



RAC Development



RAC Development New home guide

Custom home design build using building science and biophilic design. Designing and Building comfort and wellness



Design

Expression through design. Your home is who you are. You should be able to describe your passions through your environment. Surrounded by comfort and peace.

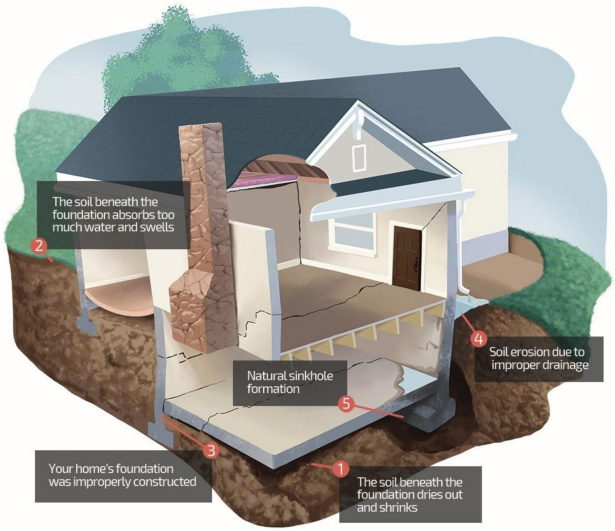


Dirt the most important building material

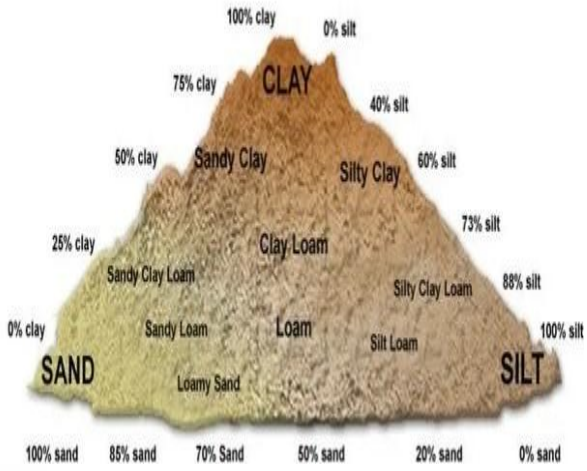
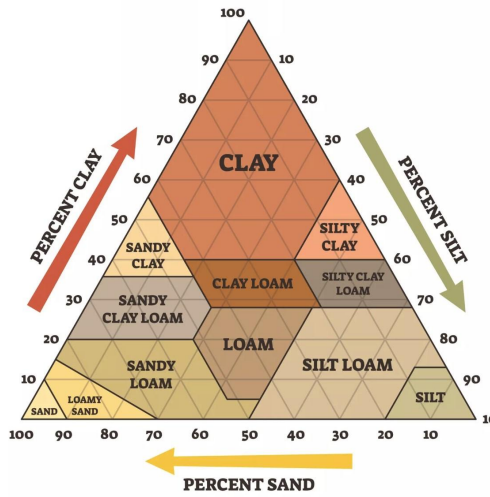
All construction starts with soil, bearing capacity and plasticity. It's very Important to identify your soil condition.

Each site present unique conditions and different options for bearing capacity. Knowing the best foundation for a particular soil type is critical.

