



房屋装与修

宝琪

2023年4月15日

主办:李堡华联

在美国和房子结缘的典型路径



怕麻烦、不能接受慢慢变富是无法长期投资房产主因。拥抱麻烦，麻烦里全是财富。



从装修公司要付的税说起

01

Sales Tax

02

Income Tax

执照

证书

注册

许可

主线：不倒和不漏

结构

水

电

空调、电器



主线中抓重点

地基周围积水

漏水定位、淹水
处理

上水、下水、防水

冷暖、电器



日常花钱多的全是水

雨水

gutter、屋顶、天窗、外墙、门窗

自来水

水管爆裂、沙眼、连接损坏

冷凝水

空调、墙面屋顶

水

回填土层水

地基下沉
冻胀裂、渗水

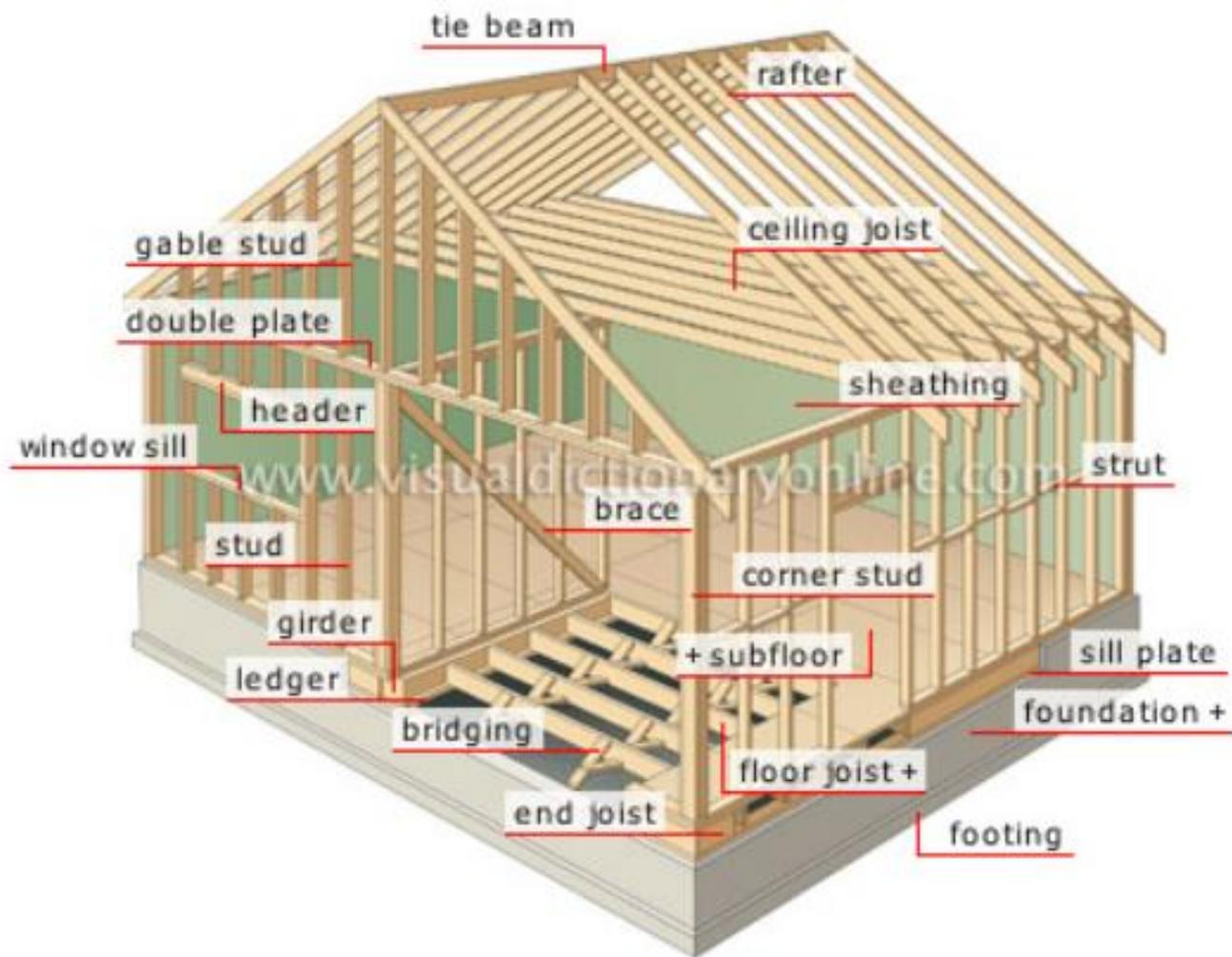
污水

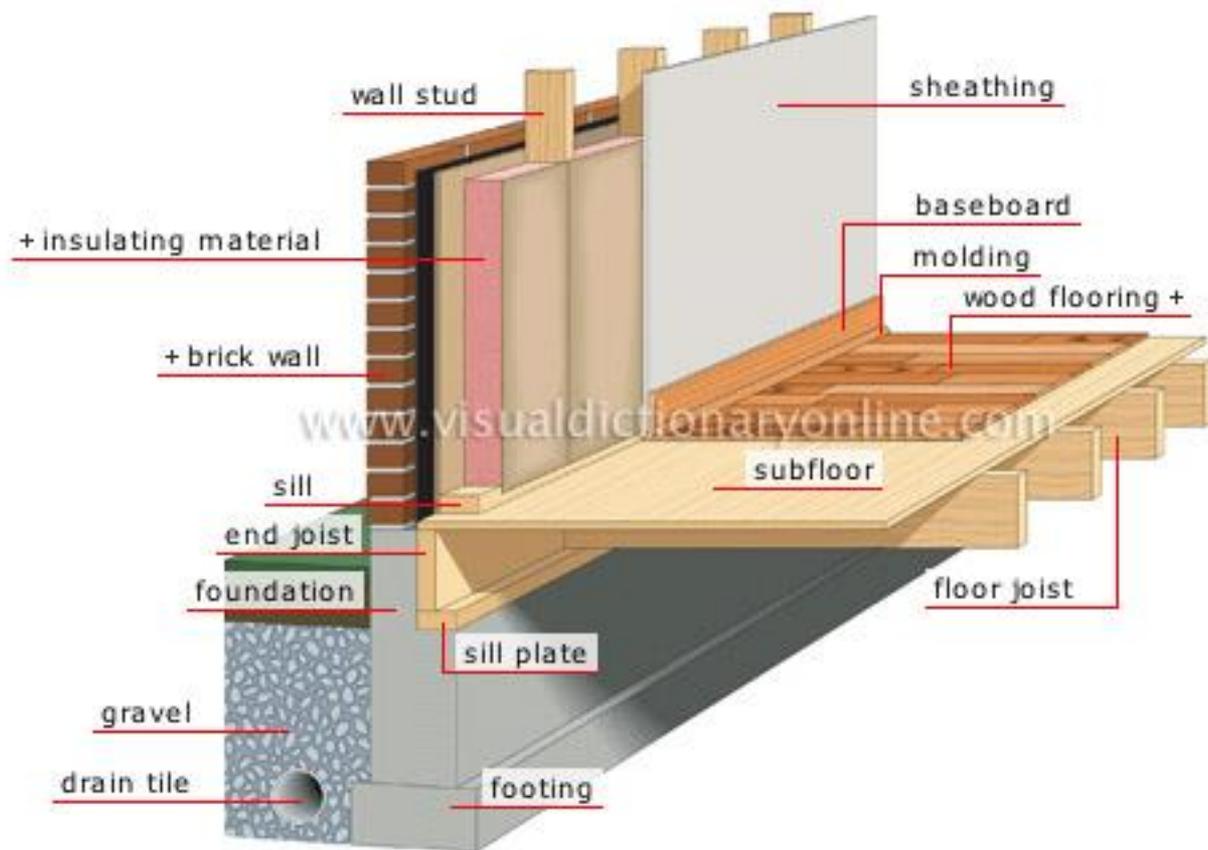
漏水、异味、堵塞、管道裂

地下水

地下室渗水







确定地基类型影响因素

三点水:

1. Frost line (冻土层)

2. Expensive soil (土的膨胀率)

3. Water Table(地下水位)



Types of Settlement



Uniform Settlement
(No Cracks)

Tipping Settlement
(Mostly Without Cracks)

Differential Settlement
(With Cracks)



