MNSPECT LLC
HELPING YOU COMPLY WITH THE CODE

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RESIDENTIAL NEW HOME CONSTRUCTION

- Each address requires a separate permit.
- All materials and the installation of all materials must comply with the Minnesota State Building Code and the manufacturers' installation specifications for each product.
- SUBMISSION CHECKLIST (Incomplete applications **will not** be forwarded to the Building Inspections Department for plan review.)
  - ☐ Completed and signed Building Permit Application, Plumbing Permit Application and Mechanical Permit Application (include all License/Bond Numbers, as well as contact phone numbers and email addresses).
  - ☐ 1 digital/electronic set of all below listed items (plans and paperwork)
  - ☐ structural building plans (floor plans and elevations)
  - ☐ site plan illustrating building dimensions, lot lines and setbacks
  - ☐ plan indicating braced wall line locations, panel locations, panel widths, and panel methods for each floor.
  - ☐ Roof/floor truss plan/layout
  - ☐ Residential New Home Construction Checklist (this form) completed and signed.
  - ☐ New Construction Energy Code Compliance Certificate
  - ☐ Worksheet E-1 ("Residential Combustion Air Calculation Method")
  - ☐ Table 501.4.1 form ("Procedure to Determine Makeup Air Quantity for Exhaust Appliances")
  - ☐ Certificate of Grading (if applicable)

  Note: Additional information may be required by the plans examiner.
- Check all items below that will be included in the construction of the home. NOTE: All items checked below may need to be installed and completed before a Certificate of Occupancy can be issued. If any of the items are not checked, but are added to the plan after the building permit has been issued, an additional permit will be required.
  - ☐ Finished Basement
  - ☐ Deck
  - ☐ 3-Season Porch
  - ☐ Gas Fireplace - Quantity:_____
  - ☐ Masonry/Wood Fireplace - Quantity:_____
  - ☐ In-Floor Heat – Wirsbo
  - ☐ Geothermal System
  - ☐ Other: _____
  - ☐ Retaining Wall - maximum height = _____ (retaining walls are measured from the bottom of the footing to the top of the wall)
  - ☐ **Septic System (Township permits only) – Please check that you have contacted the Township Septic Inspector – Building permit CANNOT be issued until septic approval is received.**

_____ _____

Applicant's Name Date

PERMIT CARD AND APPROVED PLANS (throughout the project) shall be:

POSTED prior to start of work - **VISIBLE** from street or driveway - **ACCESSIBLE** to the inspector

INSPECTION REQUIREMENTS:

Inspections **MUST** be scheduled during office hours **AT LEAST** one business day prior to inspection. If a specific date and time is required, additional notice may be needed. Failure to cancel a scheduled inspection may result in a reinspection fee.

- **Office Hours:** Monday - Friday • 8:00 a.m. - 4:30 p.m.
- **Phone:** (952) 442-7520 or (888) 446-1801

Inspections: (Refer to your permit card regarding project-specific inspections)

- **Permit card and approved plans MUST be on site for each inspection and should be protected from the weather.**
- Post site address on the construction site in a manner visible from the street.
- **Site inspection (prior to excavation):** Refer to Site Inspection Checklist that will come back with your approved plans – all items on the checklist must be complete prior to the inspection. The Site Inspection Checklist MUST be on site for the inspection.
- **Footings:** After forms and reinforcing are in place, but PRIOR TO POURING CONCRETE.
- **Poured Wall/Core Fill:** After forms and reinforcing are in place, but PRIOR TO POURING CONCRETE. For block walls (core-fill), rebar must be in place.
- **Foundation/Drainage (often referred to as the backfill inspection):** Prior to backfilling. Exterior drainage system, waterproofing, exterior insulation and wall bracing must be in place. IF a foundation as-built survey is required by the municipality, the survey MUST be submitted AND approved before the foundation inspection will be performed.
- **Radon Rough-In:** Prior to pouring slab. Under slab radon piping installed, and installation of 4" rock or sand base complete. Note: If a sand base is used, geotextile drainage matting must be installed.
- **Under Slab Vapor Retarder:** (Can take place at the same time as the radon rough-in.) Min 6' mil poly installed (with minimum 12" lap).
- **Braced Wall Panel Inspection:** Prior to installing house wrap.
- **Framing: All plumbing, mechanical, fireplace, fire sprinkler and electrical rough-ins (if applicable) must be approved prior to this inspection.** (See handouts for those items for details about their rough-in and final inspections.) In addition to the approved plans, truss specs and any required engineering must be available at this inspection. Fire-blocking and wall bracing must be in place.
- **Energy Efficiency (insulation and vapor barrier):** All insulation, chutes, and poly must be installed with poly taped and sealed, for this inspection. The wall and roof sheathing must be protected from weather on the exterior, and the roof must be shingled.
- **Drywall/Fire Rated Assemblies (if applicable):** Assemblies must be installed per approved plans.
- **Lath (if applicable):** After weep screed, paper, and kick-out flashing are applied, but BEFORE BROWN COAT.
- **Final: All plumbing, mechanical, fireplace, fire sprinkler and electrical finals (if applicable) must be approved prior to this inspection.** The attic insulation and building certificates must be provided/posted. See the New Home Final Checklist (attached) for a list of items that must be complete.

NOTICE: Construction or work for which a permit is required shall be subject to inspection by the Building Official, and such **construction or work shall remain accessible and exposed for inspection purposes until approved.** It is the responsibility of the permit applicant to be in attendance on site and provide access to the Building Official for all required inspections. If work is concealed and/or work is not complete at time of inspection, an additional inspection is required and a **reinspection fee may apply.**

Note: The State of Minnesota requires all residential building contractors, remodelers, roofers, plumbers, and electricians to obtain a state license, unless they qualify for a specific exemption. Any person claiming an exemption must provide a copy of a Certificate of Exemption from the Department of Labor & Industry to the Municipality before a permit will be issued.

Note: To determine contractor requirements, or to check the licensing status of a contractor, please call the Minnesota Department of Labor & Industry at 651-284-5065 or toll free 1-800-342-5354.

Note: For specific code requirements, contact the Building Inspection Department at 952-442-7520 or 888-446-1801 or e-mail: info@mnspect.com.