5 Causes of Foundation Problems



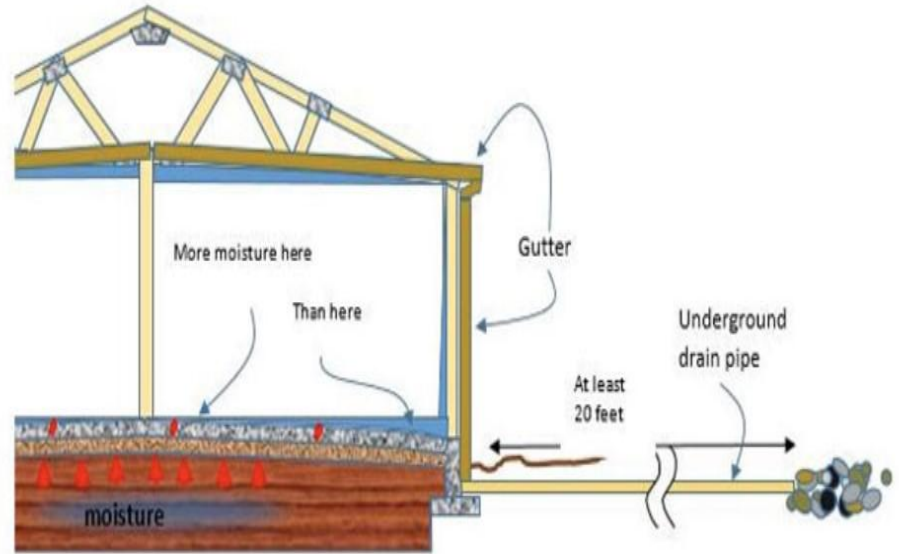
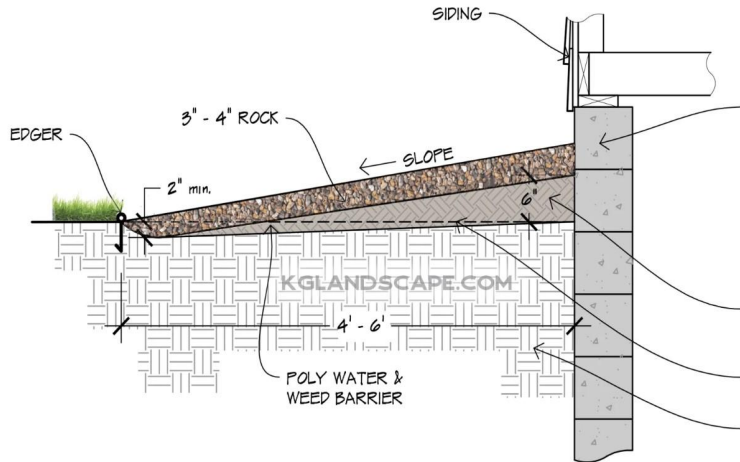
SOIL TYPES



Water is your enemy

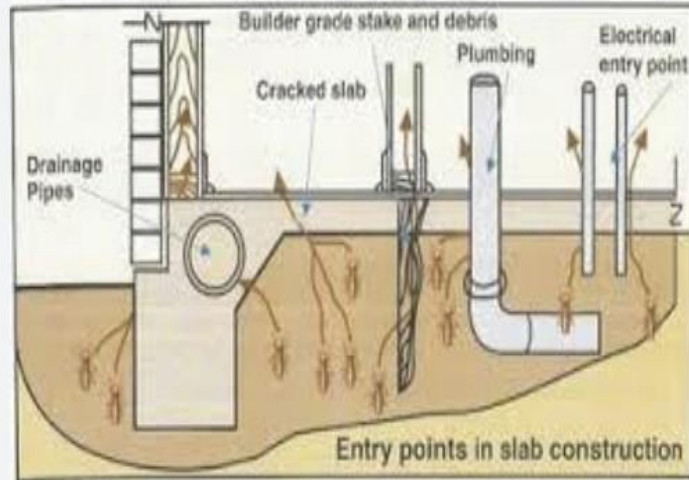
The strongest foundation is no match for hydraulic pressure. Proper grades, drainage and hydrologic barriers are necessary for longevity.