横裂



竖裂



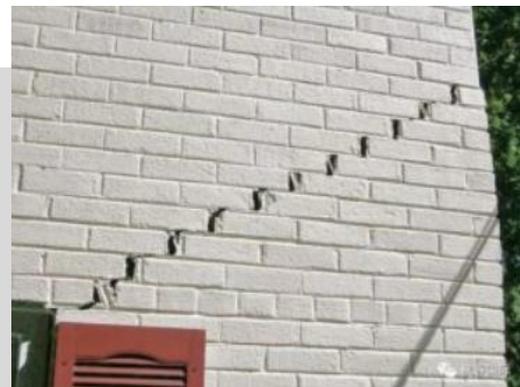
斜裂

主要原因静水压力(Hydrostatic Pressure)、土壤伸缩、一部分地基沉降



收缩型
裂缝

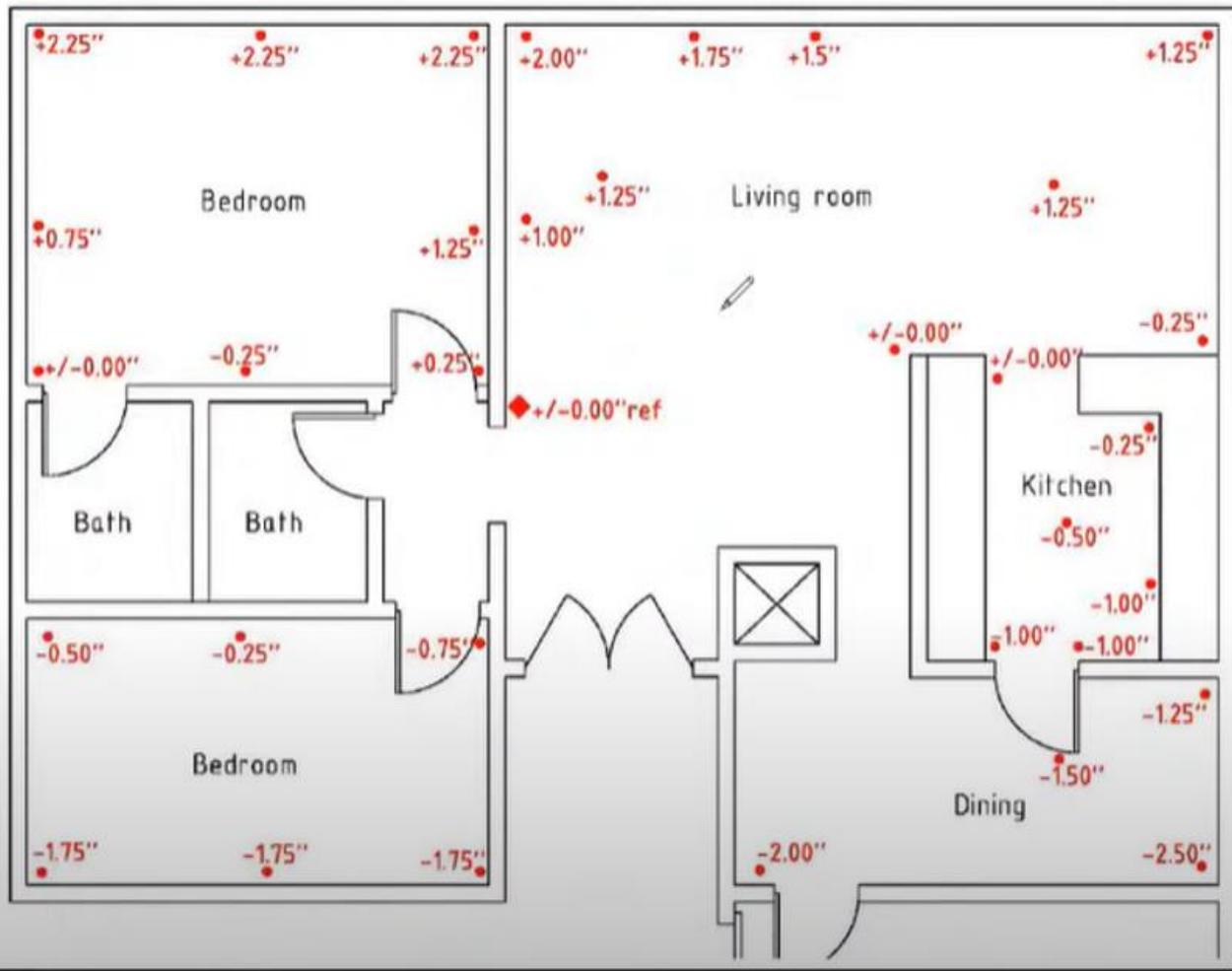
沉降型
裂缝

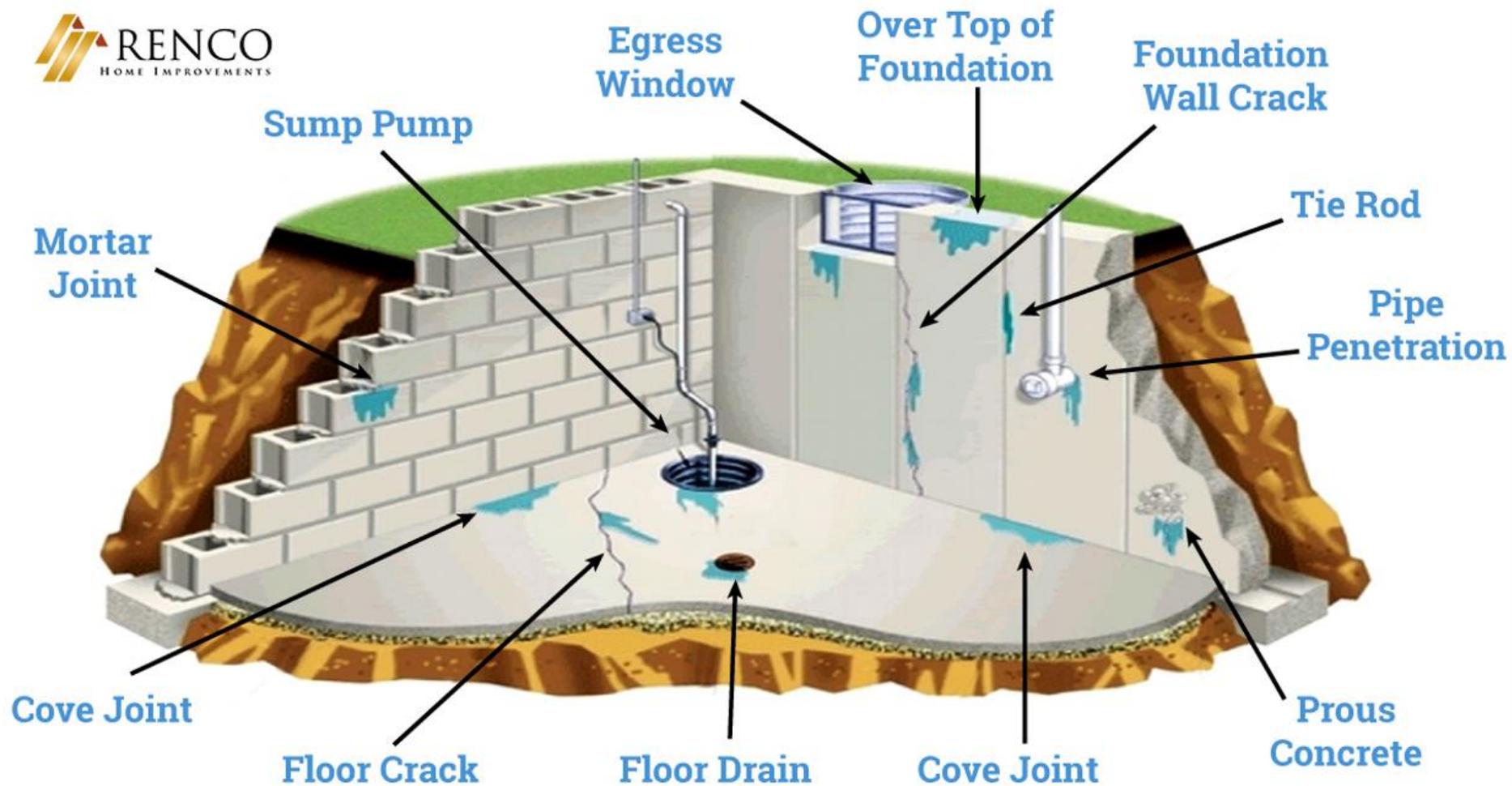


冻胀
裂缝

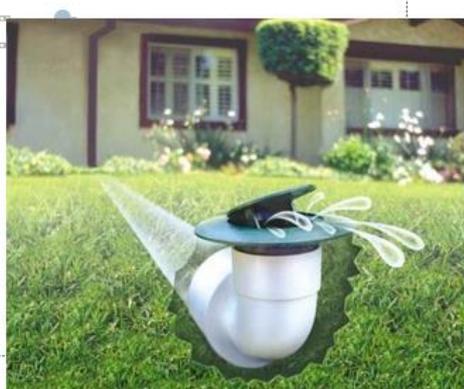
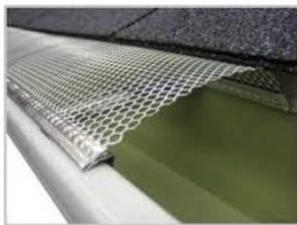
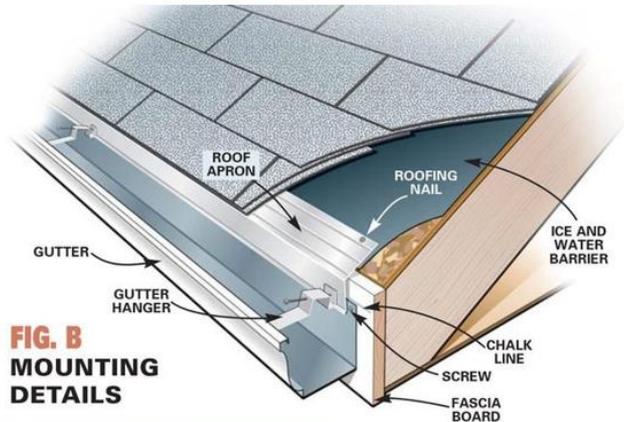
水平挤
压裂缝







