

MINIMUM INSULATION REQUIREMENTS:

- MINIMUM INSULATION LEVELS REQUIRED TO SATISFY THE 2006 INTERNATIONAL RESIDENTIAL CODE ARE SHOWN IN THE TABLE BELOW. EASTERN PA IS IN ZONE 4, NEAR THE BORDER AREA BETWEEN CLIMATE ZONE 4 & 5.
- NOTE: THESE ARE CODE MINIMUMS; HIGHER VALUES MAY BE PRUDENT TO CONTAIN ENERGY COSTS. INSULATION SYSTEMS WHICH ARE MOST EFFECTIVE IN DEFEATING "AIR INFILTRATION" ARE HIGHLY RECOMMENDED. AIR INFILTRATION IS A MAJOR FACTOR IN DETERMINING THE EQUIPMENT SIZING OF HVAC SYSTEMS. OTHER COST SAVING MAY ALSO BE ACHIEVED.
- WHEN BUILDINGS ARE MADE HIGHLY RESISTANT TO AIR INFILTRATION, THEN ENERGY RECOVERING, FRESH AIR EXCHANGE SYSTEMS ARE RECOMMENDED. SEE OTHER NOTES.
- THE CODE MEASURES INSULATION BASED SOLELY ON THE ACTUAL INSULATION MATERIALS INSTALLED. IT IS NOT A "CUMULATIVE COMPOSITE MEASURE," MEANING THE FRAMING, DEAR AIR SPACES, DRYWALL, SHEATHING, ETC. DOES NOT CONTRIBUTE.

LOCATION	MIN. INSULATION FACTOR	DESCRIPTION
WINDOW GLAZING	U-0.45 U-0.40	THIS IS WINDOWS AND DOOR GLAZING. UNITS MUST DISPLAY THE MANUFACTURER'S DATA
SKYLIGHTS	U-0.60	SKYLIGHT UNITS MUST DISPLAY THE MFG'S DATA
CEILING	R-38	THIS IS THE HIGHEST CEILING UNDER THE ATTIC DECK. IF A "FLAT" ROOF OR CATHEDRAL CEILING THIS IS THE RATING REQUIRED IN THE RAFTERS
WALLS	R-13 IS CODE MIN., R-19 RECOMMENDED	THIS IS PERIMETER ABOVE GRADE EXTERIOR WALLS.
FLOORS	R-19 MIN. R-30 RECOMMENDED	WHEN THE FLOOR IS OVER AN NON-INSULATED BASEMENT OR CRAWLSPACE. CAREFUL ATTENTION IS RECOMMENDED AT THE EXTERIOR FLOOR PERIMETER (THE RIBBON BAND) WHERE THE INSULATION SHOULD BE INSTALLED SIMILAR TO WALLS WITH VAPOR BARRIER FACING THE WARM OR INTERIOR SIDE.
BASEMENT PERIMETER WALLS	R-10 / 13 R-19 RECOMMENDED	WHEN THE BASEMENT IS A CONDITIONED, OR OCCUPIED SPACE THIS RATING IS REQUIRED. IF THE BASEMENT PERIMETER IS INSULATED, THEN THE FLOOR ABOVE IS NOT REQUIRED TO BE INSULATED. INSULATION SHALL EXTEND FROM THE BOTTOM OF THE FLOOR DECK ABOVE TO THE BASEMENT FLOOR.
SLAB PERIMETER	R-10 R-19 RECOMMENDED	SLABS MUST BE SEPARATED FROM THE EARTH BY THIS RATING FOR A MINIMUM DISTANCE OF 24" EITHER VERTICALLY AGAINST THE FOUNDATION WALL, OR HORIZONTALLY UNDER THE SLAB IN FROM THE EXTERIOR. (NOTE: THIS ARCHITECT RECOMMENDS 36" OR MORE, AS THE MIN. DISTANCE FOR REAL ENERGY SAVING)
CRAWLSPACE WALLS	R-10 / 13 R-19 RECOMMENDED	IF THE FLOOR ABOVE IS NOT INSULATED, AND IF A CRAWLSPACE IS NOT VENTED TO THE EXTERIOR, THEN THIS RATING IS REQUIRED. INSTALL SIMILAR TO DESCRIPTION FOR BASEMENT WALLS.