FOUNDATION GRADING



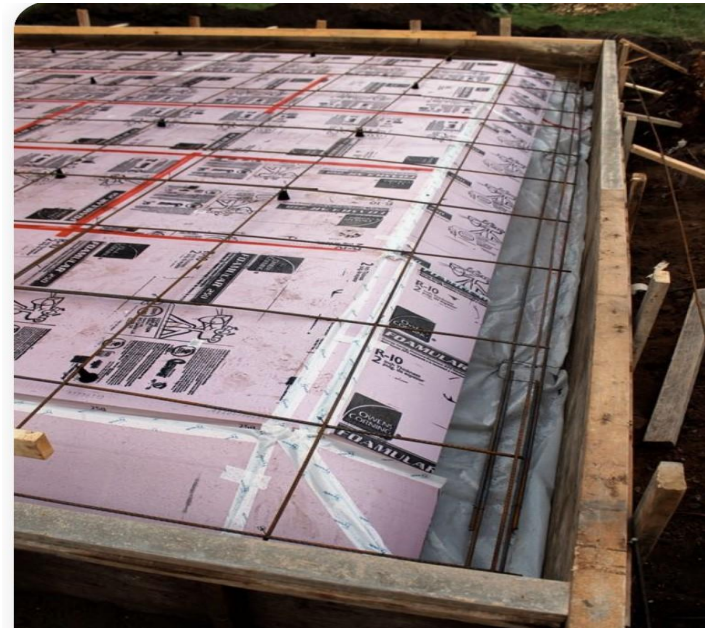
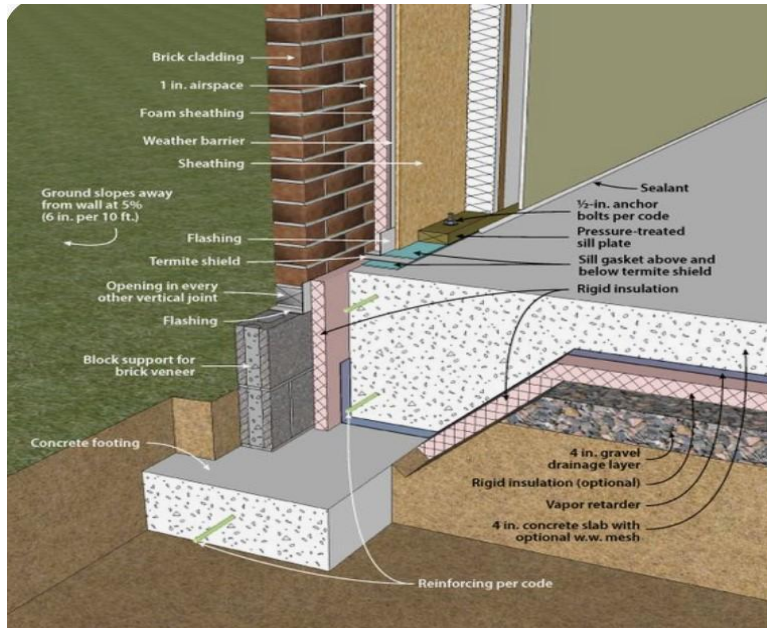
Creepy Crawlies

Definitely want to protect against these. Spray treatment will fade over time. Sealing concrete penetrations is often overlooked.



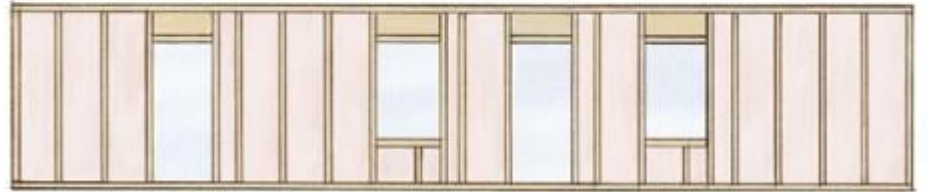
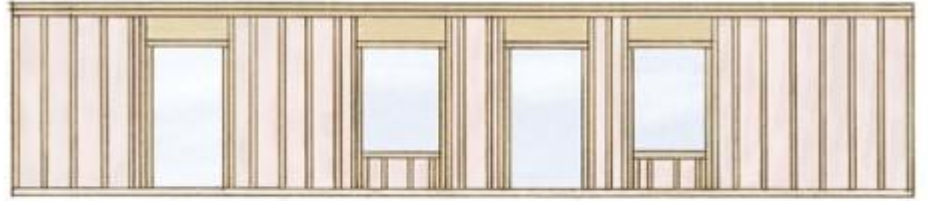
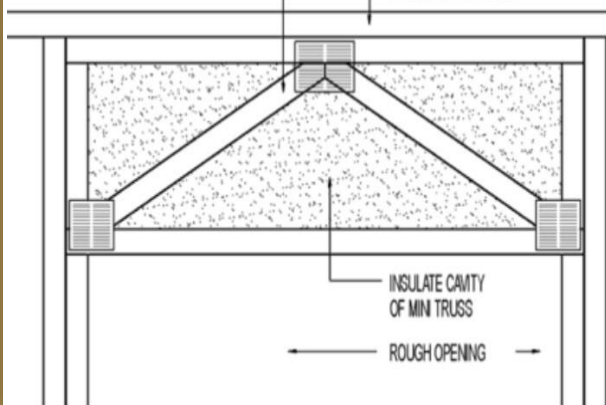
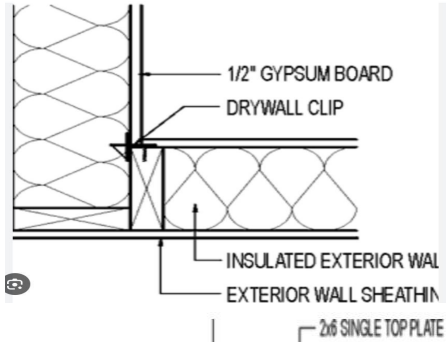
We guarantee your concrete. If your slab is ever stolen we will replace it free of charge.