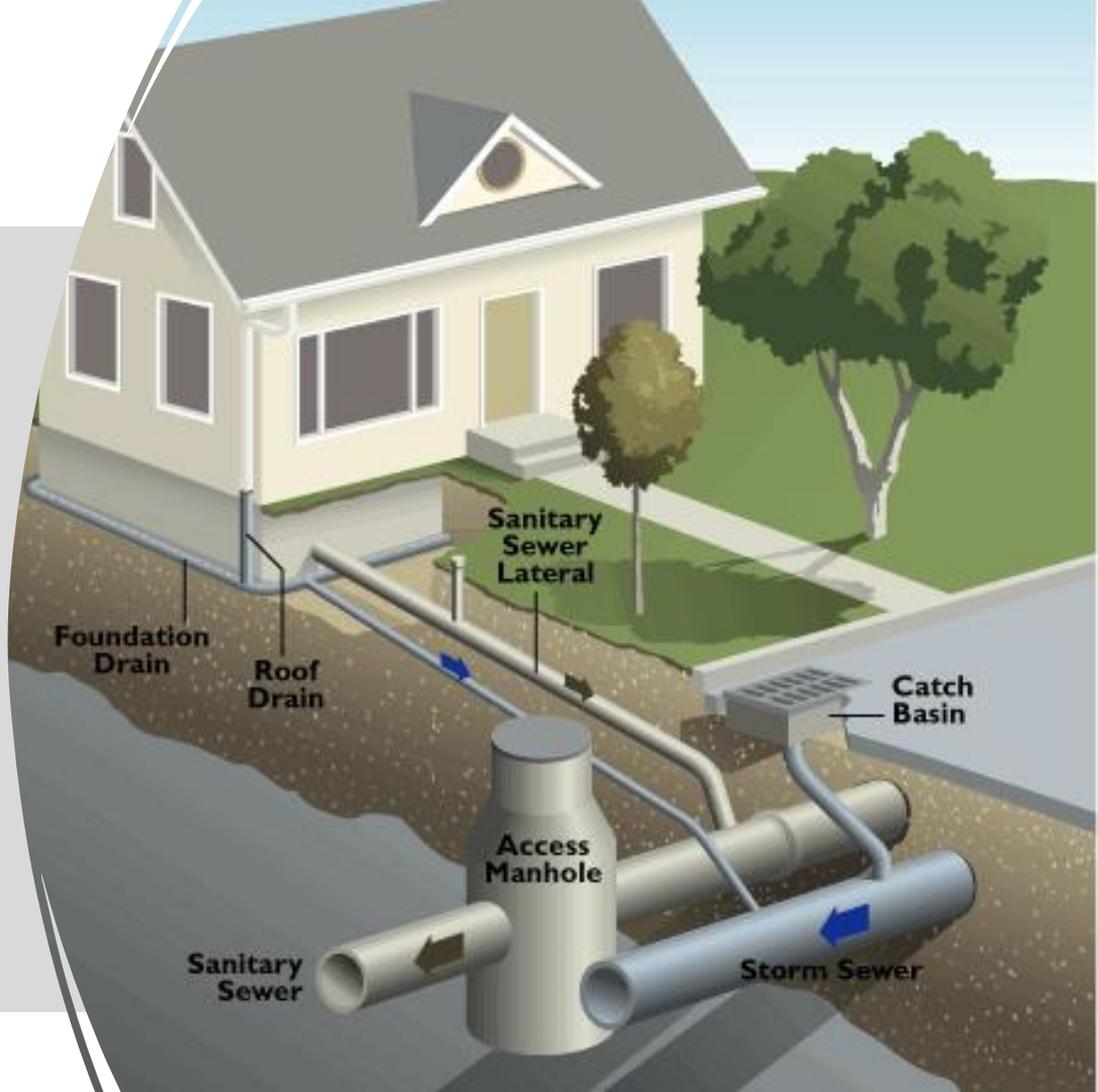
实操第一件事：大雨天检查一下地基周围是否积水



市政排水系统

Sanitary Sewer

Storm Sewer



Stormwater & Combined Sewer Overflow (CSO) Mngmnt

STORMWATER & COMBINED SEWER OVERFLOW (CSO) MANAGEMENT

The Borough operates and maintains our Municipal Separate Storm Sewer System (MS4) under a under New Jersey Department of Environmental Protection (NJDEP) "Authorization to Discharge Stormwater General Permit."

The [general permit](#) was last reauthorized in December 2017, with an effective start date of January 1, 2018 and expiration date of December 31, 2022.

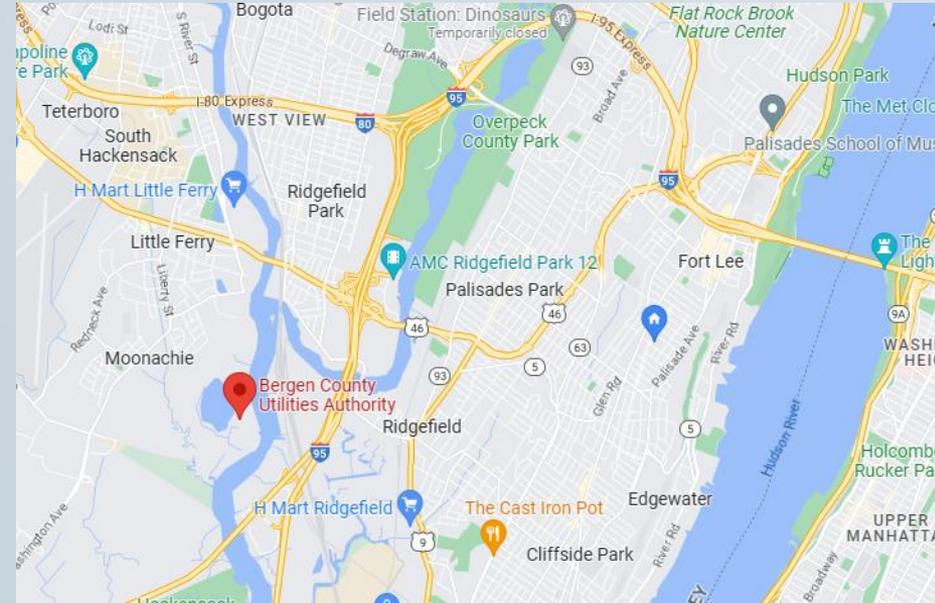
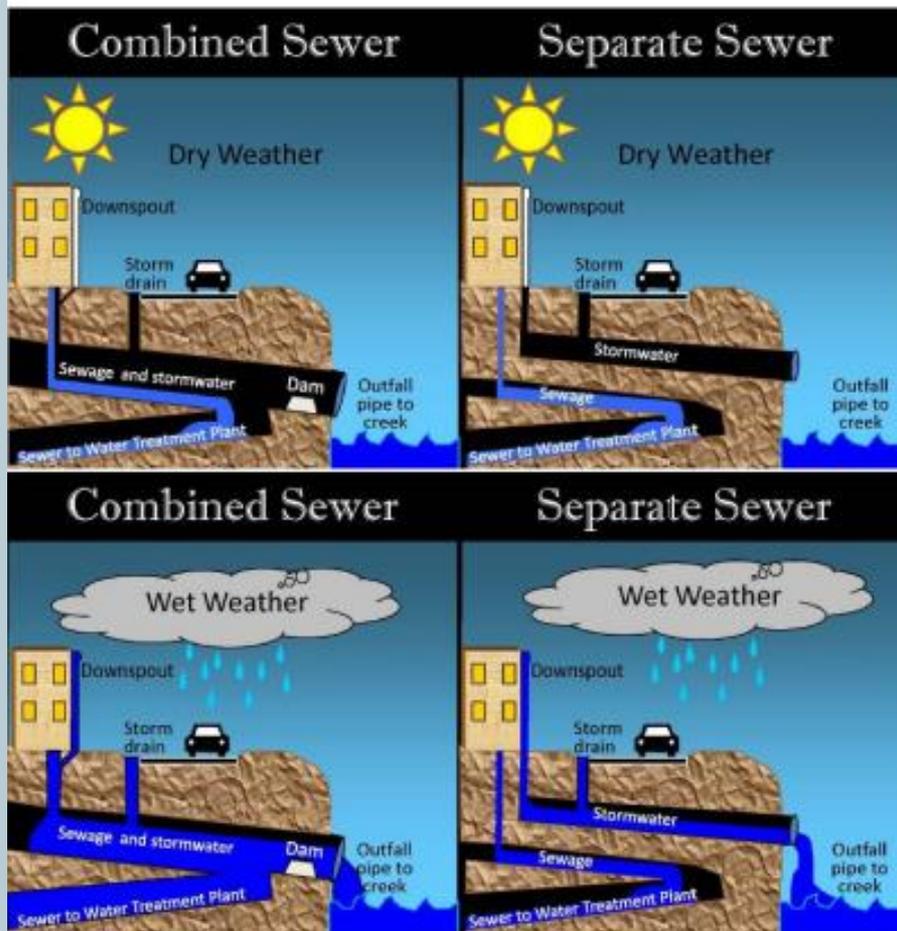
The more recent permit requires that the Borough post specific publicly available information:

Sections of the Borough Code Related to Stormwater Management:

- Chapter 358 - [Stormwater Management](#)
- Private Storm Drain Retrofitting - [Chapter 358-13](#)
- Yard Waste and Disposal - [Article X](#)
- Chapter 357 - [Storm Sewers](#)
- Illicit Connection to Storm Sewers - [Article I](#)
- Improper Disposal to Storm Sewers - [Article IX](#)
- Chapter 356 Solid Waste Littering - [Article VII](#)
- Chapter 138 - [Animals](#)
- Pet Waste - [Article II](#)
- Wildlife Feeding - [Article III](#)