NEW HOME FINAL CHECKLIST

P F N/A **EXTERIOR**:

- ☐ ☐ ☐ Address posted, secured, visible from the street fronting the property (contrasting color, min. 4" numbers/letters) (R319.1)
- ☐ ☐ ☐ Exterior exhaust clearances
- ☐ ☐ ☐ Grading: vegetation established or Sediment/Erosion Control in place
- ☐ ☐ ☐ Earth-wood separation – 6" (R317.1(5))
- ☐ ☐ ☐ Stucco exterior – weep screed clearance 4" above earth or 2" above paved areas (R703.7.2.1)
- ☐ ☐ ☐ Protective covering over exposed exterior waterproofing and/or insulation, extends a minimum of 6" below grade (MREC R402.1.1)
- ☐ ☐ ☐ Ventilation intake/exhaust outlets have permanent, weather-resistant ID labels (MREC R403.5.15)
- ☐ ☐ ☐ Grade falls 6" over the first 10' (R401.3) or swales are present
- ☐ ☐ ☐ Impervious surfaces within 10' of foundation are sloped ≥ 2% away from building
- ☐ ☐ ☐ Exterior wall penetrations sealed from weather (R703.1)
- ☐ ☐ ☐ Roofing: kick-out flashing (where required) (R903.2.1)
- ☐ ☐ ☐ Roofing: ventilation as required (R806)
- ☐ ☐ ☐ Ramps (if installed) (R311.8)
- ☐ ☐ ☐ Deck: handrails (R311.7.8) and guardrails (R312.1)
- ☐ ☐ ☐ Steps and landing to house (R311.3), and handrails (R311.7.8)
- ☐ ☐ ☐ Stairway illumination (R311.7.9)

GARAGE:

- ☐ ☐ ☐ Garage fire separations: walls/ceiling (R302.6)
- ☐ ☐ ☐ Sealed: attic access (see "General" item below) (MREC402.2.4)
- ☐ ☐ ☐ Door 1: Garage overhead door meets 115 mph rating (R301.2.1)
- ☐ ☐ ☐ Door 1: GDO Test: reverse, sensors, obstruction, resistance (R309.4)
- ☐ ☐ ☐ Door 2: Garage overhead door meets 115 mph rating (R301.2.1)
- ☐ ☐ ☐ Door 2: GDO Test: reverse, sensors, obstruction, resistance (R309.4)
- ☐ ☐ ☐ Garage door to home is solid wood, solid steel, or honeycomb core steel not less than 1-3/8" thick, or is labeled as 20-minute fire rated (R302.5.1)
- ☐ ☐ ☐ Steps and landing to home, (R11.3) handrails (R311.7.8) or guards (R312.1)

GENERAL:

- ☐ ☐ ☐ Smoke detector on each floor (installed and working) – interconnected (R314)
- ☐ ☐ ☐ Smoke detector outside of each sleeping room (installed and working) – interconnected (R314.3 and R314.4)
- ☐ ☐ ☐ Carbon monoxide detector outside of each sleeping room (10') (R315.3) and inside any sleeping room containing a fuel burning appliance. (R315.3)
- ☐ ☐ ☐ Safety glazing on windows/doors where required (R308)
- ☐ ☐ ☐ Blocked patio doors (where required) (R312.1)
- ☐ ☐ ☐ Attic insulation card, insulation installer's certification and builder's certificate signed/posted (MREC401.3)
- ☐ ☐ ☐ Blower door test results – Minimum 3 air changes per hour (MREC402.4.1.2) and must be less than 2.6 air changes per hour to meet the R-10 exception for foundation insulation (MREC 402.4.8)

(This section continued on next page…)

P F N/A **GENERAL (continued)**

- ☐☐☐ Light (natural or artificial) in every habitable room (R303.1)
- ☐☐☐ Minimum 75% of lamps in permanent fixtures are high-efficiency (MREC404.1)
- ☐☐☐ Hallway/corridor widths minimum 3’ (R311.6)
- ☐☐☐ Ceiling height minimum 7’ (R305.1)
- ☐☐☐ Skylights (if installed) (R308.6)
- ☐☐☐ Main entry door: 32” clear width, side hinged (R311.2)
- ☐☐☐ Air intake separation (R303.5.1)
- ☐☐☐ Attic access: Minimum 22”x30” and sealed. If located in a wall the vertical dimension is 30” and the horizontal is 22” (R807.1)
- ☐☐☐ Exposed poly is fire rated (R302.10.1)
- ☐☐☐ Gas line shut-offs on all gas appliances, AGA-approved flex connectors installed and all CCST tubing not protected by an arc-resistant jacket is bonded (MFC 310.2)

BEDROOM(S):

1 2 3 4

- ☐ ☐ ☐ ☐ Cranks on windows (R310.1.1), egress size and sill height (R310.2)
- ☐ ☐ ☐ ☐ Window fall protection (R312.2)
- ☐ ☐ ☐ ☐ Heat register covers installed
- ☐ ☐ ☐ ☐ Smoke detector (R314) and CO detector (if applicable) (R315.3)

BATHROOM(S):

1 2 3 4

- ☐ ☐ ☐ ☐ Ventilation (natural or mechanical) (R303.3)
- ☐ ☐ ☐ ☐ Shower walls 6’ above floor (R307.2)

UTILITY ROOM:

- ☐☐☐ Sump hooked up, discharge in yard or tile along street
- ☐☐☐ Sump cover screwed down and sealed
- ☐☐☐ Water meter sealed

STAIRS:

- ☐☐☐ Rise, run, ceiling height, width, illumination, landings (R311.7)
- ☐☐☐ Handrails: height, gap/handroom, continuous, structural strength (R311.7.8)
- ☐☐☐ Guardrails: openings, structural strength (R312.1)
- ☐☐☐ Concealed space under stairs (R302.7)

BASEMENT/CRAWL SPACE:

- ☐☐☐ Exposed poly is fire rated (R302.10.1)
- ☐☐☐ ½” drywall installed on underside of floor joists (R302.13)
- ☐☐☐ Crawl space access: 18” x 24” floor; 16” x 24” wall (R408.4)
- ☐☐☐ Crawl space ventilation (R408.1)

PERMIT CARD:

- ☐☐☐ Mechanical final - signed
- ☐☐☐ Fireplace final (if applicable and separate permit) - signed
- ☐☐☐ Plumbing final - signed
- ☐☐☐ Sprinkler final (if applicable and separate permit) - signed
- ☐☐☐ Electric final - signed
- ☐☐☐ Building final - signed
- ☐☐☐ Site inspection was completed (if required)

New Construction Energy Code Compliance Certificate

Per R401.3 Certificate. A building certificate shall be posted on or in the electrical distribution panel.

