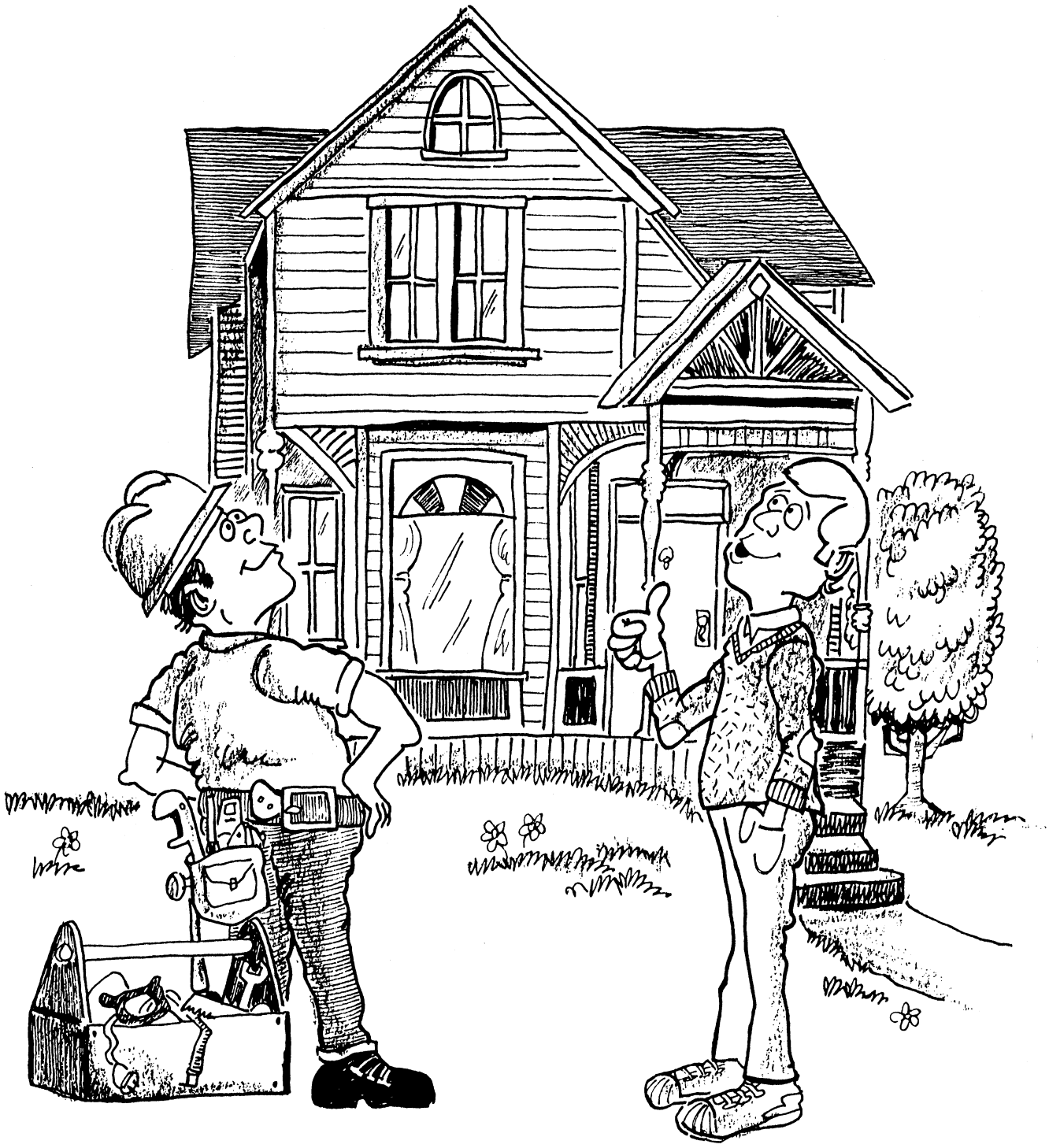
QUALITY CONTROL

If enough people think of a thing and work hard enough at it,
I guess it's pretty nearly bound to happen,
wind and weather permitting.

- Laura Ingalls Wilder



QUALITY CONTROL

Supervision of your project requires a consistent, organized approach to each phase of construction checking the work performed against ***Drawings, Specifications, and your Terms*** with Trade Contractors and Suppliers. Your daily and weekly construction *"Quality Control"* inspections will be much more than examining materials and methods; this will be an opportunity to greet people, establish relationships, as well as look for hazardous conditions or unsafe practices.

Your first concern should be for people. While greeting workers make sure the site is clean and orderly. Using the *"Safety Checklist"* be alert for problem areas or behaviors. Your arrival will make workers self-conscious so use this safety tour to put them at ease as well as examine their working conditions. Any problems need to be dealt with ***directly yet diplomatically.*** Best procedure is to deal with the lead person of the crew in error rather than breaking the chain of command by going directly to a crew member.

Once the safety and social issues are completed, your attention can focus on construction work. Look over work in progress and check it against Drawings and Specifications. Don't be afraid to carry a clipboard and 35 mm camera or video camera recorder to document your observations (See *"Punch List"* on Page 128-131). Keep in mind the project's schedule especially in regards to the ***appropriate sequence of work flow.***

Remember: there's no such thing as a dumb question so don't be afraid to ask. Record key questions and answers.