[Fort Lee's Stormwater Pollution Prevention Plan \(SPPP\), 2020 \(PDF\)](#)

Fort Lee 污水处理及应用





上水并没有想象的难做错

Copper Press

Milwaukee
M12 12-Volt Lithium-Ion Force Logic Cordless Press Tool Kit with M12 Copper Tubing
Cutter (3 Jaws Included)

★★★★★ (73) Questions & Answers (27)



\$2149⁰⁰

 \$359.00 /mo* sugge

- Includes M12 1/2in. Jaw, 3/4in. Jaw, and 1in. Jaw
- Includes A M12 copper tubing
- Part of the M12 System, for more information see



Pex A



Expansion Connection. Photo: SupplyHouse.com

Home > Plumbing Supplies > PEX Plumbing > PEX Tools > ProPEX Expander Tools & Hea



M12 ProPEX Expansion Tool Kit w/ 1/2", 3/4", and 1" Heads, (2) M12 Batteries, Charger

SKU	Brand	Rating
2432-22	Milwaukee	★★★★☆ (137)

\$375.99 each

In Stock
Get 82 Tomorrow, Jun 29

ADD TO CART

FastTrack Order by 6PM, receive tomorrow

[Add to List](#)

Pex B

Apollo
1/2 In. Copper Pro Crimp Ring (10-Pack)
★★★★★ (206) Questions & Answers (5)



Crimp Connection. Photo: SupplyHouse.com



Home > Plumbing Supplies > PEX Plumbing > PEX Tools > PEX Crimp Tools & Rings

1/2" PEX Full Circle Crimp Tool In Yellow

SKU 41723 Brand Viega Rating ★★★★★ (15)

\$125.99 each

In Stock
Get 15 Tomorrow, Jun 29

[ADD TO CART](#)

More Available [Inventory Details](#)

Fast Track Order by 6PM, receive tomorrow





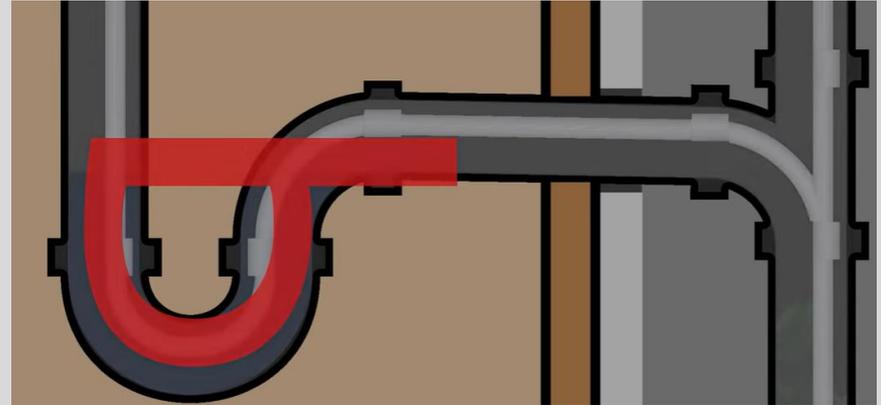
淋浴控制阀

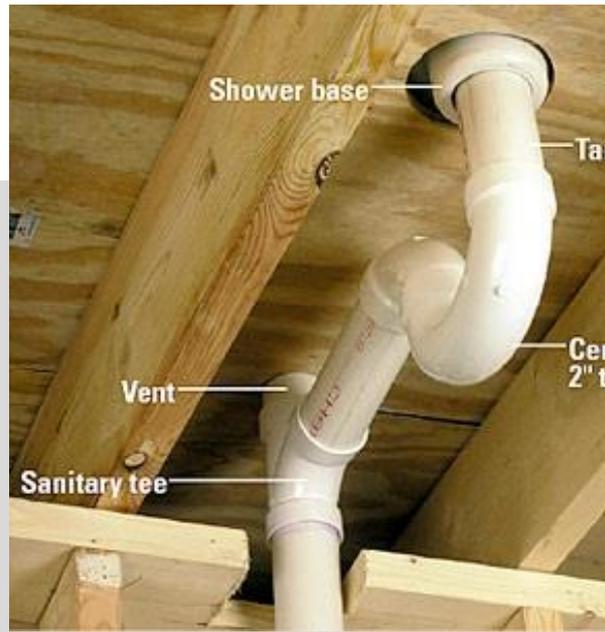
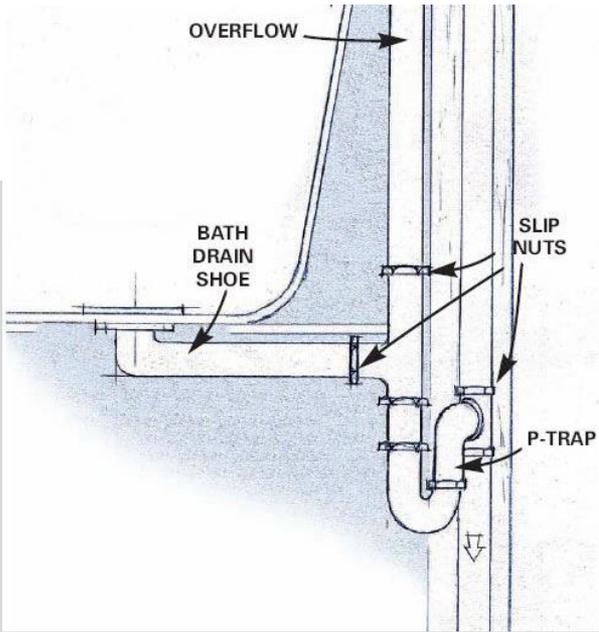


下水和防水是设计施工及维修中的关键

1. 下水

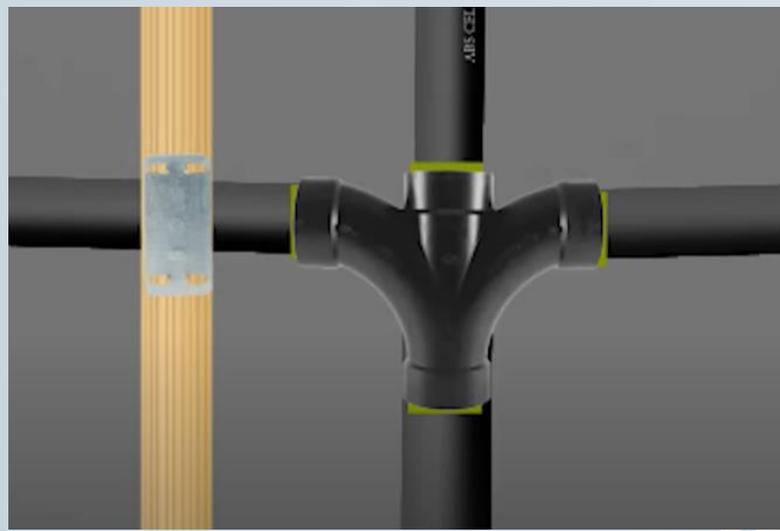
P-Trap



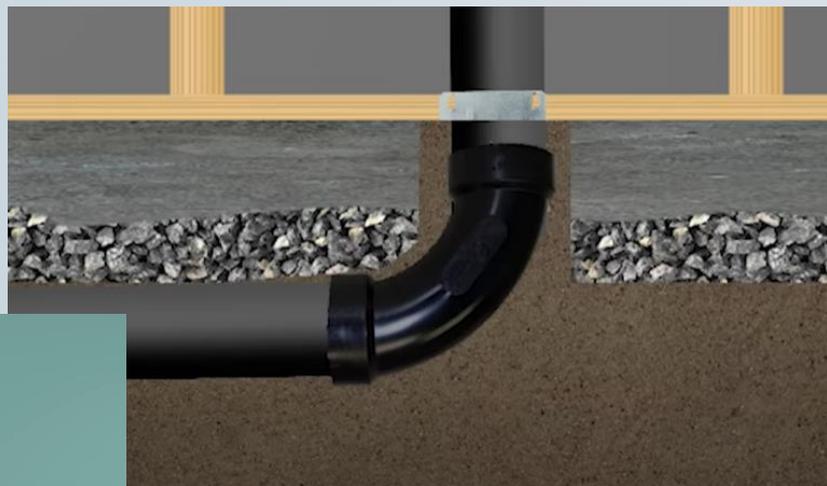
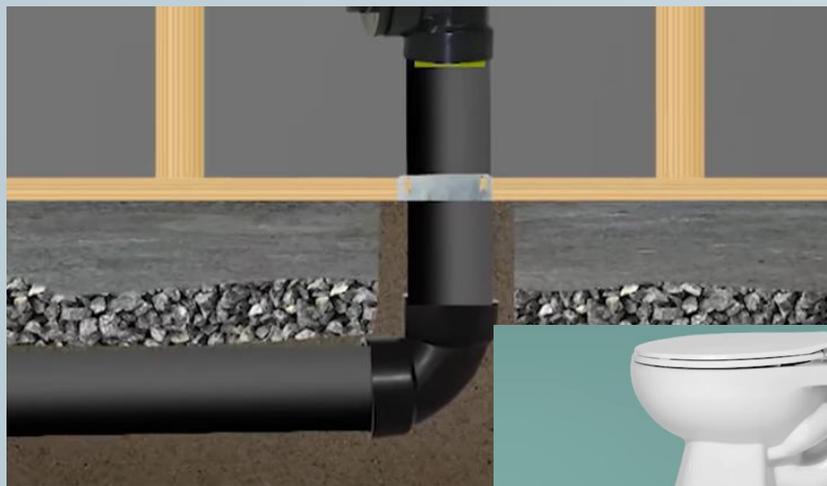