	Date Certificate Posted
Mailing Address of the Dwelling or Dwelling Unit	**Municipality**
Name of Residential Contractor	**MN License Number**

THERMAL ENVELOPE

Insulation Location	Total R-Value of all Types of Insulation	Type: Check All That Apply								
		Non or Not Applicable	Fiberglass, Blown	Fiberglass, Batts	Foam, Closed Cell	Foam Open Cell	Mineral Fiberboard	Rigid, Extruded Polystyrene	Rigid, Isocynurate	Other Please Describe Here
Below Entire Slab										
Foundation Wall										
Perimeter of Slab on Grade										
Rim Joist (1st Floor)										
Rim Joist (2nd Floor+)										
Wall										
Ceiling, flat										
Ceiling, vaulted										
Bay Windows or cantilevered areas										
Floors over unconditioned area										
Describe other insulated areas										

RADON CONTROL SYSTEM

- ☐ Passive (*No Fan*)
- ☐ Active (*With fan and monometer or other system monitoring device*)

Location (or future location) of Fan:

Building envelope air tightness:

Duct system air tightness:

Windows & Doors	
Average U-Factor (*excludes skylights and one door*) U:	
Solar Heat Gain Coefficient (SHGC):	

Heating or Cooling Ducts Outside Conditioned Spaces

- ☐ Not applicable, all ducts located in conditioned space
- ☐ R-value

MECHANICAL SYSTEMS

Appliances	Heating System		**Domestic Water Heater**		**Cooling System**	
Fuel Type						
Manufacturer						
Model						
Rating or Size	Input in BTUS:		Capacity in Gallons:		Output in Tons:	
Efficiency	AFUE or HSPF%				SEER /EER	

Residential Load Calculation	**Heating Loss**	**Heating Gain**	**Cooling Load**

Make-up Air *Select a Type*

- ☐ Not required per mech. code
- ☐ Passive
- ☐ Powered
- ☐ Interlocked with exhaust device. Describe:
- ☐ Other, describe:

Location of duct or system:

- ☐ Cfm's
- ☐ " round duct OR " flex duct
- ☐ " metal duct

MECHANICAL VENTILATION SYSTEM

Describe any additional or combined heating or cooling systems if installed: (e.g. two furnaces or air source heat pump with gas back-up furnace):

Select Type

☐	Heat Recover Ventilator (HRV) capacity in cfms:	Low:	High:	
☐	Energy Recover Ventilator (ERV) capacity in cfms:	Low:	High:	
☐	Balanced Ventilation capacity in cfms:			

Location of fan(s), describe:

Capacity continuous ventilation rate in cfms:

Total ventilation (intermittent + continuous) rate in cfms:

Combustion Air *Select a Type*

- ☐ Not required per mech. code
- ☐ Passive
- ☐ Other, describe:

Location of duct or system:

- ☐ Cfm's
- ☐ " round duct OR " Flex
- ☐ " metal duct

APPENDIX E

WORKSHEET E-1 (Fuel Gas Code)

IFGC Appendix E, Worksheet E-1
Residential Combustion Air Calculation Method
(for Furnace, Boiler, and/or Water Heater in the Same Space)

Step 1: Complete vented combution appliace information:

Furnace/Boiler:

☐ Draft Hood (Not fan Assisted) ☐ Fan Assisted & Power Vent ☐ Direct Vent Input: _____Btu/hr

Water Heater:

☐ Draft Hood (Not fan Assisted) ☐ Fan Assisted & Power Vent ☐ Direct Vent Input: _____Btu/hr OR ☐ Electric

Step 2: Calculate the volume of the Combustion Appliance Space (CAS) containing combustion appliances.

The CAS includes all spaces connected to one another by code compliant openings. CAS volume: _____ ft^3

Step 3: Determine air Changes per Hour (ACH)[1]

Default ACH values have been incorporated into Table E-1 for use with Method 4b (KAIR Method). If the year of construction or ACH is not known, use method 4a (Standard Method).

Step 4: Determine Required Volume for Combustion Air.

4a. Standard Method

Total Btu/hr input of all combustion appliances (DO NOT COUNT DIRECT VENT APPLIANCES) Input: _____Btu/hr

Use Standard Method column in Table E-1 to find Total Required Volume (TRV) TRV: _____ ft^3

If CAS Volume (from Step 2) ***is greater than*** TRV then no outdoor openings are needed.

If CAS Volume (from Step 2) ***is less than*** TRV then go to **STEP 5.**

4b. Known Air Infiltration Rate (KAIR) Method

Total Btu/hr input of all fan-assisted and power vent appliances (DO NOT COUNT DIRECT VENT APPLIANCES) Input: _____Btu/hr

Use Fan-Assisted Appliances column in Table E-1 to find Required Volume Fan Assisted (RVFA) RVFA: _____ ft^3

Total Btu/hr input of all non-fan-assisted appliances Input: _____Btu/hr

Use Non-Fan-Assisted Appliances column in Table E-1 to find Required Volume Non-Fan-Assisted (RVNFA) RVNFA: _____ ft^3

Total Required Volume (TRV) = RVFA + RVNFA TRV = _____ + _____ = _____ ft^3

If CAS Volume (from Step 2) ***is greater than*** TRV then no outdoor openings are needed.

If CAS Volume (from Step 2) ***is less than*** TRV then go to **STEP 5.**

Step 5: Calculate the ratio of available interior volume to the total required volume.

Ratio = CAS Volume (from Step 2) ***divided by*** TRV (from Step 4a or Step 4b) Ratio = _____ / _____ = _____

Step 6: Calculate Reduction Factor (RF).