Concrete like dirt underpins your entire structure and it must be right. Gravel subgrade can reduce hydraulic failures. Rigid insulation can thermally break your floor making your home more comfortable. Concrete mix and slump are important and should be discussed with the concrete sub. Engineering will specify the correct ratios. Don't let them add to much water. Most of your cracking comes from improper slump.



Wood Framing more is better, Right?

Advanced framing can increase thermal resistance by 30% without increasing wall depths. Truss headers are also a big thermal improvement.

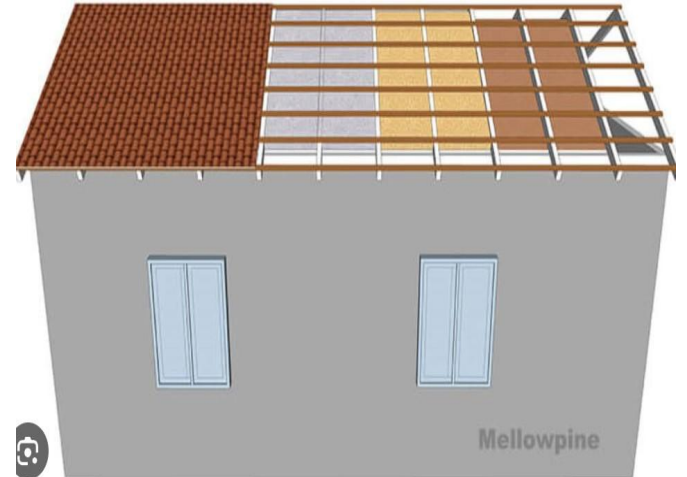


Exterior Substrates protect them quick

Protection for exterior substrates will eliminate swelling and create an effective air barrier. Liquid membranes or pre applied membranes are a great option, creating the primary weather resistive barrier (WRB)



- 2. Continuous Insulation (c.I.)**
 - Polysol has the highest R/inch of any foam plastic insulation
 - Eliminates thermal bridging
 - Allows you to meet or exceed energy code requirements
 - Lowers energy consumption and energy bills
- 3. Air Barrier**
 - Prevents air infiltration
 - Keeps the interior comfortable
 - Makes your HVAC systems run more efficient
- 4. Water-Resistive Barrier (WRB)**



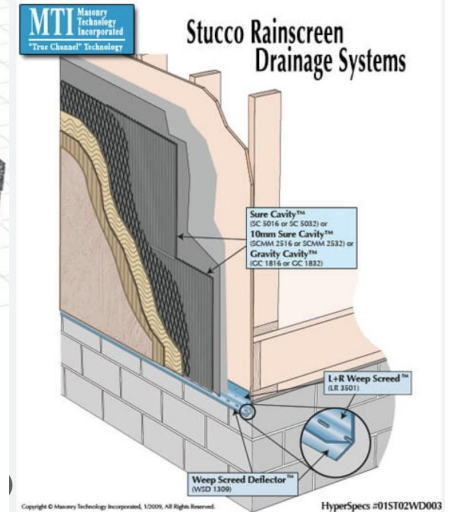
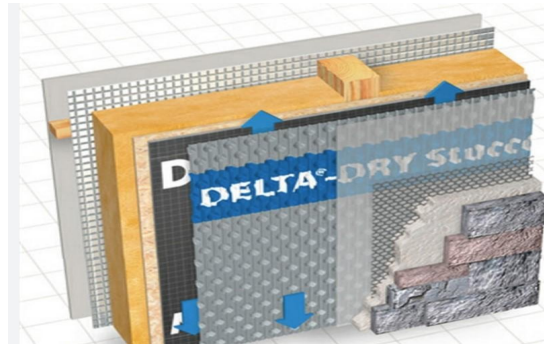
Exterior Sealing this determines your overall comfort

Proper sealing includes air, thermal, radiant, and liquid barriers, while allowing vapor to expel. Knowing how to create this will increase comfort, reduce sound and reduce energy consumption. Dirt or insects should not be able to enter your home with the doors and windows closed. Air Exchanges Per hour is an important number and very few people know what it is. Do you know your ACH?