Given the variety of circumstances in residential construction, it becomes very difficult to create checklists covering all circumstances. Although the following checklists may seem comprehensive, they should be regarded as a guide. They are not a substitute for ***good observation and critical thinking.***

PRECONSTRUCTION

*** Site Access**

___ Check type, surface, and capacities of roads
___ Check traffic flow
___ Check number of entrances to site
___ Check condition of driveway
___ Check overhead electrical utilities
___ Check street signs and directions

*** Temporary Facilities**

___ Check location for job shack
___ Check location for sanitary shack
___ Check location for temporary fences if required
___ Check adequacy of parking spaces
___ Check availability of local storage areas
___ Check areas for stockpiling materials

*** Storage and Protection**

___ Check relation of storage areas to traffic flow
___ Check future activities such as trenches, fills, rockeries
___ Check material to be first-in and first-out
___ Check security precautions
___ Check necessity for tarps or plastic covers
___ Check protection for finished surfaces
___ Check materials that may require heated space

*** Cleaning and Debris**

___ Check debris: reduce, reuse, recycle, refuse
___ Check location of dumpster
___ Check scrap for reuse by Trade Contractors
___ Check storage areas for aluminum, cardboard, glass
___ Check need for bags, brooms, receptacles

SITEWORK

*** Demolition**

___ Check area for demolition with *"approved"* Drawings
___ Check local regulations for debris disposal

___ Check location of tie-ins

*** Layout**
___ Check location of building corners with site plan
___ Check legal setback requirements
___ Check location of underground utilities

*** Site Clearing**
___ Check location of tree and shrubs to remain
___ Check trees for firewood or lumber
___ Check local regulations for burn piles
___ Check for opportunity to bury trees and brush

*** Excavation**
___ Check storage areas for topsoil and sub-soil
___ Check foundation location and depth (allow extra 3 feet for work space around perimeter)
___ Check fireplace footing location and depth
___ Check crawlspace location and depth
___ Check garage slab location and depth
___ Check areas for downspout leach field
___ Check location of trash pit for debris

*** Backfill**
Note: Prior to backfill ***review foundation checklists***
___ Check deck installation on foundation for bracing
___ Check for necessity of clean fill for drainage
___ Check for fill for very large rocks or wood scraps
___ Check locations where compaction is needed
___ Check locations of water meter and power pole
___ Check locations of topsoil for final grade

*** Grading**
___ Check elevations and lines on site plan
___ Check allowances for top soil, bedding, plants
___ Check for 2-3% slope after final grade
___ Check berms for placement, height, form

*** Retaining Walls**
___ Check locations with site plan

___ Check for *"deadman"* anchors
___ Check placement of rock behind wall for drainage
___ Check for drainage holes in lower portion of wall

*** Asphalt Paving**
___ Check subgrade compaction to 95%
___ Check mixture is at min. temp. of 280 degree F.
___ Check smoothness tolerance of 3/8" in 10 feet
___ Check air temperature is at least 50 degree F.

*** Concrete Paving**
___ Check forms for straightness elevation, slope
___ Check subgrade compaction and gravel fill
___ Check necessity for reinforcement: mesh or rebar
___ Check location of reinforcement mid-way in pour
___ Check concrete mix: slump, mix, additives
___ Check finish: broom, smooth, exposed
___ Check cure rate: excessive hot or cold temperatures

*** Brick Paving**
___ Check compaction of subgrade
___ Check thickness of sand bed
___ Check pattern for brick installation

*** Public Utilities**
___ Check site plan for inclusion of all systems
1. Water District or Well
2. Electrical Distribution
3. Sewer or Septic
4. Gas or Oil
5. Television Cable
6. Telephone Cable
7. Stormwater

___ Check with utility companies for installation procedures
___ Check with governing agencies for regulations
___ Check with Trade Contractors for their requirements
___ Check compatibility of installation for layout
___ Check proper sequence for scheduling
___ Check excavation depth, slope, elevation
___ Check materials consistent with procedures and regulations

___ Check inspector's report and retain copy
___ Check that proper trench bedding material for utilities is used
___Check site plan to create *"as-built drawings"* when completing actual work

*** Stormwater Control**
___ Check location, size, slope of tight lines
___ Check required setback from septic system
___ Check tie-ins with downspouts
___ Check tie-ins with catchbasins
___ Check tie-ins to leach pit
___ Check adequacy of leach pit and rock size

*** Foundation Drainage**
___ Check location, size, slope of lines
___ Check for perforated lines separate from tight lines
___ Check for tie-in to leach pit
___ Check adequacy of leach pit and rock size

*** Trees, Plants, Groundcover**
___ Check for site preparation per grading
___ Check for location of topsoil, gravel, bark
___ Check for plant species, sizes, quantities
___ Check proper application of sod/seed
___ Check proper installation of bushes and trees
___Check all plants remain alive and growing; hold Trade Contractor accountable
___ Check proper maintenance schedule

FOUNDATION, SLABS, DAMP ROOFING, RADON GAS

*** Batterboards**
___ Check location of property lines
___ Check distance of setbacks per *"approved"* Drawings
___ Check for presence of groundwater
___ Check for location of major components
1. Exterior Walls
2. Piers and Support Columns
3. Garage or Carport

4. Fireplace Footing
5. Porches and Entryway

___ Check for level and square
___ Check dimensions according to *"approved"* Drawings

*** Footings**

___ Check for location of major components
___ Check proper elevation
___ Check for level and square
___ Check offsets and jogs
___ Check width and depth
___ Check for cleats to maintain width
___ Check location of blockouts
___ Check rebar size, spacing, ties: horizontal and vertical
___ Check rebar bends at corners
___ Check bracing and backfill
___ Check inspector's report and signature; retain copy
___ Check quantity of concrete ordered, mix, and slump
___ Check schedule for delivery
___ Check method of pour

1. Concrete truck chute
2. Wheel barrel
3. Pump truck
4. Vibrator

___ Check logistics

1. Do not allow concrete to drop more than 5' from chute
2. Do not move concrete more than 20' once in form
3. Do not over-vibrate
4. Prevent radical cure rate: hot/cold temperature

*** Walls**

___ Check for plumb, level, straight, square
___ Check dimensions: length, width, height (+1/4",-1/4")
___ Check elevation with benchmark
___ Check location of stepdowns
___ Check size, location, bracing of major components