RF = 1 ***minus*** Ratio RF = 1 - _____ = _____

Step 7: Calculate single outdoor opening as if all combustion air is from outside.

Total Btu/hr input of all Combustion Appliances in the same CAS (EXCEPT DIRECT VENT) Input: _____Btu/hr

Combustion Air Opening Area (CAOA):

Total Btu/hr ***divided*** by 3000 Btu/hr per in^2 CAOA = _____ /3000 Btu/hr per in^2 = _____ in^2

Step 8: Calculate Minimum CAOA.

Minimum CAOA = CAOA ***multiplied by*** RF Minimum CAOA = _____ x _____ = _____ in^2

Step 9: Calculate Combustion Air Opening Diameter (CAOD)

CAOD = 1.13 ***multiplied by the square root of*** Minimum CAOA CAOD = 1.13 x $\sqrt{\text{Minimum CAOA}}$ = _____in

" Rigid or

" Flex

[1]If desired, ACH can be determined using ASHRAE calculation or blower door test. Follow procedures in Section 304.

IFGC APPENDIX E, TABLE E-1
RESIDENTIAL COMBUSTION AIR REQUIRED VOLUME
(REQUIRED INTERIOR VOLUME BASED ON INPUT RATING OF APPLIANCES)

INPUT RATING (Btu/hr)	STANDARD METHOD (ft^3)	KNOWN AIR INFILTRATION RATE (KAIR) METHOD (ft^3)			
		Fan-Assisted		Non-Fan-Assisted	
		1994[1] to Present	Pre-1994[2]	1994[1] to Present	Pre-1994[2]
5,000	250	375	188	525	263
10,000	500	750	375	1,050	525
15,000	750	1,125	563	1,575	788
20,000	1,000	1,500	750	2,100	1,050
25,000	1,250	1,875	938	2,625	1,313
30,000	1,500	2,250	1,125	3,150	1,575
35,000	1,750	2,625	1,313	3,675	1,838
40,000	2,000	3,000	1,500	4,200	2,100
45,000	2,250	3,375	1,688	4,725	2,363
50,000	2,500	3,750	1,875	5,250	2,625
55,000	2,750	4,125	2,063	5,775	2,888
60,000	3,000	4,500	2,250	6,300	3,150
65,000	3,250	4,875	2,438	6,825	3,413
70,000	3,500	5,250	2,625	7,350	3,675
75,000	3,750	5,625	2,813	7,875	3,938
80,000	4,000	6,000	3,000	8,400	4,200
85,000	4,250	6,375	3,188	8,925	4,463
90,000	4,500	6,750	3,375	9,450	4,725
95,000	4,750	7,125	3,563	9,975	4,988
100,000	5,000	7,500	3,750	10,500	5,250
105,000	5,250	7,875	3,938	11,025	5,513
110,000	5,500	8,250	4,125	11,550	5,775
115,000	5,750	8,625	4,313	12,075	6,038
120,000	6,000	9,000	4,500	12,600	6,300
125,000	6,250	9,375	4,688	13,125	6,563
130,000	6,500	9,750	4,875	13,650	6,825
135,000	6,750	10,125	5,063	14,175	7,088
140,000	7,000	10,500	5,250	14,700	7,350
145,000	7,250	10,875	5,438	15,225	7,613
150,000	7,500	11,250	5,625	15,750	7,875
155,000	7,750	11,625	5,813	16,275	8,138
160,000	8,000	12,000	6,000	16,800	8,400
165,000	8,250	12,375	6,188	17,325	8,663
170,000	8,500	12,750	6,375	17,850	8,925
175,000	8,750	13,125	6,563	18,375	9,188
180,000	9,000	13,500	6,750	18,900	9,450
185,000	9,250	13,875	6,938	19,425	9,713
190,000	9,500	14,250	7,125	19,950	9,975
195,000	9,750	14,625	7,313	20,475	10,238
200,000	10,000	15,000	7,500	21,000	10,500
205,000	10,250	15,375	7,688	21,525	10,763
210,000	10,500	15,750	7,875	22,050	11,025
215,000	10,750	16,125	8,063	22,575	11,288
220,000	11,000	16,500	8,250	23,100	11,550
225,000	11,250	16,875	8,438	23,625	11,813
230,000	11,500	17,250	8,625	24,150	12,075

For SI: 1 cubic foot = 0.028 m^3, 1 British thermal unit per hour = 0.293 W.

1. The 1994 date refers to dwellings constructed under the 1994 *Minnesota Energy Code*. The default KAIR used in this section of the table is 0.20 ACH.
2. This section of the table is to be used for dwellings constructed prior to 1994. The default KAIR used in this section of the table is 0.40 ACH.

TABLE 501.4.1
PROCEDURE TO DETERMINE MAKEUP AIR QUANTITY FOR EXHAUST APPLIANCES IN DWELLINGS

	ONE OR MULTIPLE POWER VENT OR DIRECT VENT APPLIANCES OR NO COMBUSTION APPLIANCES[a]	ONE OR MULTIPLE FAN-ASSISTED APPLIANCES AND POWER VENT OR DIRECT VENT APPLIANCES[b]	ONE ATMOSPHERICALLY VENTED GAS OR OIL APPLIANCE OR ONE SOLID FUEL APPLIANCE[c]	MULTIPLE APPLIANCES THAT ARE ATMOSPHERICALLY VENTED GAS OR OIL APPLIANCES OR SOLID FUEL APPLIANCES[d]
1. Use the Appropriate Column to Estimate House Infiltration				
a) pressure factor (cfm/sf) b) conditioned floor area (sf) (including unfinished basements)	0.15 _____	0.09 _____	0.06 _____	0.03 _____
Estimated House Infiltration (cfm): [1a × 1b]				
2. Exhaust Capacity a) clothes dryer b) 80% of the largest exhaust rating (cfm):	135 _____	135 _____	135 _____	135 _____
(not applicable if recirculating system or if powered makeup air is electrically interlocked and matched to exhaust)				
c) 80% of the next largest exhaust rating (cfm):	Not Applicable	_____	_____	_____
(not applicable if recirculating system or if powered makeup air is electrically interlocked and matched to exhaust)				
Total Exhaust Capacity (cfm): [2a + 2b + 2c]	_____	_____	_____	_____
3. Make up Air Requirement a) Total Exhaust Capacity (from above) b) Estimated House Infiltration (from above)	_____ _____	_____ _____	_____ _____	_____ _____
Makeup Air Quantity (cfm): [3a-3b]	_____	_____	_____	_____
(if value is negative, no makeup air is needed)				
4. For Makeup Air Opening Sizing, refer to Table 501.4.2				