[PDF] Window and Door Flashing: Code Requirements and Best Practices

[Visit](#)

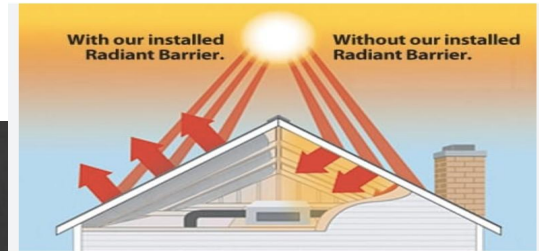


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HyperSpecs #015T02WD003

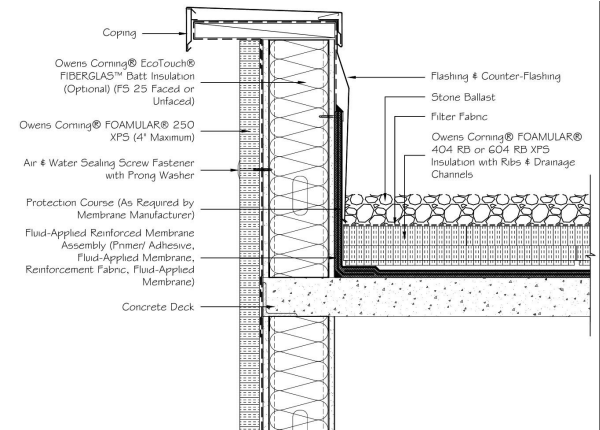
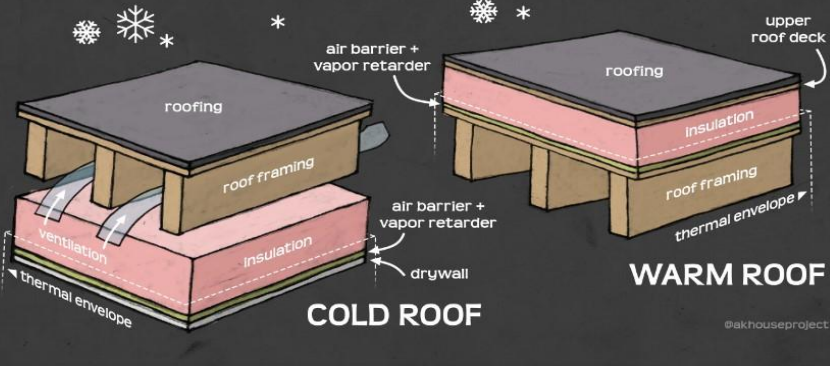
Is my roof warm or cold?

Warm roof construction requires proper assembly to eliminate condensation. Plastic membranes break down with ponding. Silicone coatings do not. Protecting your coating can significantly increase your roof life while reducing heat transfer through absorption. Vetting a flat warm roof will cause rot by lowering the dew point of your roof and causing unseen condensation.



COLD ROOFS vs. WARM ROOFS

In a "cold roof" design, structural roof framing is primarily *outside* of the building's thermal envelope. In a "warm roof" design, structural roof framing is primarily *inside* of the building's thermal envelope.



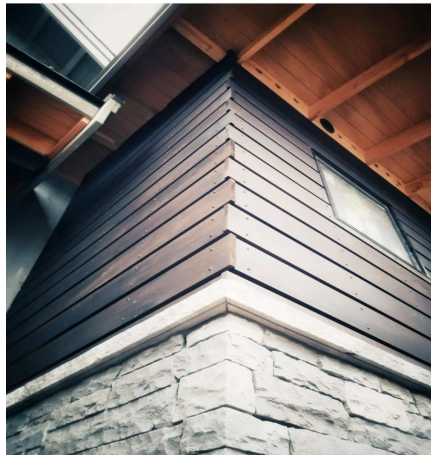
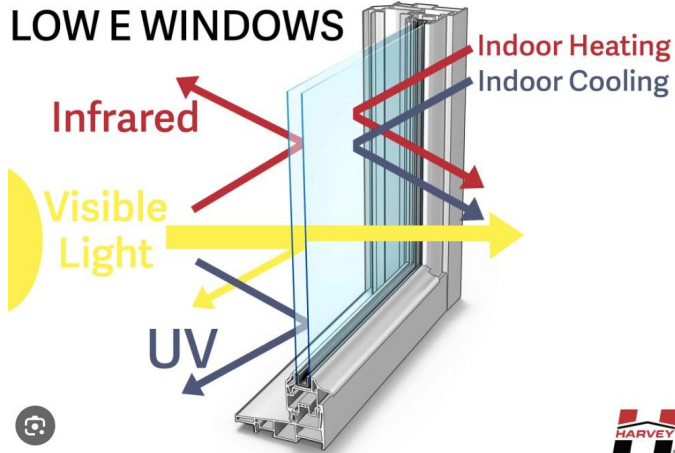
Insulation R value, the higher the better, Right?