1. Fireplace
2. Windows
3. Bulkheads
4. Beam Pockets

5. Doors
6. Offsets and Jogs

___ Check for sleeves or blockouts (coordinate with Trade Contractors)
1. Plumbing
2. HVAC
3. Electrical

___ Check rebar size, spacing, ties: horizontal and vertical
___ Check rebar bends at corners
___ Check form ties, shoes, walers, cleats, bracing
___ Check anchor bolt size and layout
___ Check inspector's report and signature; retain copy
___ Check quantity of concrete ordered, mix, slump
___ Check schedule of delivery
___ Check method of pour
1. Concrete truck chute
2. Wheel barrel
3. Pump truck
4. Vibrator

___ Check logistics
1. Do not allow concrete to drop more than 5' from chute
2. Do not move concrete more than 20' once in form
3. Do not over-vibrate
4. Prevent radical cure rate: hot/cold temperatures

*** Slabs**

___ Check installation of *"groundwork"* by Trade Contractors
___ Check inspector's report of Trade Contractor's work; retain copy
___ Check installation of insulation if required by code
___ Check gravel fill for drainage
___ Check rebar or mesh if required
___ Check placement of 6 mil plastic for moisture barrier

Note: Review footing and wall checklists for relevant guides.

*** Damp Proofing**

___ Check top of wall for smoothness; use *"rebar sander"* if required day after stripping forms
___ Check wall for honeycomb pattern; patch with cement mortar
___ Check all ties twisted off and all tie holes filled with asphalt emulsion
___ Check wall for any concrete protrusions and remove
___ Check seam between wall and footing for cleanliness; fill seam with

asphalt emulsion
___Check asphalt emulsion on all sub-grade walls surrounding habitable areas; not necessary for walls at crawl space
___ Check that asphalt emulsion does not go above grade level
___ Check all downspout drains securely in place
___ Check all footing drains securely in place
___ Check all debris removed from trenches

* Radon Gas
___ Check placement of gravel below slab
___ Check placement of 6 mil plastic over gravel
___ Check seal at concrete slab joints and all slab penetrations
___ Check 4 inch diameter vent stack running from below slab through penetration in roof
___ Check installation of electrical supply line and junction box for future fan if required
Note: Contact your local Building Department to confirm it's standard construction practice for Radon resistant home construction.

FRAMING

*** General Notes**
___ Check local building code for nailing schedule and sizing structural members
___ Check framer's lumber take-off to insure adequate supply of material on site; ask to be notified in advance should additional lumber be required
___ Check framing deviations; not to exceed standard 1/4" leeway for error; changes should be recorded on Drawings, dated, and signed
Note: ***Review all errors objectively*** to determine difference between those errors which will create major difficulties for quality work and those errors which will have minor impact on quality work. This is a ***judgment call:*** one must realize that all errors do not create problems which are insurmountable.

*** Floor Framing**
___ Check sill plates for exterior grade, pressure treated lumber
___ Check sill sealer installed between sill and foundation
___ Check anchor bolts installed with nut and washer; min. 2 fasteners per

plate, max 16" from each end, max 6' on center
___ Check for termite shield if required
___ Check grade, species, and span of all floor joists, posts, beams, purlins
___ Check location and nailing of all metal connectors shown on official prints for posts and beams
___ Check beams for straightness and consistent height
___ Check all joists are crowned-up
___ Check rim and header joists straight and nailed properly
___ Check all joists of uniform width and tight joints with proper nailing pattern
___Check joist doubled at all openings; hangers installed and completely nailed where required
___Check bridging installed and nailed per code; solid blocking installed and nailed per code
___ Check plywood (or equivalent) subfloor installation:
1. Proper thickness with APA grade stamp correct
2.Glued and nailed with all-weather adhesive; follow manufacturer's specifications and building code requirements (such as 1/16" spacing @ edges)
___ Check stairwell installation:
1. Refer to official prints for locations
2. Plywood subfloor should overhang stairwell opening to match treads
3. Stair risers should be of equal height (max 1/8" variance)
4.Treads should be level and same width (max 1/8" variance); nailed and glued to stair jacks
5. Stair jacks should have no cracks
6. Fireblocking installed per code
7. Railings properly fastened and solidly secured
___ Check cantilevers per plan: overhang, blocking, joist layout
___ Check for proper clearance around masonry or double wall chimney

*** Wall Framing**

___ Check walls located per *"approved"* Drawings
___ Check walls for straightness, plumb, and square; correct size lumber for studs and headers
___ Check header locations and sizes with proper grade stamp
___ Check sheathing size, manufacturer's installation instructions, and nailing schedule per code
___ Check critical dimensions; no room studded without installing large fixtures or appliances that will not fit through door openings later

___ Check window and door openings; dimensions, plumb, square

Note: Rough framing for window and door openings will require a thorough review with vendors to determine allowances for products chosen for installation. Items such as floor covering, door and window trim will affect the ***allowances for framing measurements.***

___ Check all warped studs removed or straightened; pull string along wall lines to determine straightness

___ Check plate splices located over studs

___ Check trimmer studs and header joints tight

___ Check for square corners in critical areas; kitchens, baths, and utility areas where cabinets and countertops designed for 90 degree angles

___ Check for backing where required for drywall and fixtures:

1. Curtain Rods
2. Towel Rods and Rings
3. Cabinets
4. Ledgers and Shelves
5. Closet Kits
6. Ironing Boards
7. Ceiling

___ Check garage door jamb and brick mold installed properly

___Check framing and drywall installation per fire code in areas surrounding fireplace masonry; coordinate this activity with framer and masonry contractors prior to enclosure

___ Check measurements required for spaces which cannot be altered:

1. Cabinets and Vanities
2. Showers and Tubs
3. Built-in Furniture

Note: ***Maintain allowances for installation.***

___ Check that walls have adequate temporary bracing to maintain straightness and plumb prior to setting truss package

*** Roof Framing**

Note: Roof framing may be *"stick frame"* or *"truss package."* The main difference is that *"stick frame"* roofs will be built piece by piece on site; a roof erected with a *"truss package"* will be cut and assembled at the factory and delivered to the site.

