

Town of Oro Valley

Residential Construction Handbook



Community and Economic Development Department
Permitting Division
11000 N. La Cañada Dr.
Oro Valley, AZ 85737
Phone: (520) 229-4800
Fax: (520) 742-1022
www.orovalleyaz.gov



PERMITTING and INSPECTION DIVISIONS

TOWN OF ORO VALLEY COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT

11000 N. La Cañada Drive
Oro Valley, AZ 85737

Phone: (520) 229-4800 • Online: permits@orovalleyaz.gov • Fax: (520) 742-1022

Office Hours: 8:00 a.m. – 5:00 p.m. Monday - Friday
(No applications will be processed if received after 4:30 p.m.)

In-field Inspection Hours: 8:30 a.m. - 3:30 p.m.
(Request inspections by 3:30 p.m. for next day service)

Web site: <http://www.orovalleyaz.gov>

LOCAL AGENCIES

AZ Office of Manufactured Housing	(602) 771-1000	https://housing.az.gov
Arizona 811 (formerly AZ Blue Stake)	Dial 811 or	http://www.azbluestake.com
	(602) 659-7500	
Golder Ranch Fire District	825-9001	www.grfdaz.gov
Oro Valley Water	229-5000	www.orovalleyaz.gov
Pima Co. Addressing	740-6480	www.pima.gov
Pima Co. DEQ/Septic Permits	740-6501	www.deq.co.pima.az.us
Pima Co. Wastewater Reclamation	742-2400	www.pima.gov
Registrar of Contractors	628-6345	www.azroc.gov
Southwest Gas	(877) 860-6020	www.southwestgas.com
Tucson Electric Power	623-7711	www.tep.com

WELCOME LETTER

Dear Customer,

The Permitting Division is dedicated to helping homeowners successfully complete home improvement projects. This guide is designed to assist the home owner through the process of obtaining a construction permit. It has been created to explain the various steps, requirements, and resources available to you as you undertake your home construction, remodeling, pool and spa projects.

If you have any questions at any point in your project, permitting staff is here to help. Just call the main line at 520-229-4800 for assistance. We want your experience with Permitting to be a smooth and pleasant one. Best wishes with your project.

David Laws
Permitting Department Manager

Chuck King
Building Official / Inspection and Code Compliance Department Manager

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INTRODUCTION

An important part of any improvement project is good planning. Such planning efforts include developing construction documents and applying for a building permit before beginning construction. Obtaining a building permit helps protect the safety of your family, as well as the value of your home and property. Proper permits are also beneficial when selling your home, applying for a home equity loan, or making a claim against your homeowner's insurance.

Work started without a building permit is subject to fines and penalties, in addition to the building permit fee. Any work begun without a permit that does not meet code requirements may have to be restored to the original condition or rebuilt. If you are not sure whether a permit is required or require additional information, please contact the Permitting Department.

OBTAINING A BUILDING PERMIT

The homeowner, or their authorized representative such as a designer or licensed contractor, may apply for a permit. The application must contain enough detailed information to fully and clearly describe the proposed project. A simple description of the project (i.e. "Upgrade existing electric service from 100 to 200 AMPS" or "Replace ¾ inch copper water service line") may be sufficient. However, construction documents, including a site plan, will be required in most cases.

Plans submitted for very minor projects (i.e. patio walls, patio addition, adding a door, room remodel, etc.) may be submitted on plain paper (8½" x 11"). All plans must be signed by the preparer of the drawings or responsible individual, and include their address and phone number. Drawings shall be a minimum scale of ¼"=1'-0". Plans and documents prepared by registered design professionals are required when the construction does not comply with the conventional framing provisions of the International Residential Code (IRC). Plans and documents prepared by a registered design professional are required to be sealed, signed and dated.

Upon submittal, the construction documents will be reviewed to verify compliance with all applicable zoning, grading (if applicable) and building code requirements. Corrections, modifications and/or additional information may be required after the initial review has been completed. Upon approval of the construction documents and the issuance of a building permit, one (1) set of approved drawings and the building permit must be located in a conspicuous place on the job site. Oro Valley will retain an approved set of drawings for the period of time prescribed by law for the retention of public records.