Air sealing is more important than high R values. Stopping heat transfer requires a thermal barrier, a convection barrier, and a radiant barrier to be effective. A thermal barrier without thermal bridging or breaks is ideal. Using polyiso instead of poly u for your exterior insulation will give you a continuous thermal, air, and radiant barrier as well as being a secondary WRB. Codes require ACH be under 5, under 1 is what is really needed.



Exterior Finishes So many choices

Extreme climates require materials that won't fail in high heat. Building orientation can drive choices also. All cladding should have a drainage plane allowing vapor to expel. Cementitious products are a good choice in high heat, but not high humidity. Wood is not good in high heat, but good in humid climates. Low E soft coat double pane windows are a necessity. Large western exposures require triple panes.

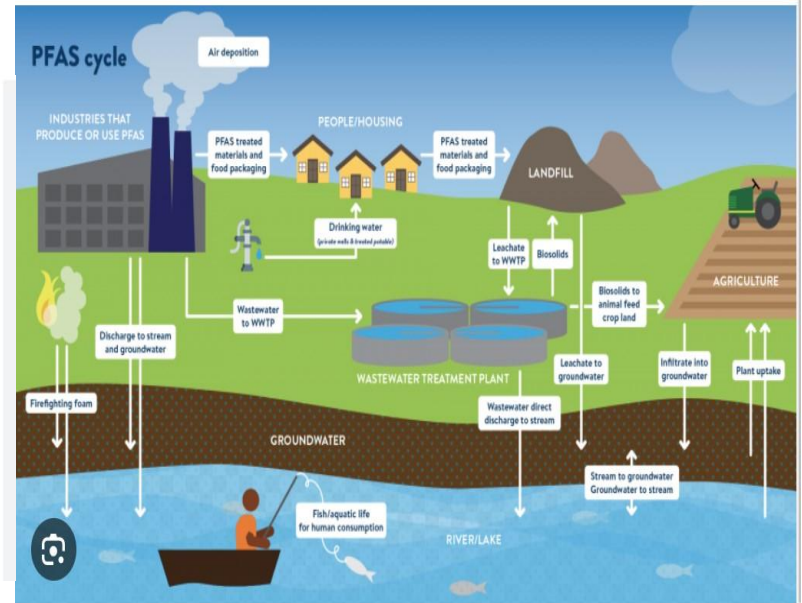
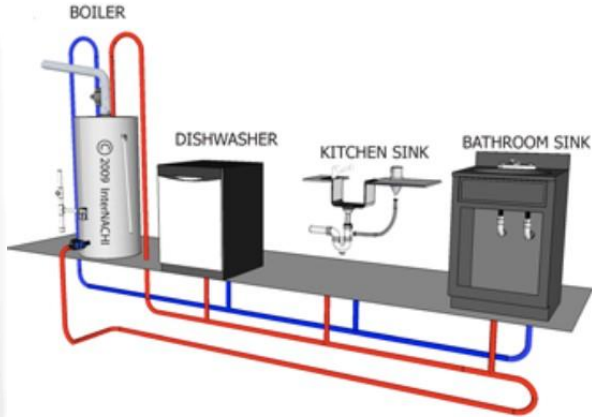


Plumbing is your water hard?

New codes require low flow fixtures and hot water recirculation. Assuring your recirculation is correct before construction is important. With forever chemicals water filtration is more important than ever. 1:1 RO systems, touchless and voice controlled fixtures are trending



DEDICATED LOOP HOT WATER RECIRCULATION SYSTEM



Electrical the future is now

True Low Voltage lighting. RGBW lighting. Motion control. Lighting automation. Lighting is taking leaps and bounds into the future. LED 24V strip and slim fixture, color changing lighting that is sensor controlled is up and coming. Car Chargers are a thing. Be sure to match your wiring with your amperage. Solar pre wiring can be an option.