INSULATION: URETHANE SPRAY FOAM SYSTEMS

- INSULATION: MATERIAL SHALL BE CLOSED CELL, URETHANE BASED, WITH NO FORMALDEHYDE PRODUCTS. R-VALUE IS GENERALLY 6 PER INCH, AGED. PRODUCT SHALL BE EXPANDING, SELF SKINNING, AND SHALL QUALIFY AS A VAPOR BARRIER WHEN APPLIED AT A THICKNESS OF 2-1/2 INCHES OR GREATER. PRODUCT SHALL BE FROM A NATIONALLY RECOGNIZED MANUFACTURER.
- CODE REQUIREMENTS: THE BUILDING CODE HAS SPECIFIC REQUIREMENTS FOR THE PROTECTION OF FOAM PLASTIC INSULATIONS. IN GENERAL A 20-MINUTE RATED IGNITION BARRIER IS REQUIRED IN ALL OCCUPIED SPACE, INCLUDING ACCESSIBLE ATTICS. THE INSTALLER SHALL BE EXPERT IN UNDERSTANDING CODE REQUIREMENTS AS THEY APPLY TO THESE PRODUCTS. INSTALLER SHALL PROVIDE QUALIFYING SPRAY APPLIED IGNITION BARRIERS WHEN REQUIRED.
- INSTALLER SHALL BE EXPERT IN THE USE AND APPLICATION OF THESE SPRAY FOAM PRODUCTS, WITH A MINIMUM OF 3-YEARS EXPERIENCE AND CERTIFIED BY THE MANUFACTURER OF THE PRODUCTS BEING USED.
- NON-VENTILATED ATTICS: ATTICS DO NOT REQUIRE VENTILATION WHEN THE INSULATION SYSTEM IS SPRAY APPLIED DIRECTLY TO THE UNDERSIDE OF THE ROOF SHEATHING AND ATTIC WALLS. THE SYSTEM QUALIFIES AS A VAPOR BARRIER, AND MOVES THE DEW-POINT OUTSIDE THE BUILDING ENVELOPE. WHEN THIS SYSTEM IS USED, NO SOFFIT OR RIDGE VENTING IS USED. IN SUMMARY, THIS SYSTEM PART OF THE TOTAL HOUSE INSULATED ENVIRONMENT. DUCTWORK IN ATTICS WILL NOT REQUIRE ANY INSULATION UNLESS IT IS TO PREVENT "SWEATING." IT IS NOT THE TOTAL VOLUME OF SPACE HEATED (OR COOLED) THAT COSTS MONEY, IT IS THE RATE AT WHICH HEAT IS LOST, OR GAINED, WHICH DETERMINES ENERGY COST.
- AIR BARRIER: THE ENERGY CONSERVATION CODE NOW REQUIRES AN "AIR BARRIER" TO RETARD INFILTRATION OF EXTERIOR AIR. ONE-THIRD OF TYPICAL HEAT LOSS CALCULATIONS IS DUE TO INFILTRATION. WHEN STUD CAVITIES ARE FILLED WITH FIBROUS INSULATION, A WIND SPEED OF AS LITTLE AS 5-MPH CAN INDUCE A CIRCULAR AIR FLOW WITHIN EACH CAVITY ACCELERATING HEAT LOSS AND DRAMATICALLY REDUCING THE ASSUMED R-VALUE. THE LABOR INTENSIVE METHOD OF INSTALLING BATTS ALSO CONTRIBUTES TO LESS THAN PERFECT INSTALLATIONS.
- VAPOR BARRIER: IN COOL CLIMATES, INTERIOR VAPOR BARRIERS ARE REQUIRED TO PREVENT TRANSFER OF MOISTURE FROM WARM CONDITIONED SPACE INTO THE PERIMETER WALL CONSTRUCTION WHERE IT WILL CONDENSE ON THE COOLEST WALL SURFACE, GENERALLY THE EXTERIOR SHEATHING, AND CAN DETRIORATE THE FRAMING. FITTING OF INDIVIDUAL BATTS WITH INTEGRAL VAPOR BARRIERS IS A LESS THAN PERFECT METHOD OF ACHIEVING A GOOD BARRIER. A BETTER METHOD IS TO DRAPE WALLS WITH A SEPARATE VAPOR BARRIER SHEET, GENERALLY 6 MIL POLY. NOTE: THE BATT VAPOR BARRIER MUST BE "SLASHED" BEFORE THE POLY IS HUNG. NOTE: HANGING THE POLY THEN PREVENTS GLUING THE GYPSUM BOARD TO STUDS, INCREASING FINISHING COSTS.
- CLOSED CELL SPRAY FOAM SATISFIES BOTH THE AIR BARRIER REQUIREMENT, AND THE VAPOR BARRIER, AND ALLOWS NO AIR FLOW WITHIN THE STUD CAVITY.
- UNDER SLAB INSULATION: GROUND TEMPERATURE BELOW STRUCTURES IS GENERALLY 55 DEGREES FAHRENHEIT, MAKING SLABS ON GRADE THE COOLEST SURFACE IN A CONDITIONED STRUCTURE. BECAUSE HEAT ALWAYS MOVES TOWARDS COLD, AND WARM AIR CARRIES MORE MOISTURE THAN COOL DRY AIR, THIS CONTRIBUTES TO SLABS-ON-GRADE FEELING "COLD AND CLAMMY." TO CONSERVE ENERGY, AND INCREASE COMFORT, CONSIDER INSULATING UNDER THE ENTIRE SLAB BY SPRAYING 2-INCHES OF URETHANE FOAM DIRECTLY TO THE PREPARED SUBGRADE, THEN POUR THE SLAB. THIS ALSO QUALIFIES AS THE REQUIRED VAPOR BARRIER. WITH THE SLAB SO ISOLATED, IT WILL GENERALLY BECOME CLOSE TO THE AMBIENT AIR TEMPERATURE. WARM FEET MAKE HAPPY PEOPLE.