____Check trusses erected according to engineered design and installation instructions accompanying package:

1. Nailing schedule per applicable building code
2. Framing anchors installed per applicable building code

3. Catwalk installed at center of attic
4. Wind brace installed at gable ends
5. Attic vents installed at gable ends or ridge (See *"Roof Sheathing"*)
6. All gable and firewall trusses have studs installed per sheathing or drywall layout
7. Lookouts installed at peak of gable and 4' o.c. for sheathing layout
8. Fascia and Barge boards installed straight and secure
9. Vent blocks installed at exterior walls between roof rafters

___ Check stick framing installed per *"approved"* Drawings according to applicable building code:

1. Rafters correct size, straight, crown-up
2. Ridge board correct size, straight, without sag
3. Rafters properly connected to wall plates
4. Collar ties correct size, spacing, height
5. Vent blocks installed at exterior walls between rafters
6. Attic vents installed at gable ends or ridge (See *"Roof Sheathing"*)
7. Fascia and Barge boards installed straight and secure
8. Lookouts and rake supports installed per layout

___ Check for proper clearance around chimney
___ Check attic access properly sized and located
___ Check ceiling backing in place before sheathing installed
___ Check location and backing for skylights

*** Roof Sheathing**

___ Check sheathing grade stamp, size, manufacturer's installation instructions, and nailing schedule per code

Note: Skip sheathing will be required for wood shingles or shakes. Contact roofing contractor to ***review requirements*** for specialty materials such as tile or metal.

___ Check sheathing staggered from row to row
___ Check ply clips used at horizontal seams between rafters
___ Check vent holes cut at or near ridge if gable vents inadequate or unavailable
___ Check skylight framing size and location
___ Check storage and protection of excess and scrap sheathing

*** Flashing**

Note: Many problems occur after construction due to water damage from improper flashing. Metal flashing comes in all shapes and sizes and its applications should be provided in *"approved"* Drawings; however,

there is ***no better judgment*** than common sense and extra protection. During rough framing, flashing for all applications should be available at the site, properly stored to avoid damage, and installed in proper sequence.

___ Check flashing located/installed per applicable code:

1. Ground contact
2. Deck Ledger
3. "Belly" Board
4. Window Headers
5. Door Headers
6. Skylights
7. Chimneys
8. Valleys

ROOFING

* Roofing Material

___ Check *"approved"* Drawings and Specifications for type, color, size, and manufacturer:

1. Asphalt Shingle
2. Wood Shingle or Shake
3. Fiberglass Shingle
4. Tile or Slate
5. Roll Roofing
6. Metal

Note: Locate all vent stacks that penetrate roof ***prior to installation*** of roofing. Vents and flashing will be provided by Plumbing and Heating contractors and installed per their layout and **NOT** be responsibility of Roofing contractor. Vents and flashing are usually required for plumbing, HVAC, wood stove or fireplace, attic ventilation, *"moist"* room fans.

___ Check metal drip edges at rakes or eaves if required

___ Check felt paper overlaps: minimum 2" on sides; 4" on ends

___Check manufacturer's warranty for weather exposure and nailing pattern, sealers, membranes, cements, fasteners

___Check roofing material for squareness, straightness, color uniformity, no buckling or cracks

___ Check edges, ridges, hips, valleys for smooth, even trim

___ Check roofing material extends over roof edge by 2"

___ Check roofing material fit tightly around all stack vents and installed with flashing to shed water
___ Check nails are galvanized and not exposed to weather unless special protection provided by manufacturer or Trade Contractor
___ Check all debris removed from roof and site

*** Gutters & Downspouts**

___ Check style, color, size as specified by owner
___Check gutters spaced and secured per specifications using aluminum nails and sleeves or *"hidden"* fasteners
___Check water drainage to downspout using hose; drains completely in one minute without water collection anywhere
___ Check for leaks in corner miters, elbows, downspouts
___ Check downspouts secured to walls with straps of same color
___Check downspouts land on splash blocks or connect to drain line leading to leach pit or storm water system per applicable code

EXTERIOR FINISH & SIDING

Note: Prior to trim and siding installation, siding contractor will provide and install *"infiltration barrier"* per local building code as air and moisture control. Product will be installed per manufacturer's installation instructions. All wall penetrations will be caulked with suitable latex caulk to eliminate air infiltration.

*** Exterior Finish**

___ Check all trim material for all-weather conditions suitable for paint or stain or varnish
___ Check soffit installation for tight end and lateral joints, and vents to provide adequate ventilation for attic
___ Check corner boards for fit to soffit and tight against building
___ Check window trim for joint fit, tight against building and window frame
Note: If window trim is integral component of frame unit then install window ***plumb, square, and tight to building***
___ Check door trim for joint fit, tight against building and door frame
Note: If door trim is integral component of door unit then install door ***plumb, square, and tight to building***
___ Check cornice for tight joints at soffit and fascia with proper flashing to prevent water damage

___ Check "belly" board for straightness, tight end joints, secure to building with galvanized casing nails

*** Siding**

___ Check Drawings and Specifications for type, style, color, manufacturer of siding:
1. Brick
2. Stucco
3. Hardboard
4. Vinyl
5. Plywood
6. Lumber
7. Waferboard/OSB
8. Aluminum
9. Shakes or Shingles
10. Concrete Block
11. Stone

___ Check siding installed per manufacturer's installation instructions
___ Check exposure to weather in accordance with Drawings
___ Check flashing installed at critical areas
___ Check fasteners for flush or countersunk condition and finished per code and manufacturer's instructions
___ Check all necessary areas for latex caulk per applicable building code

