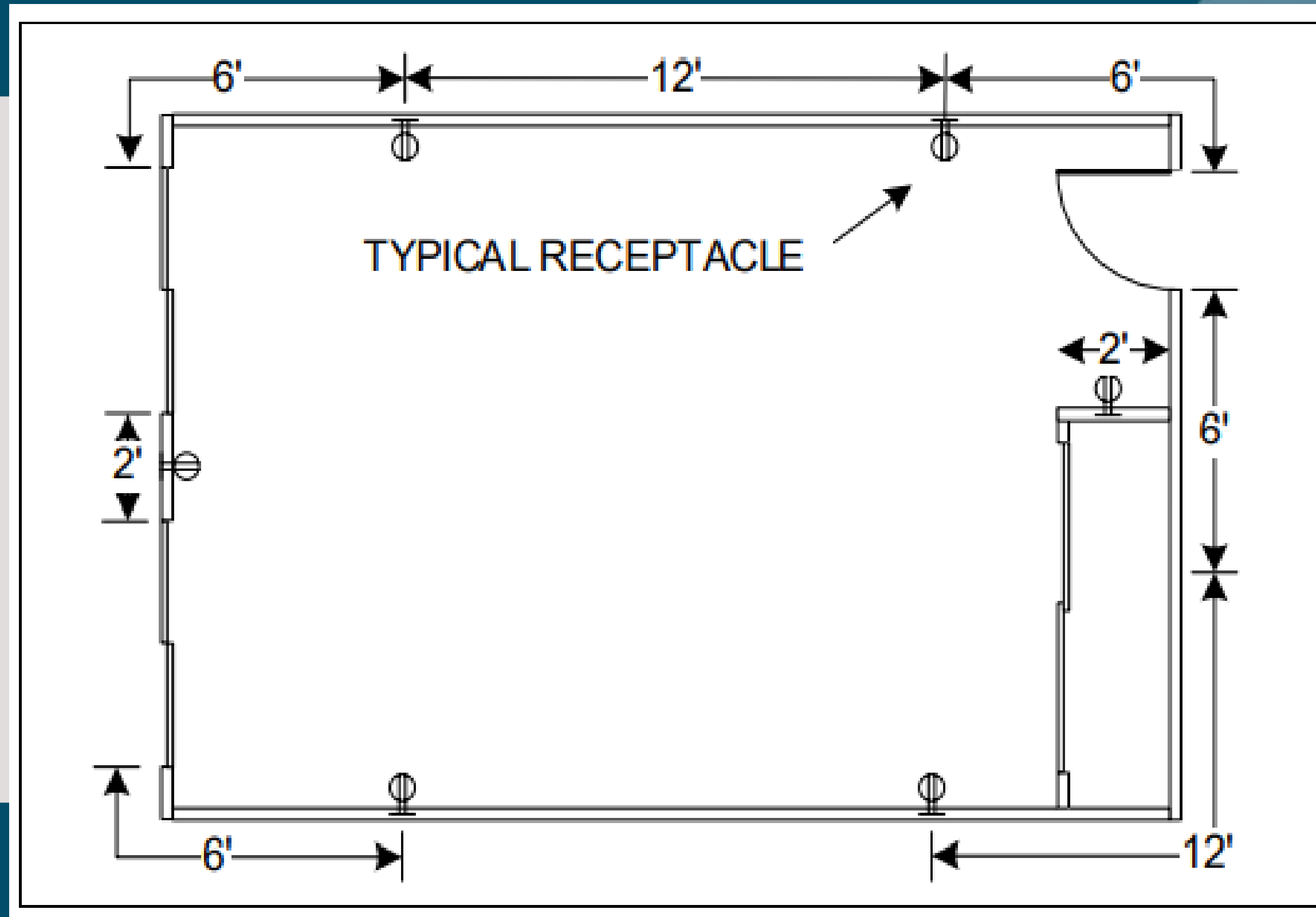
Electrical contractors shall be licensed in the State of Colorado

# NAIL PLATES



When edge of hole is within 1 ¼ from stud face

# OUTLET SPACING



# BATHROOM

20-amp circuit

Outlets are GFCI protected and on dedicated 20-amp circuit or interconnected to other bathroom outlets