SUBMITTAL CHECKLIST

- ☐ **General Requirements** Dimensioned building plans drawn to a minimum scale of ¼"=1'-0" are required for all submittals. Submit five (5) bound sets (residential) of blueprints or blacklines (plans prepared by an architect or engineer are required to be sealed by registrant). Contact the Permitting Department, 520-229-4800, to verify the required number of bound sets for different projects. For electronic applications, files less than 10 MB can be emailed to permits@orovalleyaz.gov. Applications larger than 10 MB should include a link for us to download the submittal type from the service you use (i.e. Dropbox, OneDrive, etc.).
- ☐ **Completed Application** Include contractor license information, Oro Valley business license for work done by a contractor, and a bond exemption certificate for projects over \$50,000.
- ☐ **Grading/Site Plans** with setbacks from property line to new construction and existing buildings; supplies for sewer, water, electric and gas; proposed walls giving type, height and length. (Details for retaining walls)

(If not mass graded) Include topography (existing and proposed), grading limits, cross section, and general notes. Attach certified source of topography (such as a preliminary plat) or a land surveyor stamp with statement of certified topography. Identify the building pad of finished floor elevation from a verifiable benchmark.
- Walls** Patio walls less than six (6) feet in height are not required to have a permit but need zoning approval. Patio walls six (6) feet or greater in height require engineering and permits.

Retaining/Restraining walls will require:
 - Two (2) retaining wall details and calculations (bound and sealed).
 - A separate permit application will need to be completed for the walls or may be included as part of a grading plan.
- ☐ **Elevations** show all sides of a structure, provide building heights. If average cross slope exceeds six (6) percent then existing natural grade must be shown.
- ☐ **Section Views** show all heights of ceilings and roof members. Label all section materials.
- ☐ **Floor Plans** with window and door schedules, and all room uses labeled. Show fire rated separations and all cabinet and fixture locations.
- ☐ **Soils Reports** Two (2) copies (bound and sealed) must be included for all non-mass graded sites. Soils report must be for the lot being built upon. If over one (1) year old a letter from registrant stating the soils report is still valid for that lot will be required. Soils reports must include slope recommendation(s) and building foundation requirements.
- ☐ **Structural Calculations** Two (2) copies (bound and sealed) when structure does not fall within the conventional construction provisions of the International Residential Code.
- ☐ **Energy Calculations** showing compliance with the International Energy Conservation Code.
- ☐ **Electrical Plans** with panel schedule, with service size and circuits identified. All outlets, smoke detectors, and feeders with panel circuits numbered. Load calculations are required for all residential electric services.
- ☐ **Plumbing Plans** must include location, size and material of all gas, drainage waste and vent, and water piping with lengths of gas and water piping. Location and size of gas piping with developed length and BTU demands of all appliances. Location and demand of water meters and gas meters. Location of water heater, temperature relief, combustion air openings, and vent flue size. Locations of clean-outs; water main shut off and water pressure.
- ☐ **Mechanical Plans** including heating and cooling unit capacity, location and demand or input. Furnace combustion air and flue sizes. Circulating return air ducts and supply sizes. Size and location of all condensate drains. Manual J calculations.

- **Footings/Foundation Plans** showing footing size and depth below grade, stem wall, and concrete slabs on grade, reinforcing steel size and spacing, retaining or restraining walls, anchors and hold-downs.
- **Structural/Framing Plans** including truss certifications and layout, all beams, supports and structural details, roof construction, venting calculations, types, and sizes. Exterior walls and bearing partitions, lintel and header sizes and shear wall schedule showing resistive elements. Framing member size, grade, species of lumber, and spacing. Indicate the type and thickness of all floor and roof sheathing systems.
- **Post-Tension Floors** require a special inspection application to be completed and approved prior to issuance of the building permit.

FIRE SPRINKLERS MAY BE REQUIRED FOR HOMES AND FOR SOME ADDITIONS

Please inquire with permit staff for further information

APPLICANTS FOR NEW HOME CONSTRUCTION SHALL CONTACT THE TOWN'S PLANNING DIVISION REGARDING THE PLANNING AND ZONING COMMISSION AS THIS HOME MAY REQUIRE REVIEW.

APPLICANT SHALL PAY A SEWER OR SEPTIC CONNECTION FEE TO *PIMA COUNTY REGIONAL WASTEWATER RECLAMATION* AND PROVIDE EVIDENCE OF PAYMENT PRIOR TO PERMIT ISSUANCE.

Deferred Submittals: Those portions of the design not submitted at time of application shall be submitted to the Permitting Department prior to installation. Deferral of any submittal items shall have prior approval. The architect or engineer of record shall list the deferred submittals on the plans and indicate that components of deferred submittals not be installed until approval. Structural deferred submittal documents shall be wet stamped and signed by the architect or engineer of record, with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. An hourly plan review fee will be assessed on deferred submittal documents.