SELECTED SPRAY FOAM INSULATION INSTALLER SHALL PROVIDE ALL MANUFACTURER'S DATA AND TEST RESULTS REGARDING: FLAME SPREAD RATING, SMOKE DEVELOPED.

SELECTED SPRAY FOAM INSULATION INSTALLER SHALL PROVIDE ALL MANUFACTURER'S DATA AND TEST RESULTS REGARDING SURFACE, OR SPRAY, APPLIED IGNITION BARRIERS.

SELECTED SPRAY FOAM INSULATION INSTALLER SHALL PROVIDE NECESSARY INFORMATION, ATTENTION, AND EDUCATION, AS REQUIRED TO SATISFY THE MUNICIPAL CODE REVIEWER AND INSPECTOR.

FIRESTOPPING

- FIRESTOPPING SHALL BE INSTALLED, REVIEWED, & APPROVED DURING FRAMING INSPECTIONS, & BEFORE ROUGHING IN OF ANY PLUMBING, ELECTRICAL OR HVAC WORK.
- FIRESTOPPING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIRESTOPPING SHALL BE PROVIDED IN WOOD-FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:
 - IN CONCEALED SPACES OF STUD WALL AND PARTITIONS, INCLUDING FURRED SPACES AND STUDDOED OFF SPACES OF MASONRY OR CONCRETE WALLS, AT THE CEILING AND FLOOR LEVEL;
 - AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, SOFFITS OVER CABINETS, DROP CEILING, COVE CEILING, ETC.
 - IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF RUN;
 - IN EXTERIOR CORNICES AND OTHER EXTERIOR ARCHITECTURAL ELEMENTS WHERE PERMITTED OF COMBUSTIBLE CONSTRUCTION OR WHEN ERECTED WITH COMBUSTIBLE FRAMES, AT MAX. INTERVALS OF 20 FT. IF NONCONTINUOUS, THEY SHALL HAVE CLOSED ENDS, WITH AT LEAST 4" OF SEPARATION BETWEEN SECTIONS.
 - IN THE SPACE BEHIND COMBUSTIBLE TRIM AND FINISH WHERE PERMITTED AND ALL OTHER HOLLOW SPACES WHERE PERMITTED IN FIRE RESISTANCE RATED CONSTRUCTION AT 10' INTERVALS; OR THE SPACE SHALL BE COMPLETELY FILLED WITH NONCOMBUSTIBLE MATERIALS.
 - IN CONCEALED SPACES FORMED BY FLOOR SLEEPERS IN AREAS OF NOT MORE THAN 100 SQ.FT.; OR THE SPACE MAY BE COMPLETELY FILLED WITH NONCOMBUSTIBLE MATERIALS.
 - AT OPENINGS AROUND VENTS, PIPES, DUCTS, CHIMNEYS AND FIREPLACES AT CEILING AND FLOOR LEVELS, WITH NONCOMBUSTIBLE U.L. RATED SYSTEMS AND MATERIALS.
- FIRESTOPPING SHALL CONSIST OF 2-INCH NOMINAL LUMBER WITH TIGHT JOINTS, OR TWO THICKNESS OF 1-INCH NOMINAL LUMBER WITH BROKEN LAP JOINTS, OR ONE THICKNESS OF 23/32-INCH PLYWOOD WITH JOINTS BACKED BY 23/32-INCH PLYWOOD, OR OTHER APPROVED MATERIALS SECURELY FASTENED IN PLACE.
- THE INTEGRITY OF ALL FIRESTOPS SHALL BE MAINTAINED AND SHALL NOT BE CONCEALED UNTIL INSPECTED AND APPROVED.