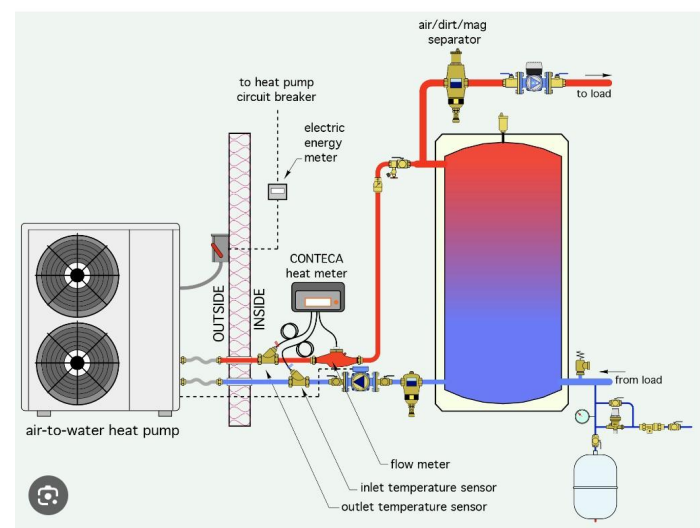
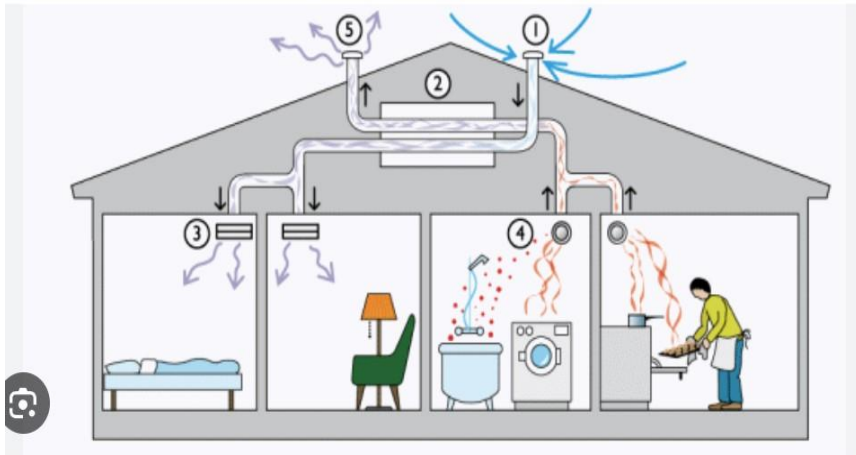


Heating, VENTILATION, Air Conditioning. Don't forget the ventilation.

If you build right your systems can be downsized and will be extremely quiet. Our goal is to have your climate control unrecognizable. Understanding thermodynamics and pre planning is crucial to high performance systems. Every building element dictates how well your HVAC performs. New codes are requiring ventilation system that can exchange inside air with outside air in less than 3 hours. Air to water heat pumps can heat your water and store solar energy



Zenith Ventilation



Drywall it's all the same, Right?

The best thing you can do for drywall is make sure your walls are straight before covering. Using LVL or finger jointed studs will keep your walls straight. Ask your drywaller to confirm the straightness of your walls before hanging the drywall. Use a glass coated drywall in wet or tile areas and do not tape or texture. Use exterior drywall on exterior ceilings. Drywall like Stucco, finishes with a texture or smooth. Renew drywall will trap VOC's for 75 years.



Paint it's all the same, Right?

New Drywall and wood require a primer before painting. Latex drywall primers are pretty much the same and do not need to be expensive. Priming seals the surface and gives an even base. After priming is the time to inspect for drywall imperfections and get them corrected. The higher the solids in paint the better the coverage and higher the cost. Your sheen will determine durability. The higher the sheen the easier to clean and more visible are imperfections. Generally trim, doors shelves will have a higher sheen than walls, and ceilings will have a lower sheen than walls. All products should be low VOC.



How to Choose The Best Paint Finish

Flat / Matte

Ceilings, Adult bedrooms

Eggshell

Living rooms, Shiplap,
Accent Wall

Satin

Furniture, Hallways, Trims &
Doors

Semi-Gloss

Bathrooms, Doors, Trim &
Cabinets

Gloss

Rarely Used
Architectural Elements



Flooring is that wood?

New vinyl flooring simulates wood really well and is cost effective. Large format tile is popular but double or triple the cost of vinyl options. Either way a moisture barrier will be needed for concrete. Tile on wood requires an isolation mat and mortar bed. If your floor moves the flooring will crack. If your floor gets wet from below your flooring will come loose. Glue down wood is popular and most glues have a moisture barrier in them. Stained concrete is an option, but requires special care during construction.