Shower/Tub P-Trap

下水道反味儿？ 哪个是对的？

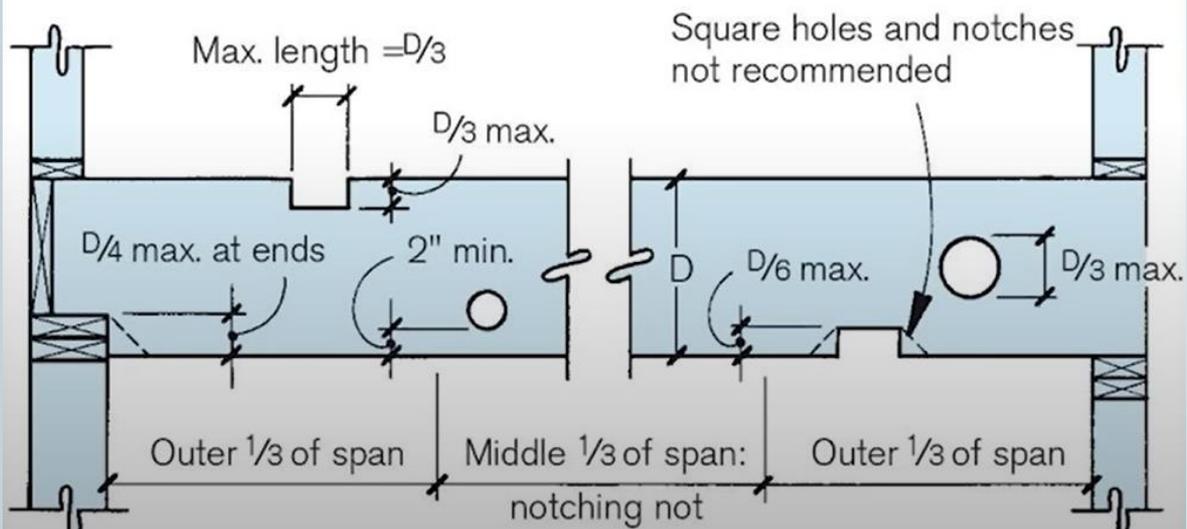


看看哪个是正确的 short sweep vs long sweep





Joist Size	Maximum Hole	Maximum Notch Depth	Maximum End Notch
2x4	None	None	None
2x6	1 1/2	7/8	1 3/8
2x8	2 3/8	1 1/4	1 7/8
2x10	3	1 1/2	2 3/8
2x12	3 3/4	1 7/8	2 7/8





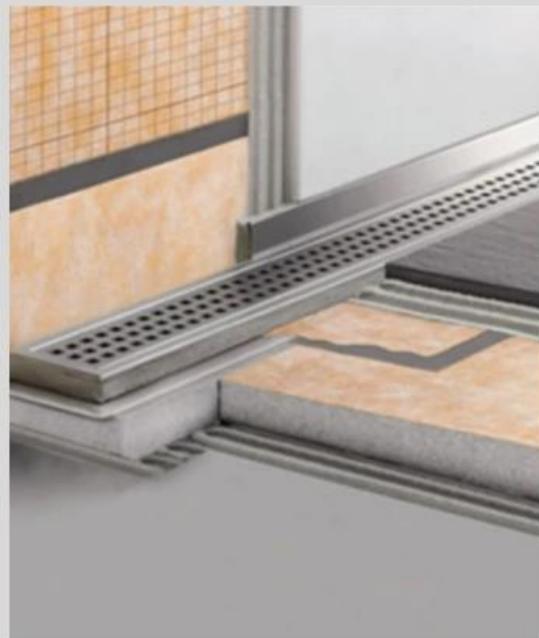
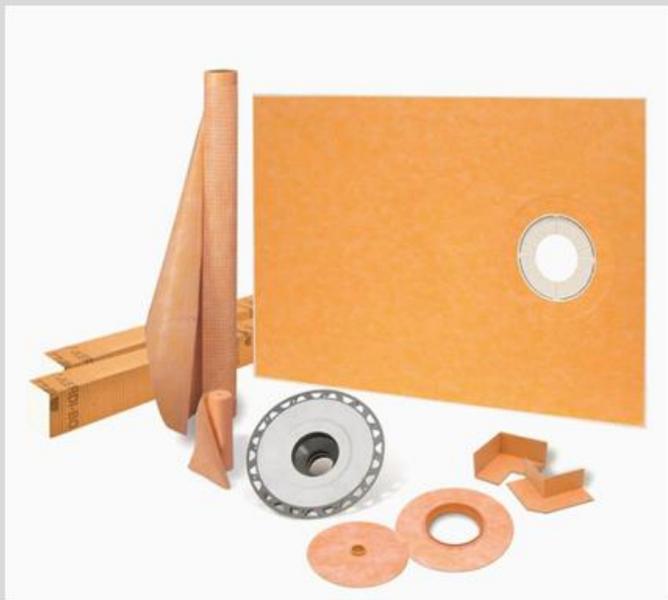
下水和防水是设计施工及维修中的关键

2. 防水

两种常用的Shower Pan



Schluter Shower system (大约\$600-\$800)



RedGard

Custom Building Products

RedGard 3-1/2 Gal. Waterproofing and Crack Prevention Membrane

★★★★★ (226) Questions & Answers (177)



BULK PRICE AVAILABLE \$159.00

Save up to \$100 off
Apply for a Home Depot Card

- Ready to use - Roll it on
- Quick dry formula
- First step to achieving a lifetime waterproofing
- See More Details

North Bergen Store

✓ 1 in stock Aisle 60, Back

How to Get It

Store Pickup
Available

FREE

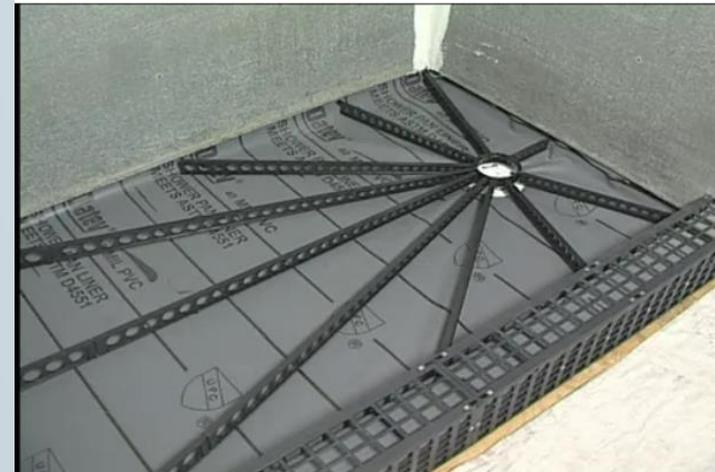
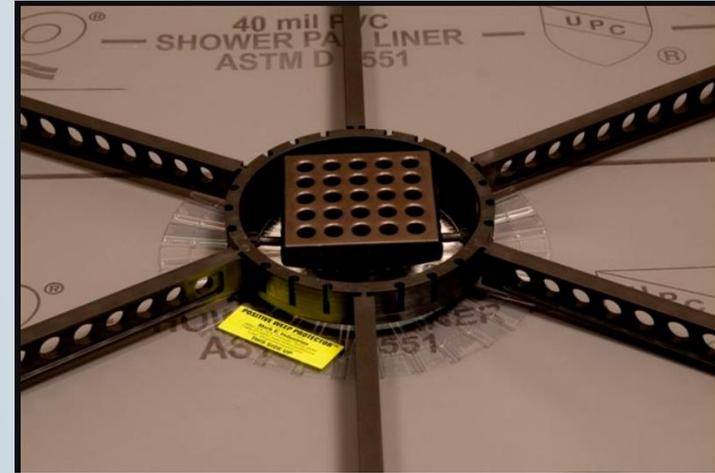
1 in stock at North Bergen
Curbside pickup available.
Check Nearby Stores

⚠ This item may not be available in all areas.