FIBERGLASS ROOF SHINGLE SYSTEM

- WIND RESISTANCE U.L. INC. LISTING CLASS "A". FIRE RATING: U.L. INC. LISTING CLASS "A". WEIGHT MIN. 200 LBS./SQUARE MIN. EXPOSURE MANUFACTURER'S RECOMMENDATIONS, HEAD CAP 2" MINIMUM. SUBMIT TECHNICAL PRODUCT DATA, INSTALLATION INSTRUCTIONS, AND RECOMMENDATIONS. PROVIDE FULL RANGE OF SAMPLES OF COLOR AND TEXTURE FOR OWNER'S SELECTION. PROVIDE SHINGLE MANUFACTURER WARRANTY ON INSTALLED WORK. PERIOD OF WARRANTY IS 30 YEARS FROM DATE OF SUBSTANTIAL COMPLETION. COLOR RECOMMENDED SHALL BE A "GREY/BLUE" WEATHERED WOOD SHAKE REPLICATION. COLOR AND MFG. SHALL BE CONFIRMED BY OWNER.
- MAINTENANCE STOCK SHALL BE 2% OF EACH TYPE/COLOR/TEXTURE OF SHINGLE USED IN THE WORK. DELIVER TO OWNER FOR STORAGE.
- HORSE FEATHERS: AT THE GABLE EDGES OF ALL ROOFS (ABOVE RAKE BORDERS), INSTALL ONE PIECE OF TAPERED "CLAPBOARD" CEMENT FIBER BASED SIDING TO BUILD A SLIGHT "RAMP" RETARDING WATER FROM ROLLING OFF EDGES INSTEAD OF DOWN SLOPE TO GUTTERS. HORSE FEATHERS SHALL BE ATTACHED TO THE ROOF SHEATHING AND BE COVERED WITH ROOFING FELT OR ICE BARRIER.
- PROVIDE BLACK ALUMINUM METAL DRIP EDGES AT ALL, EAVE AND GABLE, ROOF EDGES.
- FELT UNDERLAYMENT SHALL COMPLY WITH ASTM D 250, MIN. 30 LB.
- ICE DAM PREVENTION MEMBRANE (ICE SHIELD) SHALL BE INSTALLED STARTING AT THE EAVE EDGE, AND EXTEND A MIN. 36" UP THE ROOF SLOPE, MEASURED FROM THE INTERIOR FACE OF THE WALL BELOW. SHALL BE COMPATIBLE WITH THE SHINGLE SELECTED.
- ADD OPTION: COVER ENTIRE ROOF WITH "ICE SHIELD."
- VALLEY FLASHINGS SHALL BE EXPOSED METAL WITH MIN. 2" EXPOSURE UP EACH OPPOSING ROOF SLOPE. USE COPPER OR VERIFY OWNER'S APPROVAL FOR OTHER MATERIAL. USE ICE DAM MEMBRANE UNDER ALL VALLEYS.
- ABUTTING ALL VERTICAL SURFACES, INSTALL METAL STEP FLASHING, IN COMPLIANCE WITH RECOMMENDATIONS OF THE NRCA STEEP ROOF MANUAL. BUILD IN FLASHING AS WORK PROGRESSES, WORKING BETWEEN SHINGLES AS THEY ARE LAID. WHEREVER STEP FLASHINGS ARE REQUIRED, PROVIDE EXPOSED COUNTER FLASHING.
- PLUMBING VENT STACK FLASHINGS, AND SIMILAR, SHALL BE NEW NEOPRENE BOOTS.