CONSTRUCTION DOCUMENTS

An architect, engineer, drafting service or homeowner may prepare construction drawings for residential improvements. All drawings must be detailed, accurate, clearly legible and complete. The purpose of preparing and submitting a complete set of construction documents is to:

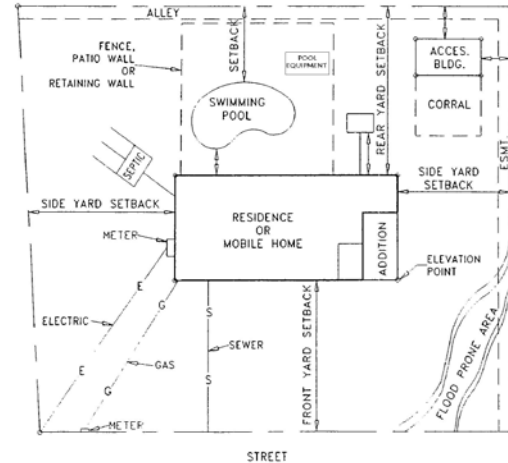
- help the homeowner envision how all parts of the project fit together;
- assist in planning and estimating the costs for each phase of the project;
- prevent unpleasant surprises and the need for change during construction;
- provide the contractor with clear instructions regarding the required layout, materials and the expected finished product;
- provide written and graphic documentation of the project for future reference;
- enable the Permitting Department to perform a faster and more thorough plan review;
- enable the Permitting Department to provide better service by identifying potential code problems and recommending solutions.

Based on the specific project, some or all of the following information may be required:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Soils Engineering Report • Site / Grading Plan • Floor Plans • Elevations • Cross Sections • Foundation Plan • Floor Framing Plan • Roof Framing Plan • Details • Engineering Calculations • Truss Plans | <ul style="list-style-type: none"> • Electrical Plan • Electrical Service Diagram • Electrical Load Calculations • Electrical Panel Schedule • Plumbing Plan • Plumbing Fixture Count • Gas Pipe Plan • Mechanical Plan • Septic System / Sewer Permit • Energy Code Calculations |
|--|---|

SITE PLAN

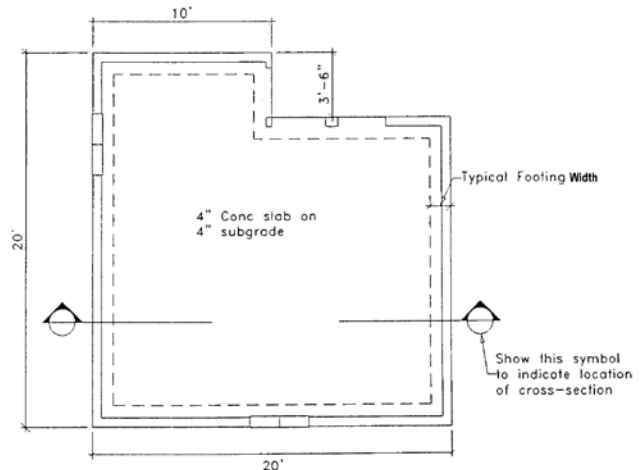
A site plan is a "bird's eye" view of the entire property. This plan is required when constructing a new building, pool, spa, or adding roof area to an existing building. The site plan must show the location of the property lines, dimension of easements, adjacent streets or alleys, and all proposed and existing buildings. The site plan must indicate the distance between buildings on the property and the distance from buildings to property lines. The square footage of new buildings, including patios, roofs, garages and carports should also be shown. The location of the septic system or sewer connection, and all water, gas and electric lines must be indicated, if applicable.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

FOUNDATION PLAN

A foundation plan is a "bird's eye" view of the foundation of a structure. This plan is required when constructing a new building or adding floor area to an existing building, porches, garages and similar structures. The foundation plan must show the size and depth of all footings, and indicate the location of the stem walls and slab. The size and spacing of the reinforcing steel must also be provided. Soil bearing values must also be indicated on the foundation plan. Engineering soil reports may be required.