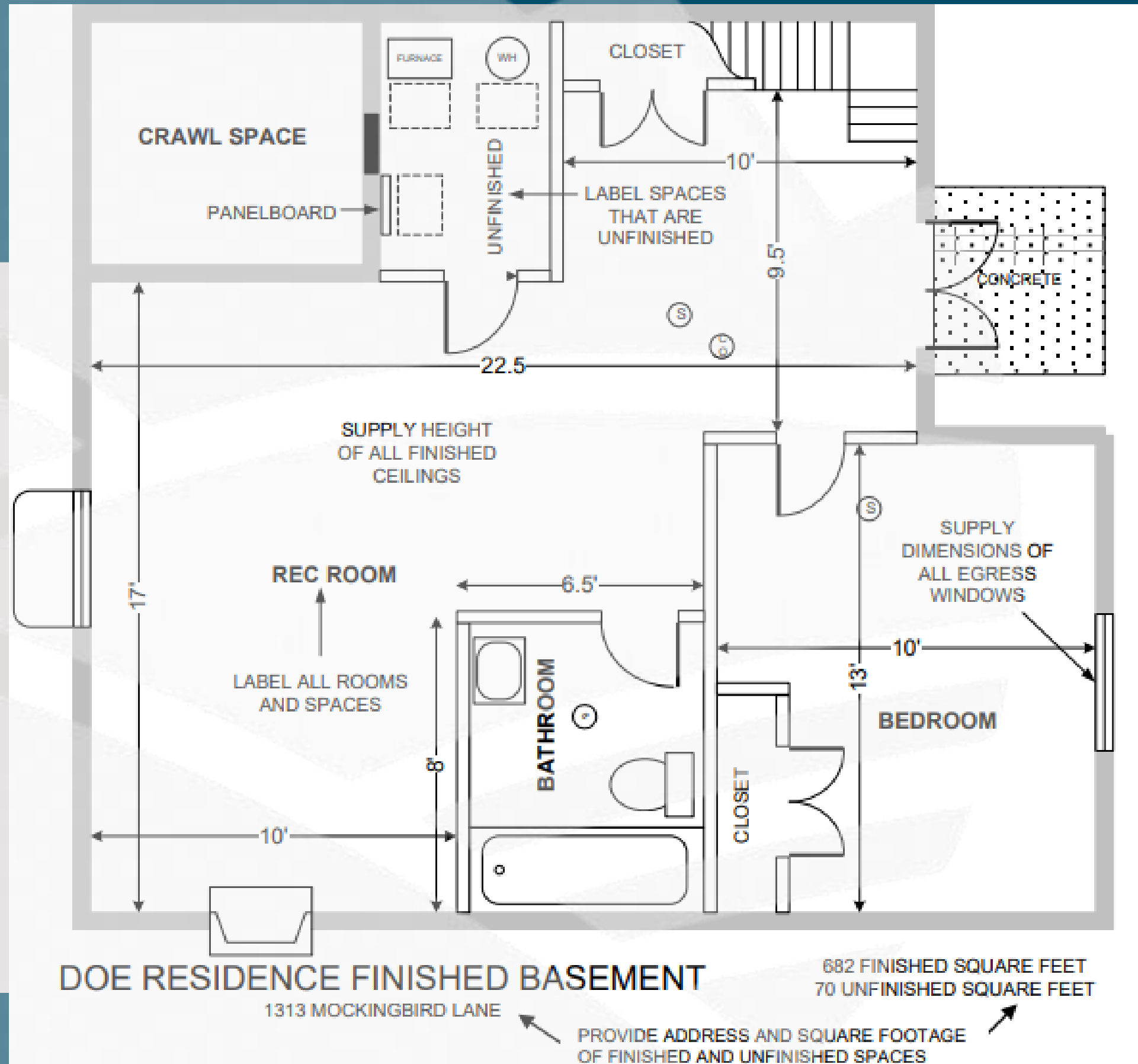
Circuit not to serve any other non bathroom spaces