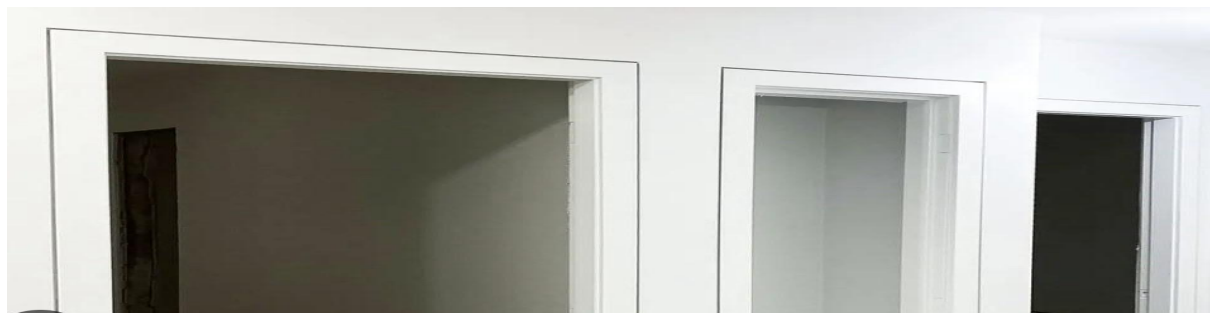
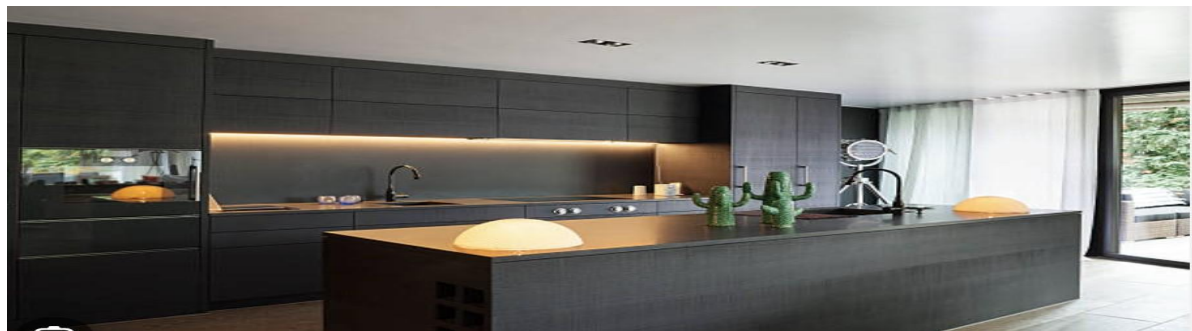
Tile surrounds I've seen some pretty creepy stuff!

Showers sealing is important and often done wrong. With glass mat drywall it's getting easier, but still often not done right. Curbless shower require recess floors and pre planning. Mosaic tiles work well on sloped floors. Linear drains are trending. As well as spa baths. Mosaic makes a great backsplash



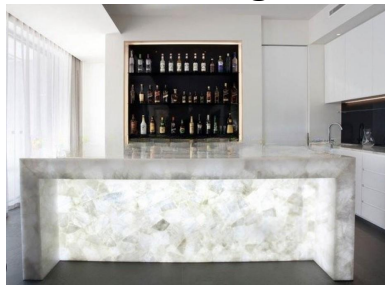
Millwork less is more

Modern minimalist lines are trending in millwork flat handleless cabinets and clean door lines. Modern farmhouse Kitchens are also popular. I like shadow lines on trim. Floating vanities are all the rage.



Countertops so many choices.

Countertops choices are only limited by the imagination. Engineered products like Dekton, and Quartz are the most durable and mimic natural Stone. Natural stone, granite, marble, soapstone are also popular. Concrete, wood, tile, steel, and backlit glass/onyx are also options. All have pros and cons, but stone, or engineered stone are most often chosen. Waterfall edges are trending.



Accent walls & Ceilings. The fun stuff.

Adding treatments to a wall in your powder, master, living will make your home unique. Everything goes, stone veneer, wood paneling, wall paper, tile. Backlighting can really show off your home. Salt walls, translucent stone, printed stretch. Stretch PVC can be used as a ceiling accent also.



Glass is last

Shower glass and mirrors will complete your project. Frameless or Euroglass is very popular. Back painted glass can be used for backsplashes. Mirrors with integral lighting are popular. Glass can be patterned, mirrored, shaded and shaped.





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Thank you for your interest
Please contact us for more information



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