MASONRY, FIREPLACE, WOOD STOVE

___ Check brick type, size, color as specified by owner
___ Check reinforcing, anchors, ties if required:
1. Rebar: Grade 40, No. 3 and larger
2. Anchors: Galvanized steel per code
3. Ties: Corrugated and galvanized type
4. Reinforcement: Truss type, drawn steel

___ Check mortar and joints per plans and specs
1. Mortar Type S (use type I or II cement)

___ 2. Joints consistent width (" typical)
___ Check weep holes and vents clear of mortar and debris
___ Check location of bond beams or angle iron
___ Check dimension and location of fireplace/chimney:
1. Firebrick inside firebox

2. Refractory mortar
3. Dimensions in accordance with applicable building code
4. Cleanout, ash dump, damper operate properly
5. Vent for outside combustible air
6. Framing proper distance from masonry per code
7. Chimney flashing at roof

____Check zero-clearance fireplace installed by manufacturer's installation instructions

1. Use stainless steel, double-wall flue
2. Maintain dimensions and clearances per applicable code
3. Install proper supports and downdraft cover at chimney

PLUMBING

* Rough-in

Note: Be sure shower and tub fixtures are ordered and placed in proper location ***if access will be a problem***

____ Check location of all utilities to guarantee proper layout and site logistics

____ Check access to house supply lines and drains to establish openings in concrete walls and slabs

____ Check Drawings and Specifications to verify types and location of plumbing fixtures to guarantee proper layout and Underwriter's Lab approval

1. Order long lead time items for procurement
2. Locate and place specialty hardware in walls and floors

____ Check framing requirements of plumber to allow for layout of joists and studs to minimize cutting and call-backs

1. Repair cut-out framing by plumber

____ Check roof vents installed with proper flashing

1. Locate vents on roof for aesthetic appeal

____Check water service active to house so "live" test can be accomplished on water lines and available for "water" test on waste lines

1. Keep potable water lines under pressure after inspection and continue to observe for evidence of leaks

____ Check nail straps at all framing to protect pipes from nails

____ Check exterior water spigots and lines insulated and protected from freeze

___ Check permit signed by inspector
1. Note corrections if required
2. Make copy of permit

*** Trim**

Note: Confirm manufacturer, style, type, color of fixtures at rough-in, prior to ordering trim package, and delivery to site. Inspect fixtures before and after installation for scratches, chips, dents.

___ Check operation of faucets and drains
1. Hot on left, cold on right
2. No drips or leaks at traps or joints below fixture
3. Drain stops operate properly and form seal when closed

___ Check operation of toilets
1. No drips or leaks at shut-off valve or connections
2. Water fills properly and action stops completely
3. Flush acts immediately with proper draw

___ Check garbage disposal operates properly

___ Check operation of dishwasher and clotheswasher
1. Run through entire cycle
2. No drips or leaks at connections or machine
3. Hot and cold water present at proper cycle

___ Check water heater firmly set, connected to wall, with floor drain pan under appliance
1. No drips or leaks at connections
2. Safety relief valve properly installed and connected to drain line leading to building exterior

___ Check for evidence of *"water hammer"* in entire system by turning each faucet on and off very quickly and listen for knocking noise

___Check pipe holes in concrete walls or floors sealed with hydraulic cement

___ Check permit signed by inspector
1. Note corrections if required
2. Make copy of permit

HEATING/ VENTILATION/AIR CONDITIONING (HVAC)

*** Rough-in**

Note: Be sure HVAC fixtures are ordered and placed in proper location ***if access will be a problem***

___ Check equipment per specifications for correct manufacturer, model, size, capacity with Underwriter's Lab approval
___ Check heating, air units, compressors installed in correct location and anchored properly
___ Check zone systems have proper units in correct locations
___ Check ductwork installed according to manufacturer's installation instructions and mechanical code
1. Proper number of supplies and returns
2. Joints sealed tightly with duct tape
3. No return ducts in bath or kitchen
4. Ducts in floors and walls do not interfere with drywall installation
5. Duct insulation correct "R" rating and properly secured
6. Prepare vent for combustible air circulation
___ Check adequate vents and ducts for dryer, stove, moist rooms, air circulation
___ Check heat exhaust vents installed per applicable code
1. Keep wood framing lumber away from heat vent
2. Flashing conforms to roof material to resist water
3. Down draft caps securely in place
4. Vents placed for aesthetic value
___ Check air conditioning condensate drain installed
___ Check gas fixture layout and pipe logistics
1. Locate meter for access and inspection
2. Place stub-out for future use (i.e. hot tub, grill)
___ Check placement of floor pan under attic furnace
___ Check permit signed by inspector
1. Note corrections if required
___2. Make copy of permit

*** Trim**

Note: Confirm manufacturer, style, type, color of fixtures at rough-in, prior to ordering trim package, and at delivery to site. Inspect fixtures before and after installation for scratches, chips, dents.

___ Check gas line hook-up to gas appliances:
1. Stove
2. Dryer
3. Water Heater
4. Fireplace
5. Hot Tub
6. Furnace

7. Grill

___ Check HVAC electrical hook-up completed per code and manufacturer's installation instructions
___ Check thermostat's location and operation
___ Check filter installation on furnace and air conditioning
___ Check radiators, vents, ducts for cleanliness
___ Check air conditioning condensate drain operation
___ Check water line to/from humidifier
___ Check Noise Rating of Vent fans
___ Check exterior openings sealed with caulk to applicable code
___ Check furnace operation through 24 hour cycle
___ Check supply trim for proper air flow direction
___ Check permit signed by inspector
1. Note corrections if required
2. Make copy of permit

ELECTRICAL

*** Rough-in**

Note: Be sure electrical fixtures are ordered and placed in proper location ***if access will be a problem***

___ Check location and size of service panel
1. Place conduit in wall for underground wiring
2. Locate for access to public utility and meter installation
3. Coordinate with public utility
4. Ground rods placed per electrical code