- 1 +

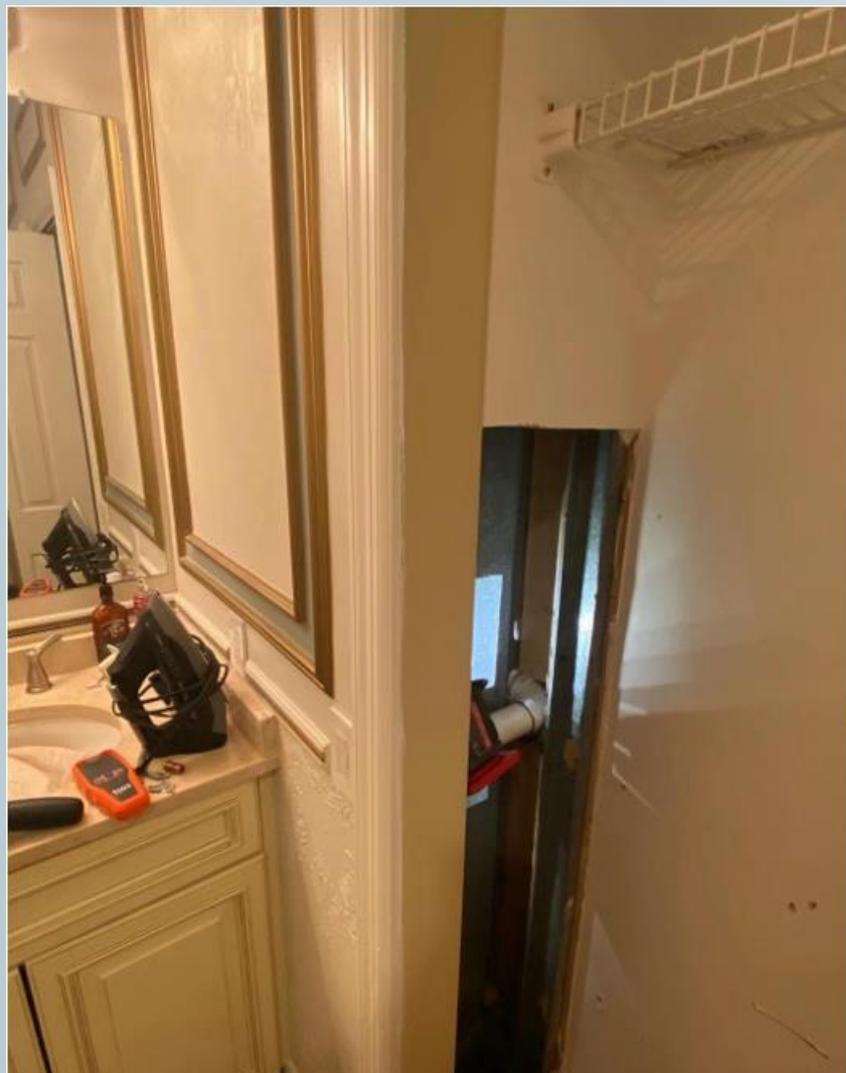


Goof Proof Shower System





应急处理











房子被水淹处理

检测受损范围

(必须用仪器)

拆墙板到

4尺或更高

拆地脚线、

钻洞

使劲吹

检测

复原



Drywall



不同年代产品差异巨大

自制模型进行淹水实验

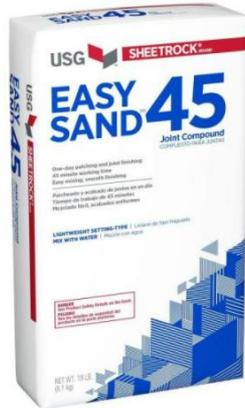
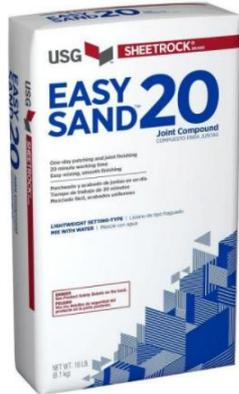
厚度:

5/8-in., 1/2-in., 3/8-in., 1/4





Pick up today	Pick up today	Pick up today
Wal-Board Tools 12-1/2...	Wal-Board Tools 6 in....	Wal-Board Tools 14 in...
\$12.98	\$10.98	\$5.98
Home Depot	Home Depot	Home Depot
★★★★★ (200)	★★★★★ (130)	★★★★★ (416)



Compond 墙腻子

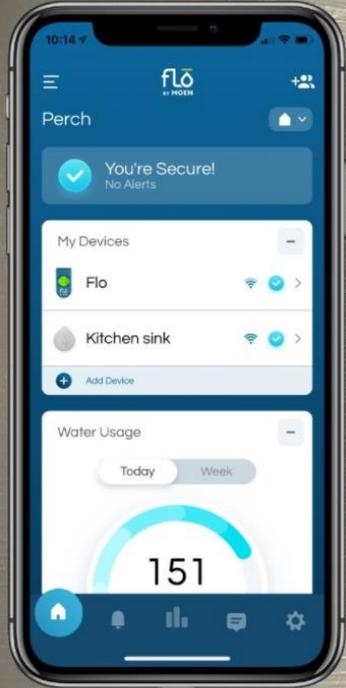
(Quick)Setting Compounds(含Plaster, 不收缩、数字、厚or边、不好打磨) 5 20 45 90 不是干的时间

Easier-to-sand setting Compounds

Drying Compounds(粉末或premixed)

All Purpose、Dust control、lightweight

自动水阀门和漏水报警装置





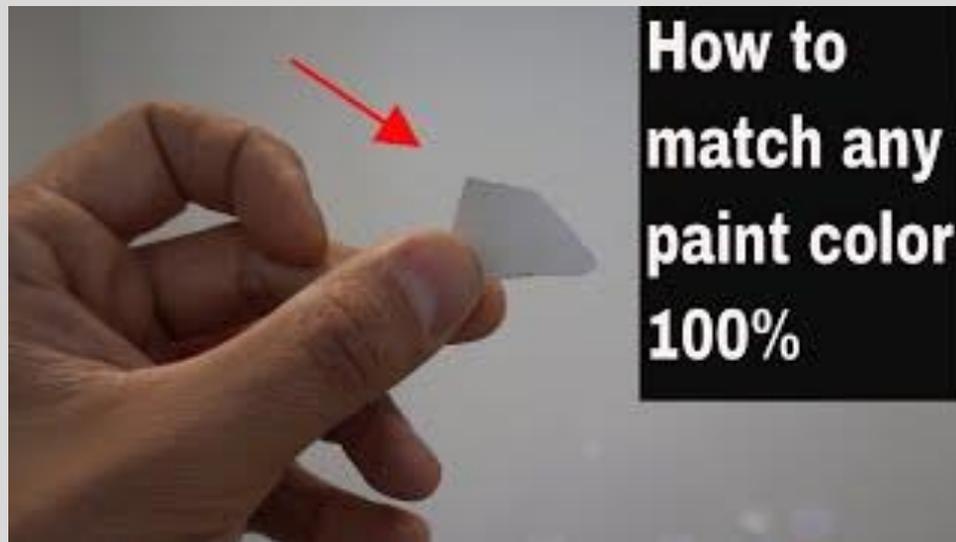
表面光

善用Color match

取sample(可以从开关处)

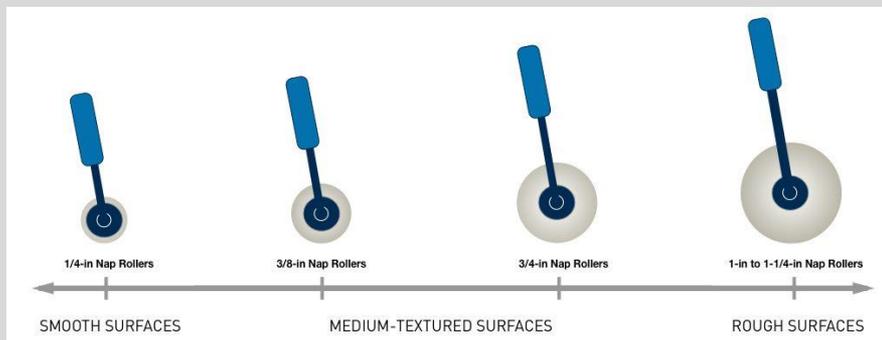
如有明显色差只能整面墙都刷，但未必需要刷边角

可以用吹风机快速干看效果



正确选择Roller

- 5分钟之内同一区域可以反复滚，超过5分钟就等2个小时之后再滚



Reglazing(防毒面具+刷， 喷的仅防毒面具不够)

Top Rated
Rust-Oleum Specialty
1 qt. Almond Tub and Tile Refinishing Kit
★★★★★ (1544) Questions & Answers (925)



RUST-OLEUM
SPECIALTY
Tub & Tile
Refinishing Kit
Epoxy Acrylic Formula
Almond

Apply a Smooth, Porcelain-Like Finish in just a few hours

Color/Finish: Almond

How to Get It

Ship to Store
Pickup Oct 14 - Oct 15
FREE

We'll send up to 4 Curb-side pickup or Change Store

1

Share Print

- Applies a smooth
- Covers up to 1
- Dries in one ho
- See More Deta



常用检查设备



入手老房 别犯傻 别发懵

电箱问题

线路问题

石棉Asbestos

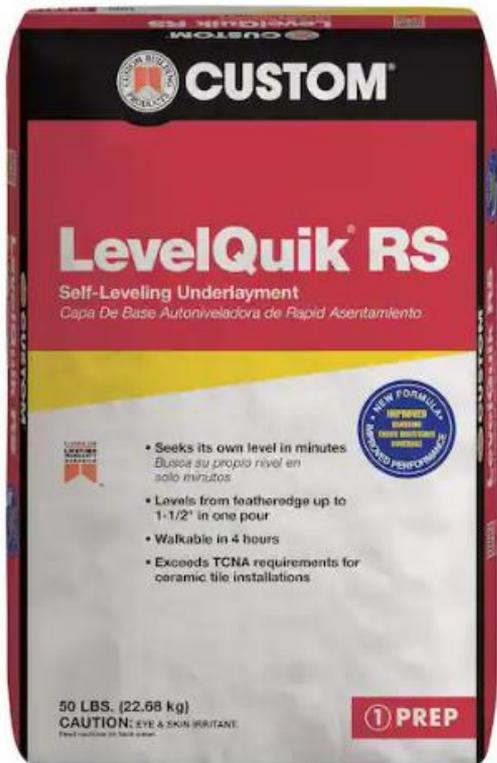
含铅油漆Lead Paint

低效保温层和密封不严

Custom Building Products

LevelQuik RS 50 lbs. Self-Leveling Underlayment

★★★★☆ (1428) [Questions & Answers \(898\)](#)



- Seeks its own level in minutes
Busca su propio nivel en solo minutos.
- Levels from featheredge up to 1-1/2" in one pour
- Walkable in 4 hours
- Exceeds TCNA requirements for ceramic tile installations