AFCI Bath fan, a switched light, receptacle outlet within 3 feet of each sink

Tamper Resistant Outlets



# GFCI PROTECTION



2023 NEC

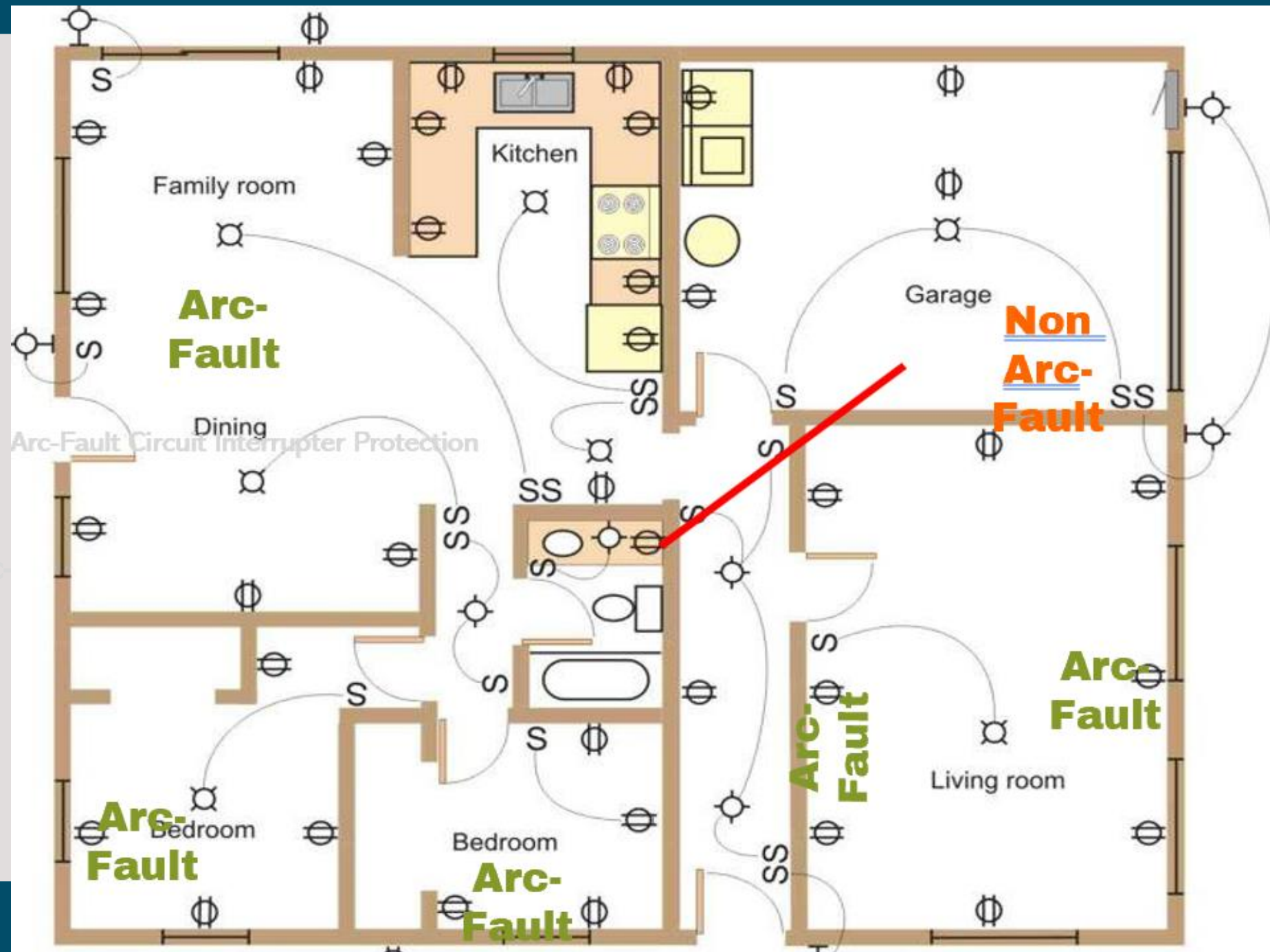
All basement receptacle outlets to be GFCI protected

# AFCI PROTECTION



- 2023 NEC: Arc Fault protection required for all 120v single-phase 15 and 20 ampere branch circuits supplying outlets installed in a dwelling unit.
- Must protect outlets, lights, switches and smoke detectors in all kitchens, bedrooms, family rooms, dining rooms, living rooms, parlors, libraries, dens, sunrooms, rec. rooms, closets, hallways, and similar rooms.
- Exceptions: Unfinished basements, garages (GFCI requirements still apply in these areas.)

# Arc-Fault Circuit Interrupter Protection





# TAMPER RESISTANT OUTLETS

Article 406 of the 2023 NEC requires tamper resistant receptacles in dwelling units.