a. Use this column if there are other than fan-assisted or atmospherically vented gas or oil appliances or if there are no combustion appliances.
b. Use this column if there is one fan-assisted appliance per venting system. Other than atmospherically vented appliances may also be included.
c. Use this column if there is one atmospherically vented (other than fan-assisted) gas or oil appliance per venting system or one solid fuel appliance.
d. Use this column if there are multiple atmospherically vented gas or oil appliances using a common vent or if there are atmospherically vented gas or oil appliances and solid fuel appliances.

TABLE 501.4.2
MAKEUP AIR OPENING SIZING TABLE FOR NEW AND EXISTING DWELLINGS

	ONE OR MULTIPLE POWER VENT OR DIRECT VENT APPLIANCES OR NO COMBUSTION APPLIANCES[a]	ONE OR MULTIPLE FAN-ASSISTED APPLIANCES AND POWER VENT OR DIRECT VENT APPLIANCES[b]	ONE ATMOSPHERICALLY VENTED GAS OR OIL APPLIANCE OR ONE SOLID FUEL APPLIANCE[c]	MULTIPLE APPLIANCES THAT ARE ATMOSPHERICALLY VENTED GAS OR OIL APPLIANCES OR SOLID FUEL APPLIANCES[d]	PASSIVE MAKEUP AIR OPENING DUCT DIAMETER[e, f, g]
Type of opening or system	(cfm)	(cfm)	(cfm)	(cfm)	(inches)
Passive Opening	1-36	1-22	1-15	1-9	3
Passive Opening	37-66	23-41	16-28	10-17	4
Passive Opening	67-109	42-66	29-46	18-28	5
Passive Opening	110-163	67-100	47-69	29-42	6
Passive Opening	164-232	101-143	70-99	43-61	7
Passive Opening	233-317	144-195	100-135	62-83	8
Passive Opening with Motorized Damper	318-419	196-258	136-179	84-110	9
Passive Opening with Motorized Damper	420-539	259-332	180-230	111-142	10
Passive Opening with Motorized Damper	540-679	333-419	231-290	143-179	11
Powered Makeup Air[h]	>679	>419	>290	>179	Not Applicable

a. Use this column if there are other than fan-assisted or atmospherically vented gas or oil appliances or if there are no combustion appliances.
b. Use this column if there is one fan-assisted appliance per venting system. Other than atmospherically vented appliances may also be included.
c. Use this column if there is one atmospherically vented (other than fan-assisted) gas or oil appliance per venting system or one solid fuel appliance.
d. Use this column if there are multiple atmospherically vented gas or oil appliances using a common vent or if there are atmospherically vented gas or oil appliances and solid fuel appliance(s).
e. An equivalent length of 100 feet of round smooth metal duct is assumed. Subtract 40 feet for the exterior hood and ten feet for each 90-degree elbow to determine the remaining length of straight duct allowable.
f. If flexible duct is used, increase the duct diameter by one inch. Flexible duct shall be stretched with minimal sags.
g. Barometric dampers are prohibited in passive makeup air openings when any atmospherically vented appliance is installed.
h. Powered makeup air shall be electrically interlocked with the largest exhaust system.

PRE-CONSTRUCTION SITE INSPECTION
&
EROSION CONTROL ESCROW DEPOSIT

Effective June 22, 2004, the City of Mound requires a pre-construction site inspection for all significant construction projects by the Building Official and Public Works Department. This is to ensure that the site has been adequately prepared for construction including, but not limited to, silt fence installation, exposure of iron monuments, etc. A copy of the pre-construction site inspection checklist is included.

Be advised that a 24 hour notice is required for all inspection requests. Construction cannot begin until the requirements have been met and completed inspection checklists are returned to the Building and Planning Department. The permit holder is responsible for calling the numbers provided below to schedule the inspections. The fee for the pre-construction site inspection is $100.00 and will be included in the building permit fee.

Building Official (call 1st) MNSpect 952-442-7520
(After you have scheduled your inspection with MNSpect, call Public Works to coordinate.)

Public Works Ryan Prich 612-965-2565

An erosion control construction deposit of $1,000.00 is also required for all applications that involve land disturbing actifities (i.e. silt fence, sedimentation, ground cover, etc.). The escrow deposit is required at the time of the building permit issuance to offset costs associated with erosion control monitoring activities (silt fence condition, sedimentation, street sweeping, etc.). The escrow will be maintained until an appropriate ground cover on the site has been fully established.

SURVEY REQUIREMENTS

PERMIT & ZONING APPLICATION AND AS-BUILT SURVEY REQUIREMENTS

Each certified land survey shall indicate that permanent iron monuments are in place at each lot corner. The survey shall also show the following:

1. North arrow and scale of drawing.
2. Legal description of parcel.
3. Lot area of parcel measured in square feet and dimension of all lot lines. Lot area is measured above the Ordinary High Water as listed below (929.4 for Lake Minnetonka).
4. Dimensions and location of all known easements, and type of easement.
5. Location of all existing buildings. For remodeling or addition permits, dimensions of each building and reference distances from the lot lines to the nearest point of each building must be shown.
6. Location of existing utilities, including but not limited to manholes, hydrants, catch basins, power poles, and telephone boxes. Show all **existing and proposed sewer and water service locations, and where they come into the structure with dimensional ties**. Water shut off cannot be located in the driveway.
7. Front, side, and rear yard setback dimensions to existing and proposed buildings; all outside dimensions of buildings, including **decks, fireplaces, and cantilevers**.
8. Setback dimensions to existing buildings located on adjacent lots if they are within 25 feet of side lot line; first floor and at grade elevations of corners of buildings on adjacent lots.
9. Location of irons at each side lot line establishing proposed front building line. The maintenance of these irons, once established by the surveyor, shall be the responsibility of the building permit applicant. Wood stakes or lath shall be placed at the four corners of the proposed building.
10. Location of proposed driveway, future garage site if not included with building permit application and minimum of two (2) off-street parkway spaces (325 S.F. per stall).
11. Benchmark elevation to National Geodetic Vertical Datum (N.G.V.D.) and description of location. Benchmarks are available at City Hall, 952-472-0603.
12. Grade elevations at the following points (additional elevations may be required):
    a. Existing and proposed at each lot corner.
    b. Existing street elevations (centerline and top of curb) at each lot line extended and both sides of proposed driveway at intersection with street.
    c. Existing elevations on side lot lines, at extension of proposed front and rear building lines and any major grade changes.
    d. Proposed lowest floor, garage floor, and top of foundation elevations.
    e. Existing and proposed elevations at all major corners of building.
    f. Existing and proposed elevations at top and bottom of any major slopes.
    g. Proposed finished grade at front building line and/or ordinary high water line.
    h. TOP OF BLUFF AND SETBACK FROM TOP OF BLUFF.
13. Location and elevations at top and bottom of any proposed retaining walls.

14. Dimension of lot frontage on public street and at Ordinary High Water Mark.
15. Lot width dimension as measured at the minimum front setback line and at the 50 foot lakeshore setback from the Ordinary High Water Mark.
16. Proposed direction of surface water drainage indicated by arrows and elevations, and percent of slope on driveway if applicable.
17. The Ordinary High Water elevation/contour must be shown if lot abuts body of water or is within 50 feet of said water.
18. The Floodplain elevation/contour must be shown and labeled (Both MCWD and City). Any possible wetlands should also be marked. Filling within the floodplain and wetlands shall not occur without permission from the City of Mound and the Minnehaha Creek Watershed District.

	Ordinary High Water	**Flood Elevation**	**Lowest Floor Elevation**
LAKE MINNETONKA	929.4	MCWD 931.5 / CITY 931	933
DUTCH LAKE	939.2	940	942
LAKE LANGDON	932.1	935	937

FOUNDATION SURVEY REQUIREMENTS

As part of the pre-construction site inspection the following staking is required to be completed:

1. Setback dimension stakes on the property line with setback dimension measurement to at least three foundation corners of the proposed structure.
2. Offset and grade stakes to proposed foundation corners.

After foundation is in place and prior to construction proceeding, contractor is to have surveyor verify in the field the location and elevation of building foundation per building plan requirements and a survey copy given to the City of Mound for approval to proceed.

NOTE: Foundation survey verification documentation requirement <u>may</u> be waived if the setbacks for the subject property are 5 feet or greater over the established minimums of front, side, and rear setback requirements for the district.

HARDCOVER CALCULATIONS

(IMPERVIOUS SURFACE COVERAGE)

PROPERTY ADDESS:
OWNER'S NAME:

LOT AREA _____ SQ. FT. X **30%** = (for all lots) ……..... | |

LOT AREA _____ SQ. FT. X **40%** = (for Lots of Record) …….. | |

* Existing Lots of Record may have 40 percent coverage provided that techniques are utilized, as outlined in Zoning Ordinance Section 129-385 (see back). A plan must be submitted and approved by the Building Official.

	LENGTH		WIDTH		SQ FT	
HOUSE	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	TOTAL HOUSE …….					_____
DETACHED BUILDINGS (GARAGE/SHED)	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	TOTAL DETACHED BUILDINGS……..……..					_____
DRIVEWAY, PARKING AREAS, SIDEWALKS, ETC.	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	TOTAL DRIVEWAY, ETC …….					_____
DECKS Open decks (1/4" min. Opening between boards) with a pervious surface under are not counted as hardcover.	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	TOTAL DECK …….					_____
	_____	X	_____	=	_____	
	_____	X	_____	=	_____	
	TOTAL OTHER …….					_____

TOTAL HARDCOVER / IMPERVIOUS SURFACE…… | |

UNDER / OVER (indicate difference) …….. | |

PREPARED BY _____ DATE _____

Revised 1/10

SUMMARY OF HARDCOVER RULES

Excerpts from the Mound Zoning Ordinance

Section 129-2 Definitions

Impervious cover means any surface impervious or resistant to the free flow of water or surface moisture. The term "impervious cover" shall include, but not be limited to, all driveways and parking areas whether paved or not, tennis courts, sidewalks, patios and swimming pools. Open decks (one-quarter-inch minimum opening between boards) shall not be counted in impervious cover calculations.

Lot area, minimum, means the area of a lot in a horizontal plane bounded by the lot lines, but not including any area below the ordinary high-water level as determined by the city or department of natural resources. (The ordinary high-water level for major lakes in the city: Lake Minnetonka = 929.4; Dutch Lake = 939.2; Lake Langdon = 932.1.)

Section 129-196 Requirements applicable to all residential districts

(a) Lot coverage. Impervious surface coverage of lots in residential zones shall not exceed 30 percent of the lot area. On existing lots of record, impervious coverage may be permitted to up to a maximum of 40 percent consistent with the provisions identified in section 129-385(g)(2)a.

Section 129-385 Zoning - Shoreland Management

(2) Specific standards.

a. Impervious surface coverage of lots in residential zones shall not exceed 30 percent of the lot area. On existing lots of record, impervious coverage may be permitted by a maximum of 40 percent providing that the following techniques are utilized as applicable:

1. Impervious areas should be drained to vegetated areas or grass filter strips through the use of crowns on driveways, direction of downspouts on gutters collecting water from roof areas, etc.
2. Dividing or separating impervious areas into smaller areas through the use of grass or vegetated filter strips such as the use of paving blocks separated by grass or sand allowing infiltration.
3. Use grading and construction techniques which encourage rapid infiltration such as the installation of sand or gravel sump areas to collect and percolate stormwater.
4. Install berms to temporarily detain stormwater thereby increasing soil absorption.

b. Impervious surface coverage in lots in the business and industrial zones shall not exceed 30 percent of the lot area. In business and industrial zones that are included within areas covered by an approved stormwater management plan, impervious surface coverage shall not exceed 75 percent of the total lot area.