Custom Building Products

LevelQuik 1 qt. Acrylic Primer

★★★★★ (209) [Questions & Answers \(84\)](#)



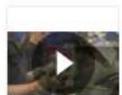


电

Klein Tools

Dual Range Non-Contact Voltage Tester with Flashlight 12-Volt to 1000-Volt AC

★★★★★ (228) Questions & Answers (4)



SPECIAL BUY \$28⁹⁷

Buy More Save More

Buy More, Save More
Save up to \$50 Off Eligible It

Spend \$70
\$7 Off

Spend
\$15

- Voltage tester detects from 12
- Broad application with dual ran
- Electrical Tester with flashlight
- View More Details

Lodi Store

✓ 15 in stock Aisle 49, Bay 0

How to Get It


Store Pickup
Available
FREE

Ship
G
Wec
Free w

15 in stock at Lodi
Check Nearby Stores

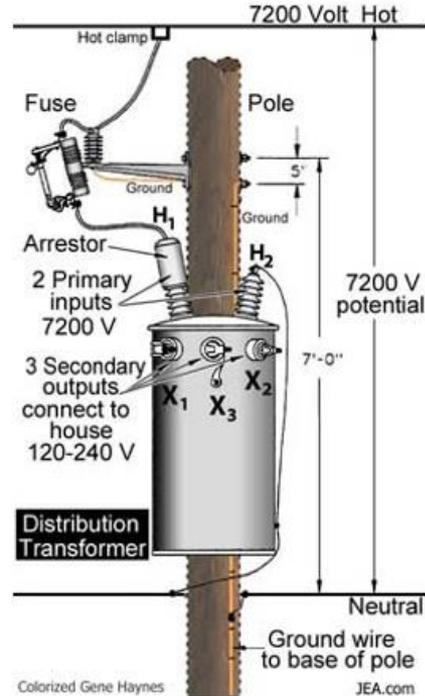
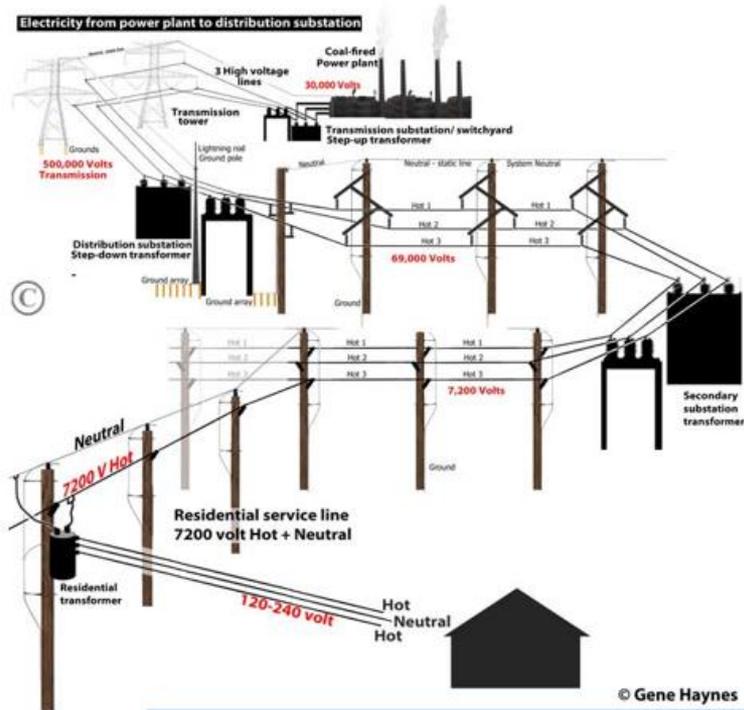
⚠ This item may not be availat

Share Print

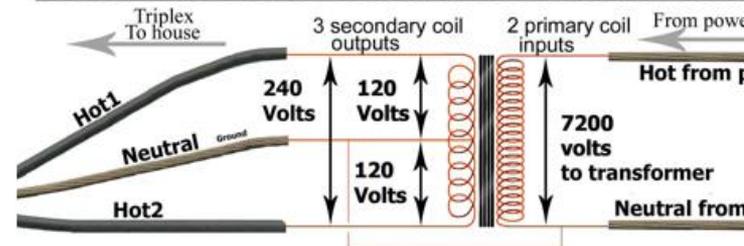
 **Protect This Item**



Electricity from power plant to distribution substation



Household distribution transformer



Standard Circuit Breakers



GFCI Circuit Breakers

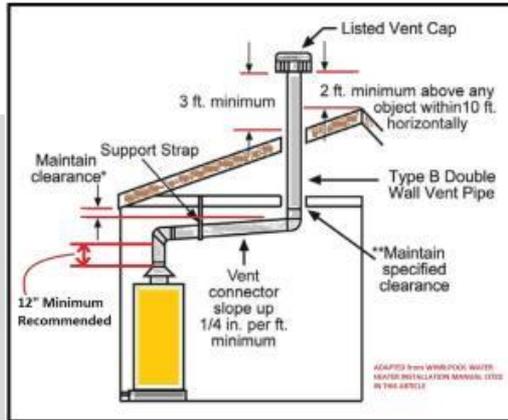


AFCI Circuit Breakers



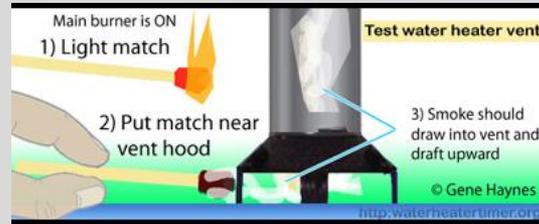
CAFCI Circuit Breakers





Vertical gas vent system with type B double wall vent pipe

© 2018 InspectApedia.com



换热水器不确定性主要在Vent

懂下面8个名词，和师傅聊换机器不会晕

BTU

面积 \times 25-35

Tons

面积/500

SEERS

13+

R22R410

Furnace

Heat Pump

Condensor/
Compressor

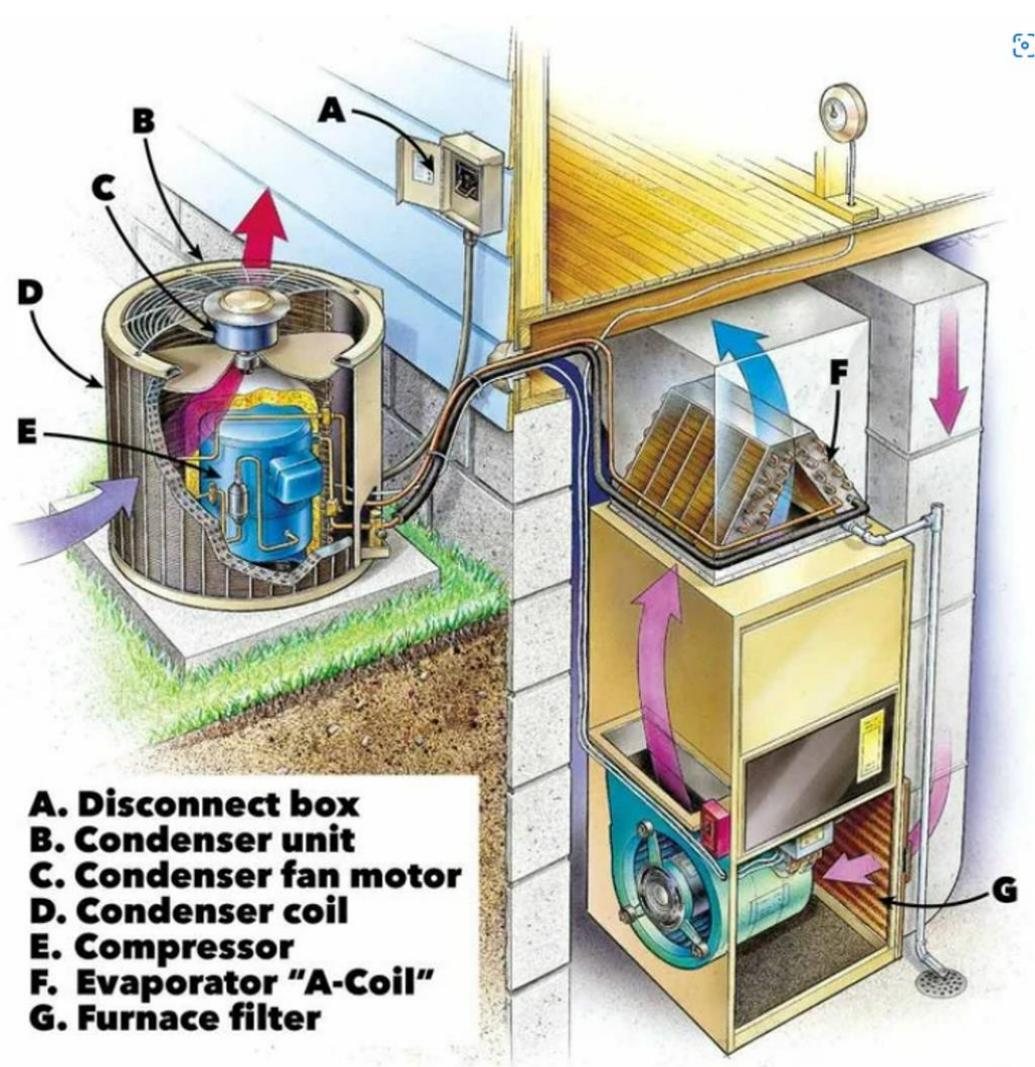
Evaporator

空调坏的两大类问题

• 电+机械 (温控、电容、保险丝、主板、继电器、变压器、电机)