PLUMBING: GENERAL

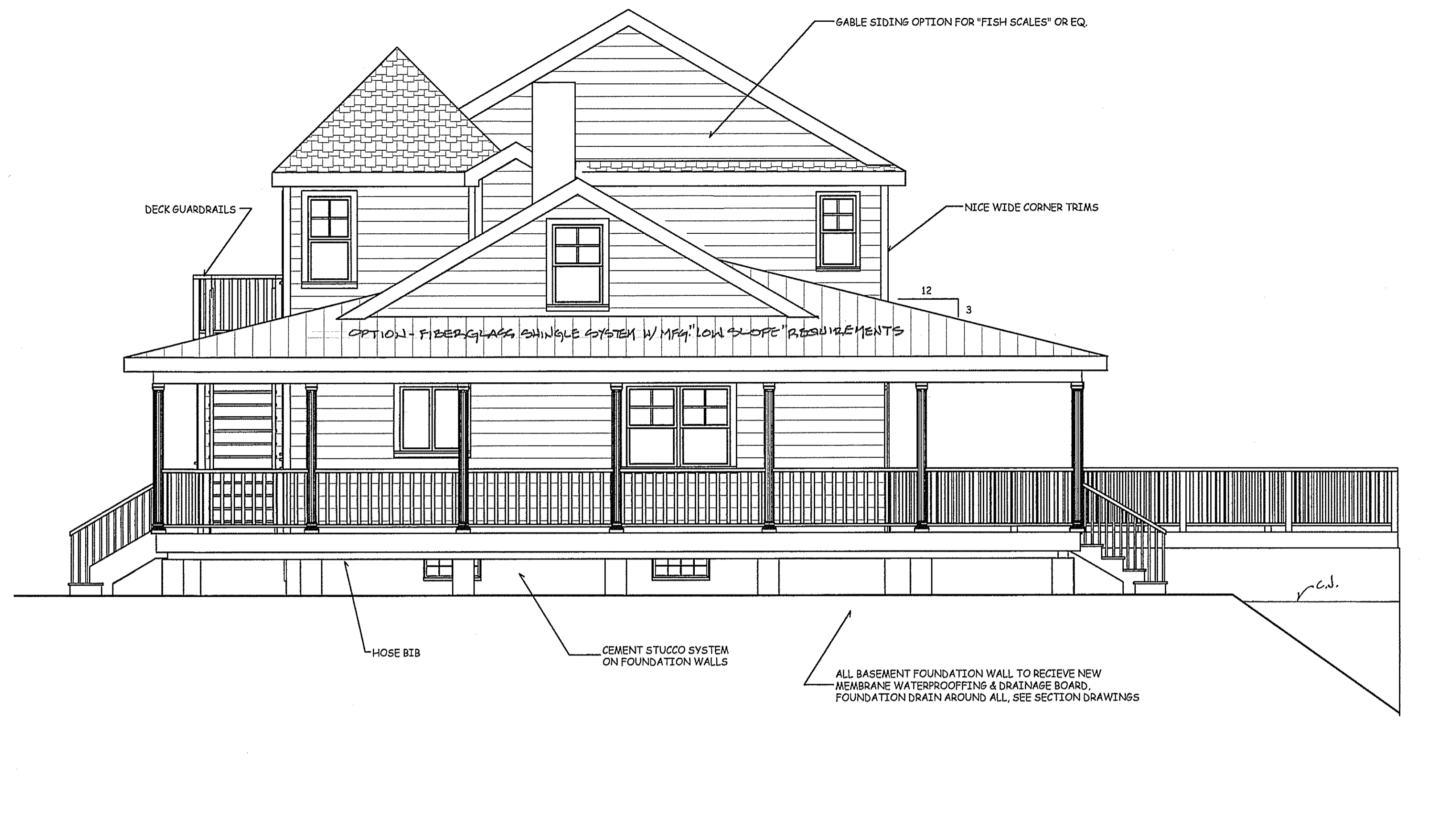
- PLUMBING SHALL BE DONE IN ACCORDANCE WITH MUNICIPAL STANDARDS AND CODE BY LICENSED PLUMBERS. VERIFY MUNICIPAL REQUIREMENTS. PLUMBER SHALL COMPLETE HIS PART OF THE BUILDING PERMIT APPLICATION. IF MUNICIPAL REQUIRES PLUMBING RISER DIAGRAMS OR SCHEMATICS THEN PLUMBING CONTRACTOR SHALL PROVIDE.
- GENERAL: PLUMBING CONTRACTOR SHALL COMPLETE HIS PART OF THE BUILDING PERMIT APPLICATION. IF MUNICIPALITY REQUIRES SCHEMATICS, CALCULATIONS, DIAGRAMS, OR CATALOG CUTS, THEN HVAC CONTRACTOR SHALL PROVIDE.
- AFTER INSTALLATION, SEAL THE PASSAGE OF ALL PIPES THROUGH FLOORS, WALL PLATES (TOP AND BOTTOM, INTERIOR OR EXTERIOR WALLS) WITH EXPANDABLE URETHANE FOAM TO PREVENT VERTICAL PASSAGE OF AIR.
- TAKE SPECIAL PRECAUTIONS WITH CUTTING AND PATCHING JOISTS. DO NOT NOTCH JOISTS, DRILL HOLES ONLY IN PROPER LOCATIONS AT CENTER OF JOISTS, SEE CODE AND SEE SPECIFIC DETAILS PROVIDED IN THE ENGINEERED TIMBER CATALOG.