___ Check layout and number of outlets and switches
___ Check lighting layout per owner's furniture and expected use or function and Underwriter's Lab approval
___ Check wiring provided for appliances and fixtures:
1. Garbage disposal or Hot Water Dispenser
2. Dishwasher
3. Stove and Hood
4. Refrigerator
5. Microwave
6. Entertainment Center
7. Clotheswasher and Dryer
8. Built-in Ironing Board
9. Built-in Vacuum Cleaner

10. Built-in Hair Dryer
11. Sauna or Hot Tub
12. Medicine Cabinet Lights
13. Moist Room Fans
14. Attic Fans
15. Landscape Lighting
16. Outside outlets
17. Interior hanging lamps
18. Wall Sconces
19. Garage door opener

___ Check for proper placement and installation of equipment:
1. Telephone Jacks
2. Television Jacks and location of cable service or antenna
3. Smoke Detectors located per fire code
4. Security installed per manufacturer's installation instructions

___ Check for electrical requirements for specialty items
1. Fire Sprinkler
2. Landscape fountains

___ Check hole penetrations sealed with exterior grade caulk
___ Check permit signed by inspector
1. Note corrections if required
2. Make copy of permit

*** Trim**

Note: Confirm manufacturer, style, type, color of fixtures at rough-in, prior to ordering trim package, and at delivery to site. Inspect fixture before and after installation for scratches, chips, dents.

___ Check covers installed on all switches, outlets, fixtures
___ Check operation of all electrical items and equipment following manufacturer's recommendations
___ Check panel circuits labeled per house layout
___ Check appliances for correct operation
___ Check permit signed by inspector
1. Note corrections if required
2. Make copy of permit

INSULATION, SOUNDPROOFING, WEATHERIZATION

Note: Insulation and Weatherization ***conforms to requirements*** of

applicable building and energy code

___ Check Drawings and Specifications for location and type of insulation, soundproofing, weatherization

___ Check insulation installation in areas which would become impossible to insulate at a later date

1. Shower or tubs on exterior walls
2. Joist bays and wall corners with tight clearance
3. Behind furnace and water heater areas
4. Ceiling corners on hip roofs
5. Foundation walls and slab perimeters
6. Sill and wall sealer

___ Check exterior wall holes for Trade Contractor work sealed with exterior grade caulk

___ Check air/moisture infiltration barrier installed prior to exterior siding

___ Check interior wall and floor penetrations stuffed with insulation per applicable building and fire code

___ Check wall insulation installed tightly without air gaps or punctures and secured in place behind wiring, plumbing

___ Check vapor barrier on warm side of wall conforms to code

___ Check insulation placed around perimeter of doors and windows in a manner which conforms to code and correct operation of doors and windows

___ Check baffles installed at all vent blocks between rafters

___ Check insulation placed at specialty areas such as skylights

___ Check areas which will produce unacceptable noise levels and require treatment to reduce problem

1. Plumbing in walls or ceilings adjacent to living areas
2. Family or recreation rooms
3. Stereo or music rooms

___ Check floor insulation fits snugly in joist bays and against rim; secure insulation with rods or, if required, twine

___ Check ductwork and plumbing properly insulated in areas exposed to cold weather

___ Check insulation in attic (either blown or batt) placed uniform depth and cover all areas

___ Check vent baffle used between insulation and roof sheathing for vaulted/cathedral ceiling

Note: Prior to insulation of house, use video camera to record all work by contractors inside interior and exterior walls ***to verify layout and number of items;*** use recording to verify trim package layout.

DRYWALL

* Before Hanging

___ Check access and logistics for delivery and storage of drywall, joint compound, tape, nails, corners
___ Check framing for moisture content; beware of excessively moist conditions which will contribute to high humidity in house during drying
___ Check studs for irregularities in wall line; make partial cuts in studs to straighten wall line
___ Check backing in walls and ceilings for nailing
___ Check rough openings for square, plumb, level, size

* Before Taping

___ Check nailing pattern conforms to applicable building code
___ Check drywall thickness conforms to fire code at critical walls and ceilings
___ Check unnecessary gaps, damage, warpage, or voids which must be replaced prior to finish
___ Check rough cuts around all openings for final trim to allow proper fit
___ Check nail/screw heads are properly *"dimpled"*
___ Check need for waterproof drywall (green board) in moist rooms; tile areas will be provided with cement backer board
___ Check metal corners installed on outside corners and nailed flush with finish surface
___ Check type of window trim to be installed
___ Check type of finish after taping; smooth wall require more labor and higher cost per square foot
___ Check floors for cleanliness and cover with building paper prior to finishing and texture
___ Check windows, doors, and other finish work covered with plastic to avoid splattering and spillage
___ Check video recording to verify location of all items or fixtures which , need to penetrate drywall

* During Finishing

___ Check necessity of heat between coats of drywall compound to assist curing time; who is responsible for heat?
___ Check three separate coats of compound are applied to all joints; each successive coat should leave a wider track and smoother finish
___ Check windows, doors, and other finish work remain covered with plastic to avoid splattering and spillage

___ Check excessive water or compound spillage in house during finish; excess moisture will cause high humidity during curing

*** After Finishing**

___ Check all joints feathered smooth and sanded to finish
___ Check all openings are exposed and cleaned of compound
___ Check cuts are smooth and ready for trim
___ Check nap of paper not raised or roughened by excessive sanding
___ Check for nail heads exposed
___ Check joint compound completely dry before sealing

*** After Sealing**

___ Check primer used for sealer is approved by energy code if required
___ Check primer applied consistently over all areas
___ Check primer allowed to completely dry
___ Check walls for imperfections prior to texture; correct imperfections prior to texture application
___ Check type of texture to be applied in house

*** After Texture**

___ Check consistent pattern throughout entire house
___ Check all debris removed from site
___ Check plastic remains in place if painting is to be accomplished immediately after texture
___ Check texture thoroughly dry before painting