Date: _____ Building Permit #: _____

CITY OF MOUND NEW CONSTRUCTION CHECK LIST
ALL ITEMS MUST BE CHECKED AND NOTED PRIOR TO EXCAVATION

Project Description: _____

Address: _____

BUILDING OFFICIAL

1. ☐ Grading/drainage swales established away from neighbors structures:
   _____
2. ☐ Locate and show property stakes and building pad stakes:
   _____
3. ☐ Address posted on Site:
   _____
4. ☐ Setback Requirements:
   Front: _____ Lakeshore: _____ Rear: _____ Side: _____ Side: _____

   Other (corner/front): _____ Wetland(s): _____ Bluff: _____
5. ☐ Permit visible on site.
6. ☐ Other(s) _____

☐ Authorization to Proceed ☐ Initials of Official _____

PUBLIC WORKS

7. ☐ Erosion control fencing established, if necessary:
   _____
8. ☐ Verify elevation of sanitary sewer services to low floor elevations:
   _____
9. ☐ Conditions of water shut-off/service (mark with contractors stake):
   _____
10. ☐ Conditions of curb and gutter abutting property to be built:
    _____
11. ☐ Curbs properly abridged for construction traffic:
    _____
12. ☐ Conditions of storm sewer gate abutting the property (if applicable):
    _____
13. ☐ Conditions of light fixtures or any other utility fixtures abutting the property
    _____
14. ☐ Culvert inspection: _____
15. ☐ Other(s): _____

☐ Authorization to Proceed ☐ Initials of Official _____

BUILDING HEIGHT CALCULATION
HOW-TO FORM

Job Address _____

Per Mound City Code, Section 129-2, building height and building line are defined as follows:

Building Height The vertical distance to be measured from the average grade of a building line to the top, to the cornice of a flat roof, to the deck line of a mansard roof, to a point on the roof directly above the highest wall of a shed roof, to the uppermost point on a round or other arch type roof, to the mean distance of the highest gable on a pitched roof.

Building Line A line parallel to the street right-of-way or the ordinary high water level at any story level of a building and representing the minimum distance which all or nay part of the building is set back from said right-of-way line or ordinary high water level.

COMPLETE THE FOLLOWING

1. Describe the type of roof style proposed (i.e., pitched, flat, shed roof, etc.)

   _____

2. Provide the average grade elevation of the building line facing the street:

   _____ based on proposed grades referenced on submitted survey.

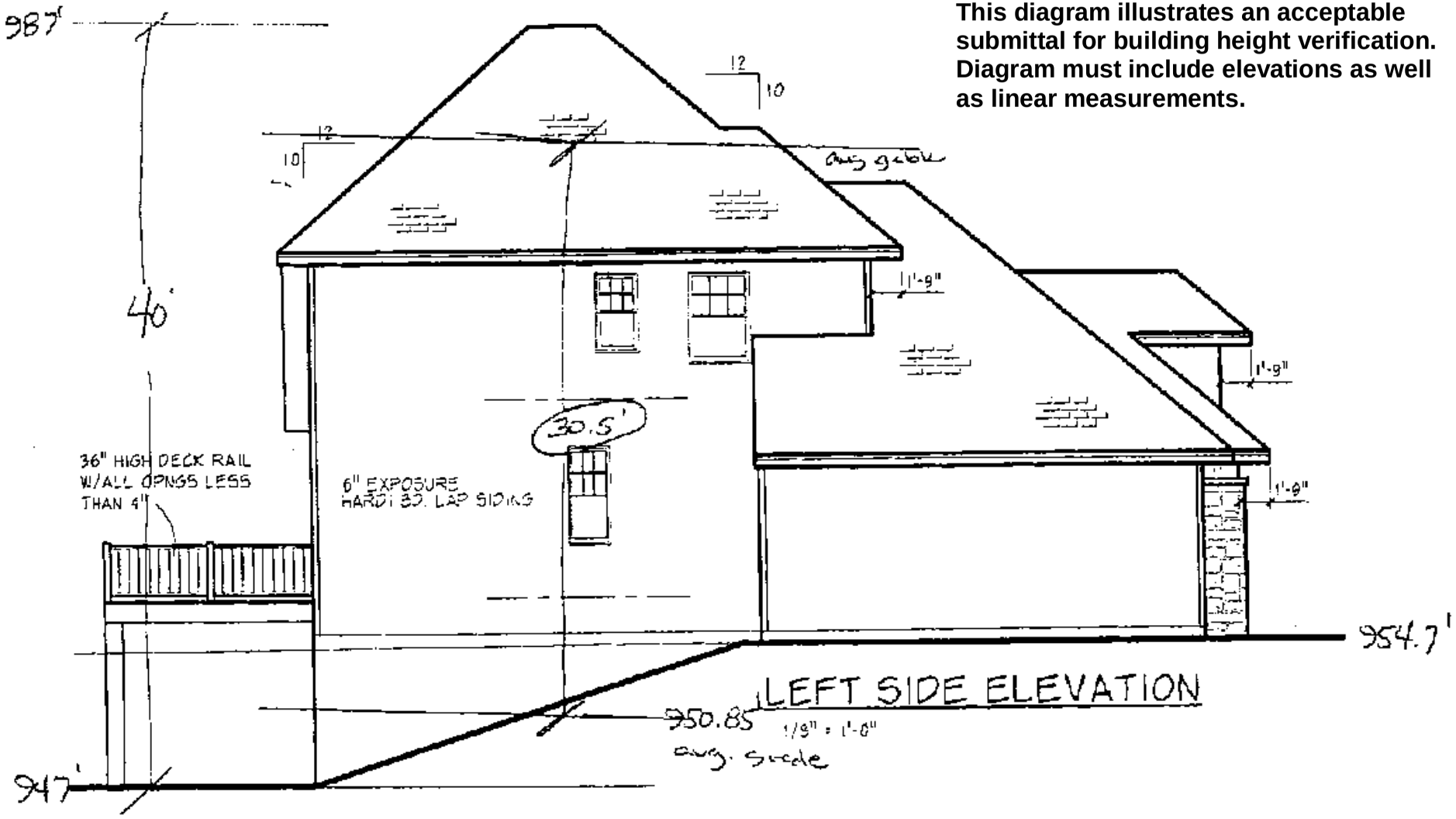
3. Provide the average grade elevation of the building line facing the rear of the lot or lake:

   _____ based on proposed grades referenced on submitted survey.

4. Provide the average grade elevation of the building line(s): _____
5. Provide the height of the proposed structure as measured from the lowest grade elevation to highest point of structure: _____.
6. Provide the proposed height of the structure based on the definition of building height referenced above: _____
7. **Attach diagram** - Graphic documentation, usually an elevation drawing, must be provided to confirm that the proposed height of the new structure, based on the Zoning Ordinance definition, meets the height regulations of the applicable zoning district. Graphics document must be scaled to allow for checking by staff.