PLUMBING: SUPPLY PIPING WITH PUBLIC WATER

- THE NEW STARTING POINT FOR WATER DISTRIBUTION IS THE EXISTING WATER METER.
- PROVIDE NEW WATER SOFTENER SYSTEM. RECOMMENDED EQUIPMENT MANUFACTURER IS ERIE. ALL WATER TO BE SOFTENED, EXCEPT PROVIDE A SEPARATE, NOT SOFTENED, COLD WATER LINE TO THE KITCHEN SINK FOR THE UNDER COUNTER WATER FILTER WITH SEPARATE FAUCET. KITCHEN SINK FAUCET CAN SHARE THIS LINE AS THE COLD WATER TO SINK DOES NOT NEED SOFTENING. DO NOT SOFTEN EXTERIOR HOSE BIBS.
- WATER FILTER: FOR DRINKING WATER AT KITCHEN SINK, INSTALL UNDER CABINET HIGH QUALITY FILTER SYSTEM WITH SEPARATE FAUCET. UNIT SHALL HAVE EASY CHANGE FILTER CARTRIDGES, PROVIDE WITH UN-SOFTENED WATER.
- NEW BOILER, (IMPORTANT) CONNECT TO SOFTENED COLD WATER.
- DISHWASHER: TO AVOID "GURGELING" AT THE KITCHEN SINK TRAP, DO NOT PLUMB THE DISHWASHER DRAIN THROUGH THE KITCHEN SINK TAILPECE. PROVIDE SEPARATE DRAIN.
- EXTERIOR HOSE BIBS SHALL BE FROST PROOF. INSTALL WITH BACK DRAIN FEATURE.
- ALL SUPPLY PIPING SHALL BE COPPER. PROVIDE FULL 3/4" MAINS ALL THE WAY TO EACH FIXTURE WITH 1/2" RISERS AT INDIVIDUAL FITTINGS AS REQUIRED. PROVIDE SHUT-OFF VALVES FOR EACH FIXTURE SUPPLY.
- USE "BALL VALVES" ONLY FOR ABSOLUTELY EVERYTHING, NO GATE TYPE VALVES. TAKE PRECAUTIONS NOT TO LIMIT PRESSURE TO REMOTE LOCATIONS.
- PROVIDE "SHOCK" RISERS AT ENDS OF MAINS. PROVIDE EXPANSION TANK ON HOT WATER SUPPLY.
- HOT WATER TO BE PROVIDED BY A GLASS LINED, INSULATED STORAGE TANK LOCATED WITH THE NEW BOILER. SEE PLANS FOR LOCATION, INTEGRATE WITH BOILER CONTROLS.
- ALL PIPES LOCATED IN EXTERIOR WALLS SHALL BE INSULATED.