WINDOWS, MILLWORK, DOORS

*** Windows**

___ Check rough frame size coincides with window schedule and *"approved"* Drawings and Specifications
___ Check windows conform to applicable building and energy codes
___ Check size, type, number, and condition of windows on delivery to site
___ Check screens match size and type of window
___ Check windows installed per manufacturer's installation instructions
1. Window frame secure against building
2. Gap around window frame consistent on all sides
3. Windows open and close smoothly
4. Reveal at open window to be consistent

___ Check window casing nails set below surface and sealed with putty
___ Check window size and type consistent with trim application

*** Millwork**

___ Check location and type of all wood trim
___ Check paint or stain color per owner's requirements
___ Check accurate quantity of case trim for windows and doors, and base trim for floor
___ Check specialty molding/trim for type and color
1. Stair kits
2. Wainscoating
3. Mantel
4. Window seats
5. Paneling
6. Sauna Kits
7. Closet Rod & Shelf
8. Pantry Shelves
9. Handrails
10. Caps, Aprons, Crowns

___ Check trim/molding installed to finish standards
1. All material is void of major defects
2. Trim intersects with walls, ceilings, floors evenly with no gaps or irregularities
3. Trim joints are tight and caulked, sanded and smooth
4. All finishing nails set below surface and sealed with wood putty

___ Check trim/molding installed per industry standard and functions according to intended use

*** Doors**

___ Check door type, quantity, size, swing, finish, hardware per owner's requirements
___ Check condition of doors and hardware at delivery
___ Check thresholds and weatherstripping accompany exterior doors
___ Check automatic closers accompany fire-rated doors
___ Check location of all doors per door schedule
1. Exterior
2. Interior
3. Pocket
4. BiPass
5. BiFold

6. Attic

___ Check final installation of all doors
1. Doors open and close smoothly
2. Reveal is consistent with proper clearances
3. Knobs, latches, bolts align with insets
4. Swing in proper direction with privacy facing correct side
5. Locks function easily and smoothly
6. Keys available and keyed the same for ease of use
7. Weatherstripping in place
8. Thresholds properly adjusted
9. Door stops in proper locations
10. Allow for clearance from finish floor surface

___ Check finish nails set below surface and sealed with wood putty
___ Check doors free from mars, scratches, dents

PAINTING, STAINING, WALL COVERING

*** Painting & Staining**

___ Check manufacturer, type, color per owner's selection
___ Check proper preparation to surface to be painted or stained
1. Nail holes filled
2. All knot holes, pitch pockets sealed appropriately
3. Cracks and defects filled to finish surface
4. Drywall imperfections smoothed and textured
5. Primer/Sealer used where possible
6. Protected areas to be *"taped and bagged"*
7. Floors continue to be covered with building paper
8. Exterior plants and earth protected from overspray
9. Decks, siding, windows, doors, patios protected

___ Check all treated areas appear uniform in color and maintain consistent pattern
___ Check trim treated according to owner's requirements
___ Check color intersections are distinct and clean creating true and correct lines
___ Check no dried paint drips or drops exist
___ Check all debris and spillage removed from site
___ Check windows, doors, trim free of paint/stain
___ Check extra paint/stain remains with owner

*** Wall Covering**

___ Check wallpaper located in specified areas
1. No texture applied to these areas
2. Seams are consistent without gaps
3. Pattern matches at seams
4. End cuts conforms to floor and ceiling
5. Excess paste removed and paper clean

___ Check paneling located in specified areas
1. Match grain and color of individual pieces
2. Use color finish nails or color putty to match stain
3. All cuts match existing area

___ Check ceramic wall tile located in specified areas
1. Owner specifies color, size, pattern
2. Cement backer board installed as substrate
3. Use proper setting and grout materials
4. Use sealant in critical areas

FLOOR COVERING

Note: All floors to be scraped, sanded, cleaned ***prior to installation*** of floor coverings

___ Check plans and specifications for owner's requirements

*** Carpet**

___ Check pad/carpet at delivery for color, type, size, condition
___ Check manufacturer's installation instructions
___ Check carpet stretched tight and secured with nail strips
___ Check no damage done to walls or corners
___ Check seams tight and trimmed
___ Check metal threshold strips for appearance and weather-tightness
___ Check carpet stairs tight and secure to treads and risers

*** Wood Floor**

___ Check material species, size, grade, pattern
___ Check double layer tar/building paper placed on floor if required
___ Check proper fastener:
1. Strips nailed with ring-shank nails using floor nail gun
2. Parquet adhered with recommended mastic

___ Check material layout and joinery

___ Check headers at thresholds, fireplaces, registers
___ Check sanding completed in three phases to final finish
1. Specialty sanders equipped with dust bags
2. Smooth, consistent final surface
___ Check stain or natural oil applied uniformly
___ Check finish type and glaze per owner's requirements
___ Check formaldehyde off-gassing during curing

*** Vinyl Floors**
___ Check material at delivery for make, color, pattern, size
___ Check subfloor installed with ring-shank nails @ 4" o.c.
___ Check filler applied to subfloor to eliminate dips
___ Check vinyl installed per manufacturer's directions
___ Check seams and edges for smoothness and tight fit
___ Check thresholds cover edges at transition area
___ Check no scratches or mars after installation
___ Check seam sealer applied if recommended by manufacturer

*** Ceramic Floor Tile**
___ Check material at delivery for make, style, color, size, pattern
___ Check method for setting tile and preparing substrate
1. Thin-set adhesive
2. Mortar bed
___ Check for need for vinyl membrane as moisture barrier installed per manufacturer's recommendation
___ Check shower pan installed with proper reinforcement and vinyl membrane in place at walls and corners, and secure to floor drain with slope
___ Check tile layout for consistent border on all sides
___ Check grout spaces are uniform; grout color as specified
___ Check tiles are secure and do not move under pressure
___ Check grout is sealed as specified
___ Check base, cap, corner tiles are either factory-produced molded pieces or field-cut with smooth, even edges
___ Check no scratches, cracks, chips exist after installation

CABINETS & COUNTERTOPS

Note: Selection and configuration of cabinets and counterops

become a ***personal, subjective set of choices*** which depend mainly on lifestyle. Whether stock or custom cabinets are incorporated, the combination of drawers, doors, tip-outs, lazy susans, pull-outs, glass doors, etc. will be the result of how one intends to put the area to use.