# SMOKE / CARBON MONOXIDE DETECTORS



Smoke detection required in all sleeping rooms

Smoke and carbon detectors required outside each separate sleeping rooms in the immediate vicinity of the bedrooms (max 15')

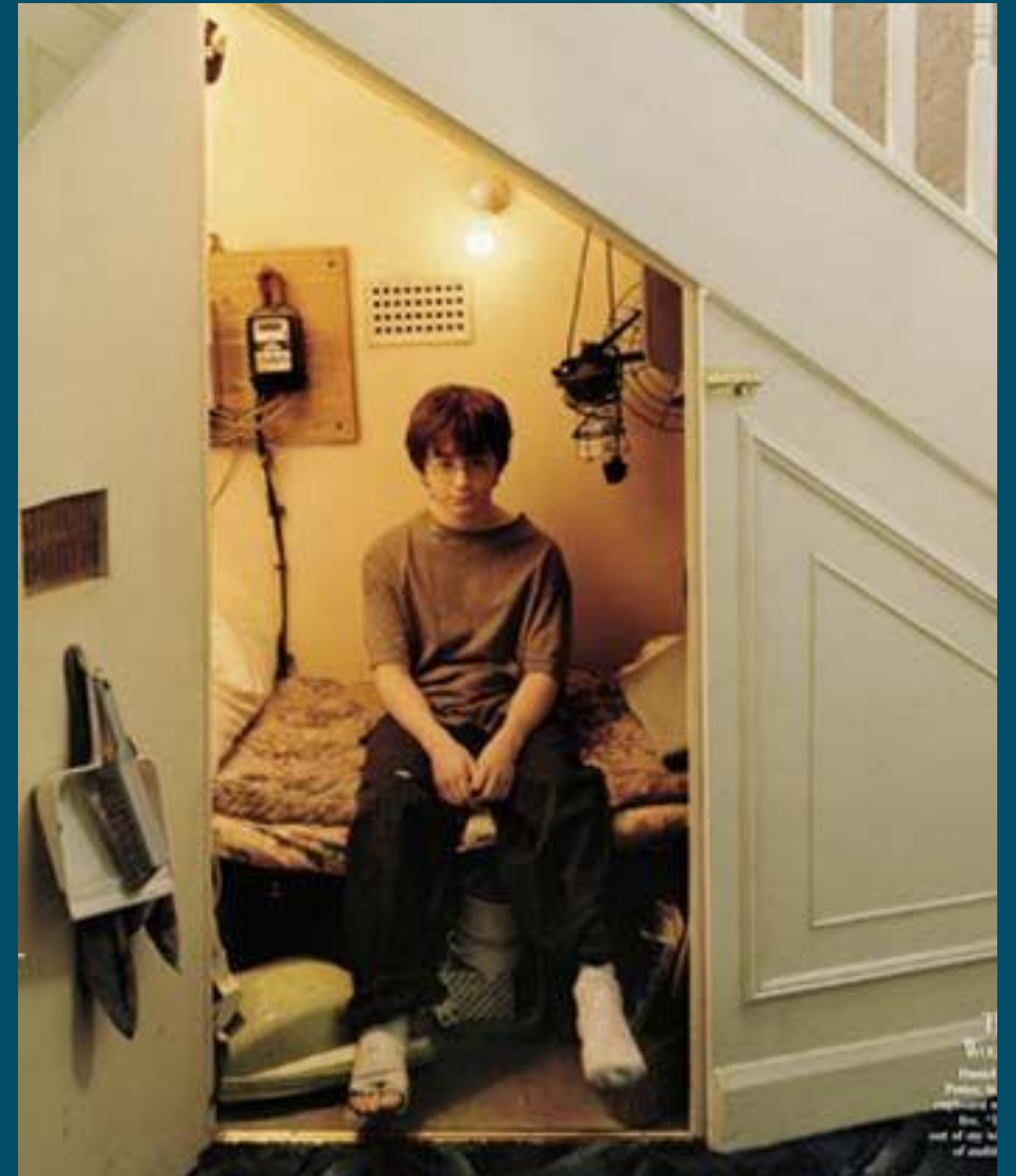
Centrally located on floor level

All shall be interconnected and hard wired

# DRYWALL

*We do not perform a drywall inspection*

- Half inch drywall installed perpendicular or parallel with ceiling framing members installed 24 inch on center require approved screws 12inch on center.
- Half inch drywall installed on walls with 16 inch on wall framing members require approved screws 16 inch on center.
- Water resistant gypsum backing board required in wet locations. I.e showers/tub surround.
  - Green board is not an approved water resistant material.
- When stairs are enclosed and accessible from a finished area, both the walls and ceiling shall be protected with minimum 1/2 inch drywall