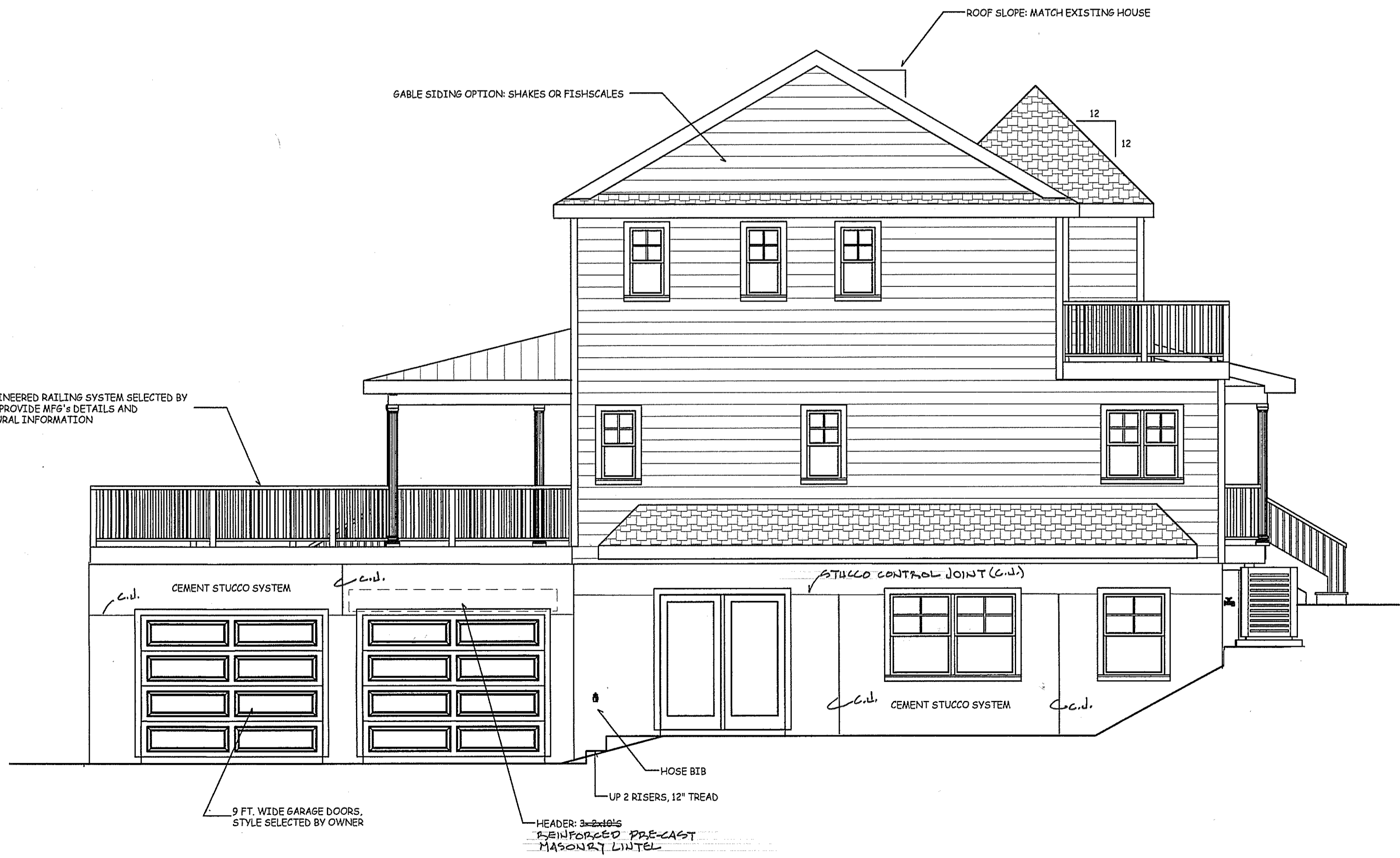
PLUMBING: SANITARY

- CONNECT NEW PLUMBING SANITARY WORK TO EXISTING LATERAL. SEE FOUNDATION PLAN FOR LOCATION OF NEW LIFT PUMP SYSTEM.
- ALL PVC WASTE PLUMBING BUILT INTO FLOOR DECKS AND BUILT INTO WALL CAVITIES SHALL BE COMPLETELY SURROUNDED WITH FIBERGLASS SOUND INSULATION.



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SOUTH FACING EXTERIOR ELEVATION



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NORTH FACING EXTERIOR ELEVATION

SCALE 1/4" = 1'-0"

DATE	REVISION DESCRIPTION
OCT. 25, 2007 <td></td>	
MAY 01, 2008 <td></td>	
5-23-08 <td>PER PERMIT REVIEW</td>	PER PERMIT REVIEW

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ADDITIONS & RENOVATIONS
 for Jack and Joanna Pitula
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Sheet No.
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