*** Cabinets**

___ Check dimensions at drywall installation and prior to ordering cabinets to confirm dimensions
___ Check wood species, cabinet style, type of finish
___ Check type of hinges and pulls
___ Check product at delivery for make, style, finish, quantity, size, condition prior to installation

Note: Cabinet manufacturer/vendor and cabinet installer may be two different Trade Contractors. When possible a single Trade Contractor responsible for both activities will ***increase accountability*** for quality and service

___ Check cabinet installation for level, plumb, and units secured to wall
___ Check doors and drawers open and close smoothly
___ Check alignment of all units, openings, finished surfaces
___ Check all specified components installed

*** Countertops**

Note: Countertops may be made of a plastic laminate such as *"WilsonArt"* or *"Formica"* brands. However, a variety of materials including butcher block, tile, stainless steel, and solid surfaces such as *"Corian"* brand are available based on ***use and cost considerations.***

___ Check installation details
1. Backsplash
2. Edge
3. Faucet & Sink Layout

___ Check countertop secured to cabinet and level
___ Check fit at seams, corners, walls, corners
___ Check stability and security of overhangs
___ Check backsplash conforms to wall with proper caulk at seam and wall
___ Check edge provides solid and sanitary connection with top
___ Check cutout *"templates"* for sinks, faucets, cooktops, ranges are available to countertop installer

TRIM PACKAGE & HARDWARE

*** Trim Package**

___ Check wallcovering completed
___ Check floorcovering completed
___ Check woodworking completed
___ Check door installation: fit, operation, stops
___ Check attic access door insulated
___ Check fixtures and appliances for operation
___ Check window installation: cleanliness, operation, screens
___ Check switch and outlet covers in place and tight to wall
___ Check debris removed and all surfaces cleaned

*** Hardware**

___ Check bathroom accessories
1. Towel Bars/Rings
2. Paper Holder
3. Mirrors
4. Shower/Tub Doors
5. Medicine Cabinet

___ Check door hardware
1. Deadbolts
2. Handles/Latches
3. Spring-loaded hinges
4. Strikes
5. Thesholds
6. Weatherstripping
7. Bi-Fold/Bi-Pass Kits

___ Check cabinet hardware
1. Adjustable hinges
2. Tip-outs
3. Sliders
4. Pulls
5. Lazy Susans

___ Check electronic hardware
1. Telephone jacks
2. Television jacks
3. Antenna/Cable installation
4. Security system

5. Intercom/Radio/Speakers
6. Home Office/Entertainment Center

DECKS & PORCHES

___ Check concrete foundations extend below frost line and engineered to support structure
___ Check galvanized metal connectors installed using *"approved"* nails
___ Check structural lumber stamped pressure-treated outdoor wood
___ Check all connections to house properly flashed and secured
___ Check decking, rails, pickets, caps are cedar, redwood, or pressure-treated to meet standard of applicable building code
___ Check columns, posts, beams certified to carry load and not merely ornamental
___ Check stair dimensions conform to applicable building code
1. Handrails
2. Treads & Risers
3. Pickets & Guardrails
___ Check finish is exterior quality, with unlimited warranty to not peel or flake on deck or rail surfaces

LANDSCAPING

___ Check site drains away from house and conforms to requirements of applicable building code
___ Check ground makes no contact with siding and conforms to requirements of applicable building code
___ Check all stoops, walks, aprons are connected to foundation with rebar to limit separation and settling
___ Check all flat surfaces drain away from house and measures are taken for stormwater control
___ Check areas specified for grass are sodded/seeded
___ Check plants are placed/protected per landscape plan and specifications
___ Check fences firmly placed in soil to avoid movement or shifting; galvanized metal connectors and nails used where necessary
___ Check Sprinkler System installed per manufacturer's recommendations and Owner's requirements

REMEMBER: Pay attention to natural phenomena affecting Design/Build considerations. Your region will present unique biological, geographical, geological, and meteorological conditions which may require special materials and methods. **Contact your local Building Department if more information is required for your project.**

A FINAL NOTE: During construction work, the pace of activities requires the Owner to coordinate and control Trade Contractors and Suppliers on a daily basis. Very quickly there arises a need to record what happens and who is responsible for correct or incorrect work.

The Owner will definitely want to record the basics of who, what, when, where, why, how of a problem situation. The use of a Job Diary (See *"Job Diary"* on Page 129-130) is a means to document your concerns and communicate them to a Trade Contractor or Supplier.

In addition, a video recording and still photographs are also important methods to authenticate what's happening. This accomplishes two things: first, it lets people know you're serious about the situation; second, it allows you to review details in their original condition. Both points are vital to honest, open communication leading toward project accountability.

Here's what you can do to improve reliable documentation.

Video Recording: Dedicate a video tape for exclusive job site use. Follow normal sequence of events and establish shots which truly represent the work. Record what's been accomplished during rough-in and finish phases to create a *"before and after"* effect.

Still Photographs: Purchase a *"one use"* camera specifically for your project. Close-up shots will amplify details in need of further discussion. Date and label all photographs. Purchase *"doubles"* so there's a photograph for your files and another copy to send to a Trade Contractor or Supplier.

Don't forget the old adage: *"One picture is worth a thousand words."*

For Quality Control no one cares as much about how the work is accomplished than the people who'll live in the home.