# FINAL INSPECTION

Electrical

Plumbing

HVAC

Building

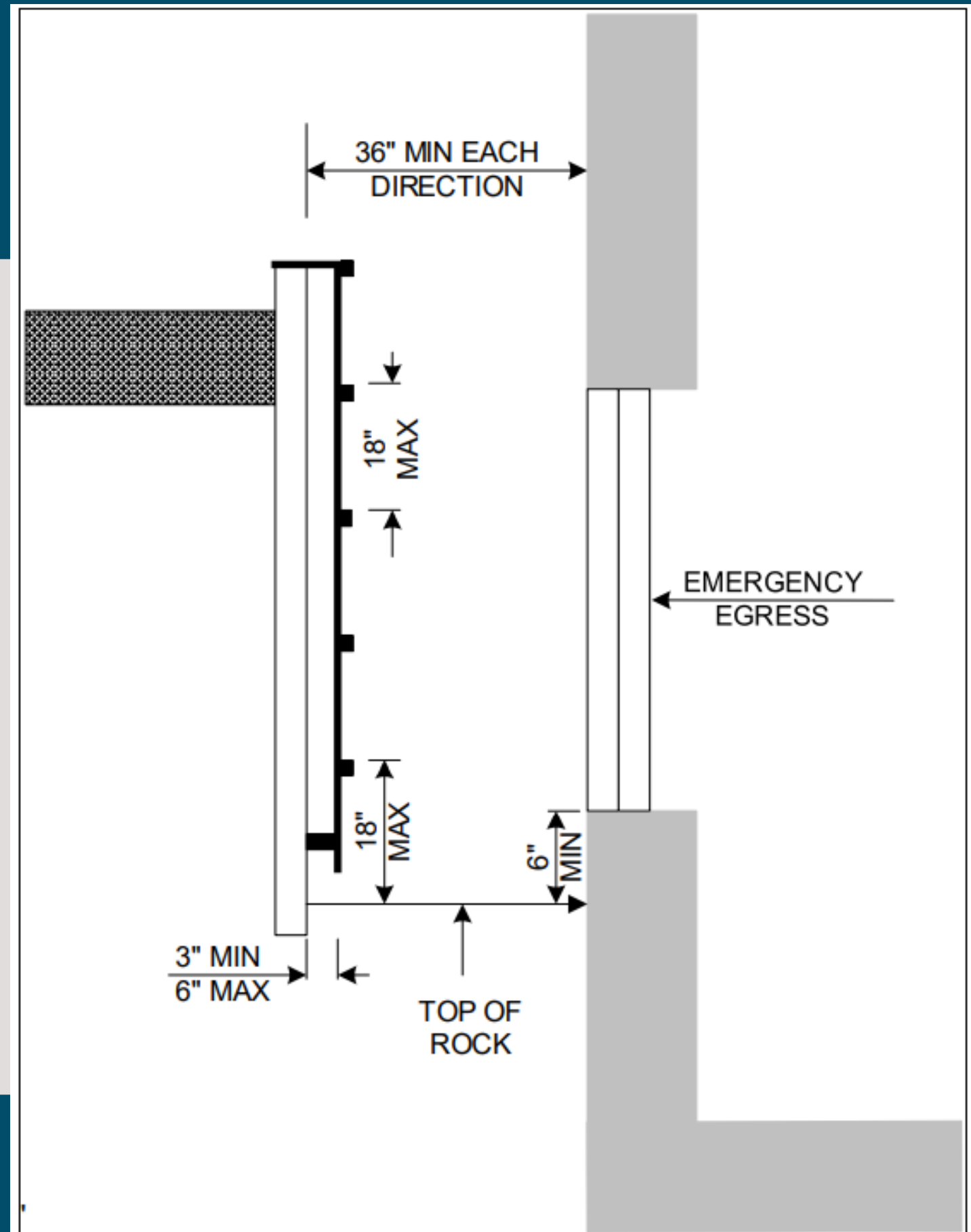
# EGRESS WINDOW

Maximum 44 inches off floor

**Openable Area-** Must be a minimum of 20 inches wide and a minimum of 24 inches tall - 5.7 sq. ft. minimum (20" x 24" will not meet this minimum sq. ft.)

Egress ladder- Egress ladder must be attached to the window well.