Measuring Building Height

A building height verification must be submitted with the building permit application on any new home construction or addition.



This diagram illustrates an acceptable submittal for building height verification. Diagram must include elevations as well as linear measurements.

Supplemental Information for Building Permits
Indigenous Mounds and Earthwork Sites

Indigenous burial mounds and/or earthwork sites have been discovered in and around the City of Mound. While many of the sites have been severely impacted by development over the years, they do receive protection under state law. ***Penalties will be imposed for the unauthorized disturbance of indigenous sites****. Additional information may be obtained through the Minnesota State Archeologist.*

Any formal investigation of a site, including a determination of whether a mound or burial area exists on a subject site, is the responsibility of the property owner or developer. The issuance of permits by the City of Mound to do work on a site does not relieve the owner or developer of that responsibility.

ATTENTION

City of Mound Water Meter Installation Requirements

1. Plumber shall flush out service line prior to meter installation.
2. Plumber or Contractor will run conduit (¾" pex works the best) from the meter to the outside of the home at a mounting location for the reader box. The city needs capability to fish two 18G three strand wires out now and in the future. If this is not completed the Plumber or Contractor is responsible to install conduit even if drywall is completed.
3. Plumber shall follow instruction on the City of Mound Water meter Installation Instructions page provided.

Water Department will not install meter or turn on water if conduit is not in place or if installation instructions are not followed!

Questions call:

952-472-0603 M-F 7am-3pm

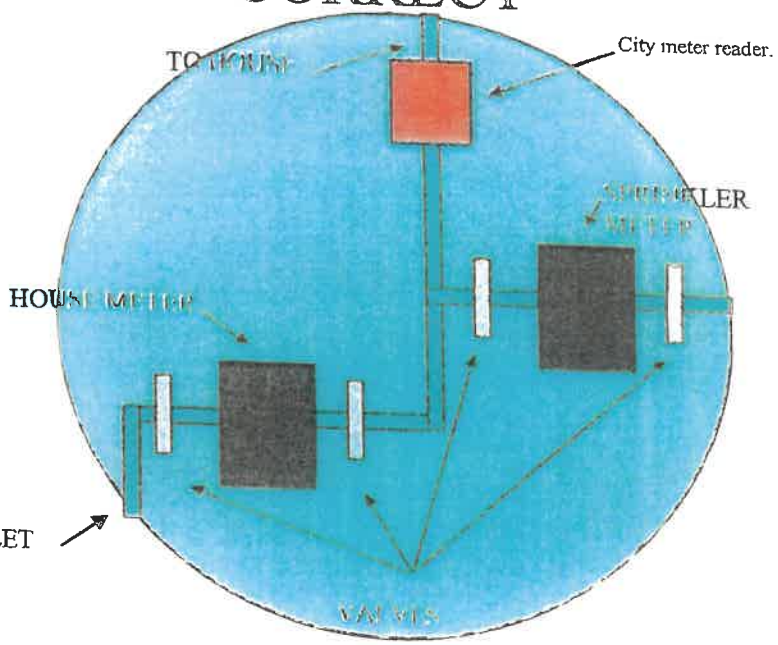
CITY OF MOUND WATERMETER INSTALLATION INSTRUCTIONS

1. METERS MUST BE MOUNTED HORIZONTAL, NO HIGHER THEN 14" OFF FLOOR. NO LESS THEN 6" OFF FLOOR
2. METERS MUST BE ACCESSIBLE FOR SERVICE AND MANUAL READINGS
3. METERS MUST HAVE SUITABLE SHUT-OFF VALVES DIRECTLY ON BOTH SIDES. THIS IS FOR REPAIRS AND OR REMOVAL
4. METERS MUST HAVE ELECTRICAL GROUNDING STRAP CONNECTED ACROSS THE METER OPENING TO BOTH SIDE PIPES. THIS PROTECTS THE OPERATOR WHENEVER REPAIRS ORMETER REMOVAL IS REQUIRED.
5. NO METER "HORN'S" ALLOWED.

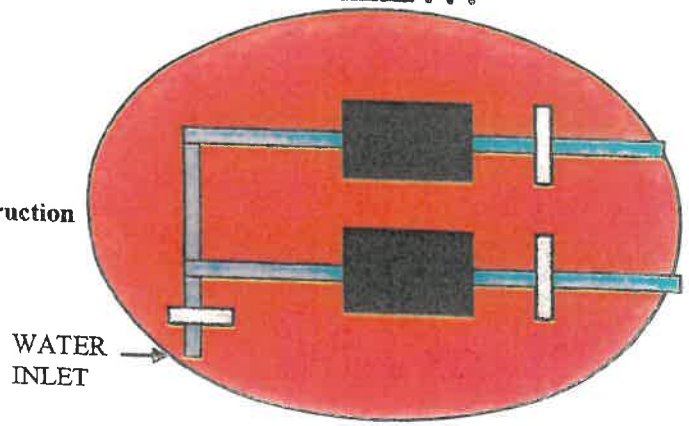
DEDUCT METER INSTRUCTIONS

1. FOLLOW ABOVE INSTRUCTIONS 1-4.
2. METER MUST BE INSTALLED INSIDE THE HOME WITH ACCESS TO WIRE DEDUCT METER TO HOME METER.

CORRECT



FAIL!!!



All Plumbing must meet city code

Stacking meters is an automatic fail of inspection in new home construction

Questions about installations or ready for inspection call This meter installation needs to be repaired. Please call 651-255-0972 for an appointment.