• 氟利昂 (泄漏) EPA608

外机不转、内外机都不转、结冰、漏水、不够冷



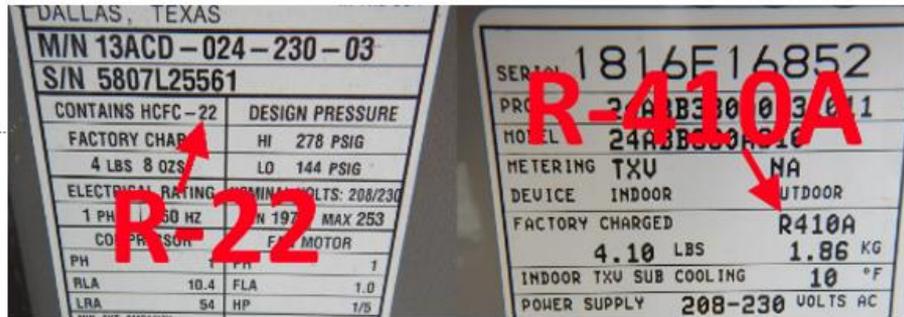
Pressure / Temperature Chart (at sea level)

Temp		Pressure									
°F	°C	R-22		R-410A		R-407C		R-422B		R-438A	
		Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid
0	-17.8	24.0	48.3	19.4	29.6	18.0	24.5	18.4	26.8		
5	-15.0	28.3	54.9	23.4	34.4	21.7	28.8	22.3	31.3		
10	-12.2	33.0	62.2	27.8	39.7	25.8	33.4	26.5	36.2		
15	-9.4	37.8	70.0	32.6	45.3	30.3	38.3	31.0	41.5		
20	-6.7	43.0	78.3	37.8	51.3	35.2	43.7	36.0	47.2		
25	-3.9	49.0	87.3	43.4	57.9	40.5	49.5	41.5	53.3		
30	-1.1	55.0	97.0	49.5	65.2	46.3	55.7	47.4	60.0		
32	0.0	57.5	101.0	52.0	68.0	48.7	58.3	49.8	63.6		
34	1.1	60.2	105.0	54.7	70.6	51.2	61.0	52.4	67.5		
36	2.2	63.0	109.4	57.4	74.0	53.7	63.7	55.0	71.4		
38	3.3	65.7	114.0	60.2	77.0	56.4	66.5	57.7	75.4		
40	4.4	68.6	118.0	63.0	80.2	59.0	69.4	60.4	79.5		
42	5.6	71.5	122.8	66.0	83.6	62.0	72.4	63.3	83.6		
44	6.7	74.5	127.5	69.0	87.0	64.7	75.5	66.2	87.8		
46	7.8	77.6	132.5	72.3	90.6	67.7	78.6	69.2	92.0		
48	8.9	80.7	137.5	75.5	94.2	70.7	81.8	72.3	96.2		
50	10.0	84.0	142.2	78.8	98.0	73.8	85.0	75.5	100.4		
52	11.1	87.3	148.0	82.1	101.7	77.0	88.6	78.8	104.6		
54	12.2	90.8	153.3	85.7	105.6	80.3	92.1	82.1	108.8		
56	13.3	94.3	158.8	89.3	109.6	83.6	95.6	85.6	113.0		
58	14.4	97.9	164.5	93.0	113.7	87.0	99.2	89.1	117.2		
60	15.6	101.7	170.0	96.9	118.0	90.7	103.0	92.8	121.4		
62	16.7	105.4	176.3	100.7	122.3	94.3	106.8	96.5	125.6		
64	17.8	109.3	182.3	104.7	126.7	98.0	110.7	100.3	129.8		
66	18.9	113.2	188.5	108.9	131.2	102.0	114.7	104.2	134.0		
68	20.0	117.2	194.9	113.0	135.8	105.8	118.8	108.3	138.2		
70	21.1	121.4	201.0	117.4	140.6	110.0	123.0	112.4	142.4		
72	22.2	125.7	208.1	121.8	145.4	114.0	127.4	116.6	146.6		
74	23.3	130.0	215.0	126.4	150.3	118.2	131.7	120.9	150.8		
76	24.4	134.5	222.0	131.0	155.4	122.6	136.2	125.4	155.0		
78	25.6	139.0	229.0	135.8	160.5	127.0	140.8	129.9	159.2		
80	26.7	144.0	235.8	140.7	166.0	131.7	145.5	134.6	163.4		
82	27.8	148.2	243.3	145.7	171.4	136.4	150.4	139.3	167.6		
84	28.9	153.4	250.5	150.8	177.0	141.2	155.3	144.2	171.8		
86	30.0	158.3	259.0	156.0	182.6	146.0	160.4	149.2	176.0		
88	31.1	163.0	266.8	161.5	188.4	151.0	165.5	154.3	179.8		
90	32.2	168.0	275.0	167.0	194.2	156.2	170.8	159.5	183.6		
92	33.3	173.4	283.0	172.5	200.3	161.4	176.0	164.9	187.4		
94	34.4	179.4	291.0	178.3	206.4	166.7	181.6	170.3	191.2		
96	35.6	184.6	300.5	184.2	212.7	172.2	187.2	176.0	195.0		
98	36.7	190.2	309.5	190.2	219.0	177.8	193.0	181.6	204.6		
100	37.8	196.0	318.5	196.3	225.6	183.5	198.7	187.4	210.7		
102	38.9	202.4	327.3	202.6	232.2	189.3	204.6	193.4	216.9		
104	40.0	207.5	336.0	209.0	239.0	195.3	210.7	199.5	223.2		
106	41.1	213.4	346.0	215.5	246.0	201.3	217.0	205.7	229.7		
108	42.2	220.0	356.5	222.2	253.0	207.6	223.2	212.0	236.3		
110	43.3	226.0	365.8	229.0	260.3	214.0	229.6	218.5	243.0		
112	44.4	232.3	376.2	236.0	267.7	220.4	236.0	225.0	250.0		
114	45.6	239.5	386.6	243.0	275.2	227.0	242.8	231.8	257.0		
116	46.7	246.0	397.5	250.3	282.8	233.7	249.6	238.7	264.1		
118	47.8	253.0	407.5	257.7	290.5	240.5	256.5	245.7	271.4		
120	48.9	260.0	419.0	265.6	298.5	247.6	263.6	252.8	278.9		
125	51.7	278.0	447.0	285.3	319.2	265.7	281.8	271.3	298.0		
130	54.4	297.0	477.8	306.0	340.6	284.7	300.8	290.7	318.3		
135	57.2	317.0	508.0	327.5	363.3	304.6	320.7	311.0	339.2		
140	60.0	337.0	541.0	351.0	386.0	325.4	341.5	332.2	360.8		

text



R22 VS R410A



R-22 refrigerant phase out

R-22 PRODUCTION DROPS

JAN. 1, 2018
PRODUCTION DROP

30%
9 MM LBS

JAN. 1, 2019
PRODUCTION DROP

55%
4 MM LBS

JAN. 1, 2020
NO NEW OR IMPORTED R-22 ALLOWED IN US

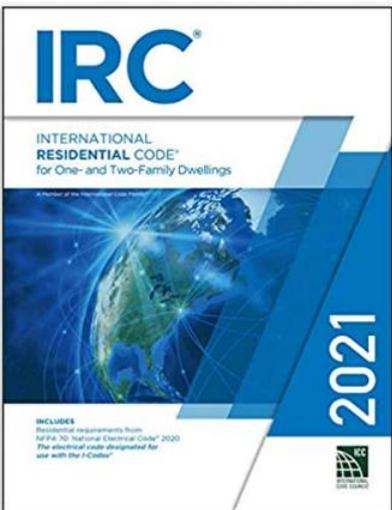
PHASED OUT

This data is subject to change. This chart is based on the best available data believed to be reliable.

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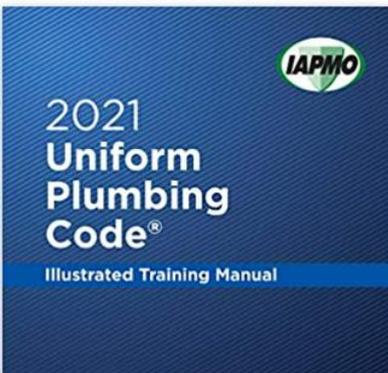
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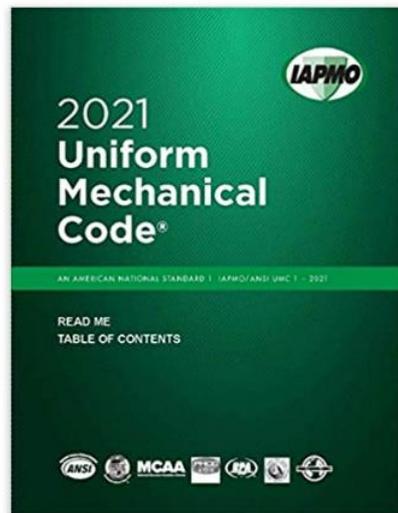
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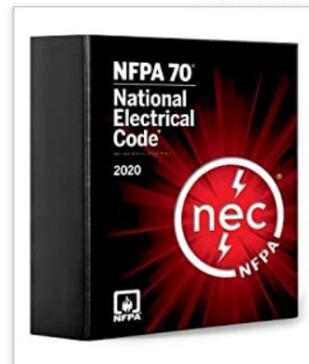
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