# FINAL ELECTRIC

- Install all switches, outlets and lights
- Lights in clothes closets
- Switched light at furnace
- AFCI, GFCI, Tamper Resistant Receptacles
- Smoke detectors interconnected Carbon Monoxide Detectors
- Label all circuits in panel



# FINAL PLUMBING

All fixtures must be set and operational

Hot on left side

Plumbing fixtures sealed to surfaces

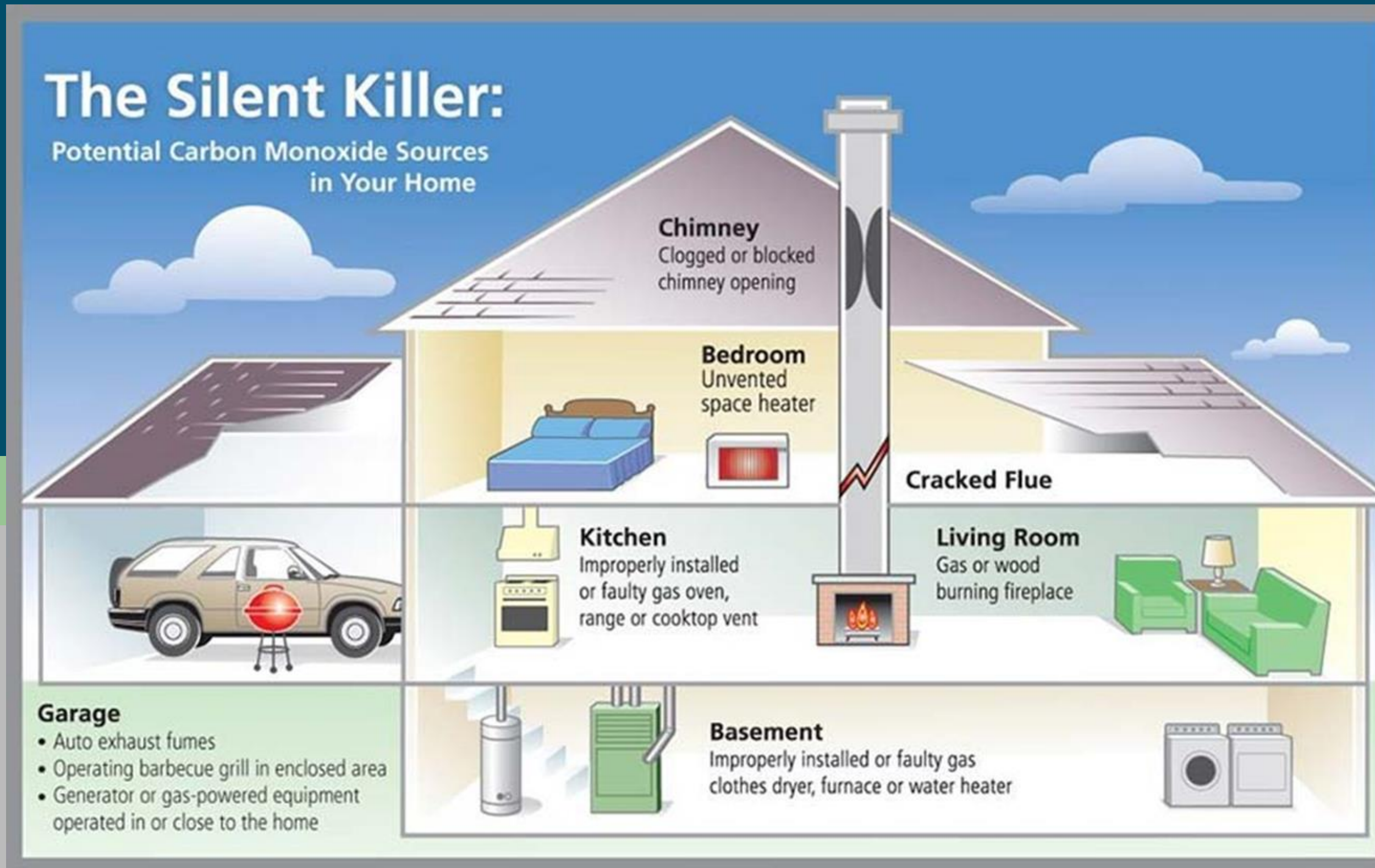
Hot water to fixtures

Check traps for leaks

Back flow device is accessible



# CARBON MONOXIDE DETECTOR



CO detectors to be installed within 15 feet of the outside of all sleeping rooms.  
This includes existing bedrooms

# What is “NOT” needed for a Final Inspection

- Floor tile (except that fixtures need to be sealed to flooring)
- Baseboard and trim
- Carpet
- Interior doors (unless required for a mechanical room with fuel burning appliances.)
- Bath hardware (towel racks, etc.)



# Questions?