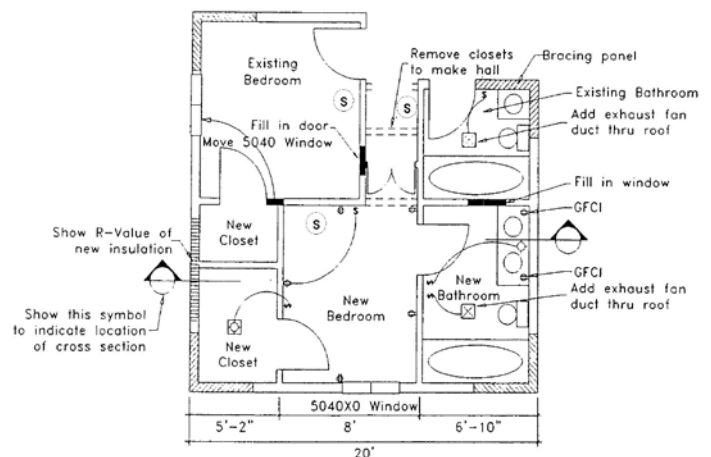


[Note: This drawing is a sample and may not cover all code requirements for your project.]

FLOOR PLAN

A floor plan is a "bird's eye" view of a building with the roof removed. This plan is required when adding a room to a home, changing the interior of a house by adding or removing walls, or when constructing a garage, storage unit, or workshop building.

Depending on the project, the floor plan may need to show the entire house or only specific areas. The floor plan must show any part of the structure that will be affected by the project. For example, an existing room must be shown if a new room will be attached to it. The floor plan must show the size and use of every room, the size and type of all doors and windows, plumbing fixtures, appliances, and built-in cabinets. The floor plan, or a separate electrical plan, must also indicate the location of all electric switches, lights, fans, smoke detectors, and receptacles with symbols as shown.



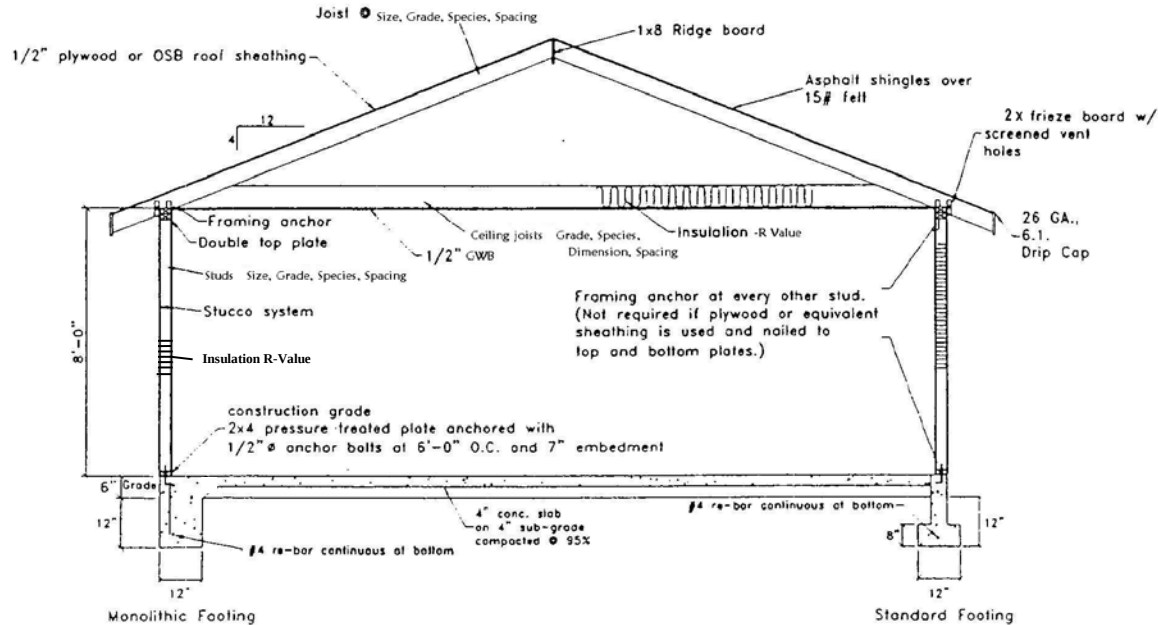
[Note: This drawing is a sample and may not cover all code requirements for your project.]

CROSS SECTION

A cross section is a view of a structure that has been sliced horizontally and separated to view the inside. This drawing best demonstrates how a building is constructed. A cross section is required when constructing any type of structure. This drawing must indicate the footings, wall studs and /or re-bar, beams, columns, roof rafters, trusses, plywood sheathing and the type of roofing material. All components and materials must be labeled with their sizes and dimensions. This drawing must also indicate how the individual parts will be put together with metal connectors, bolts or nails.

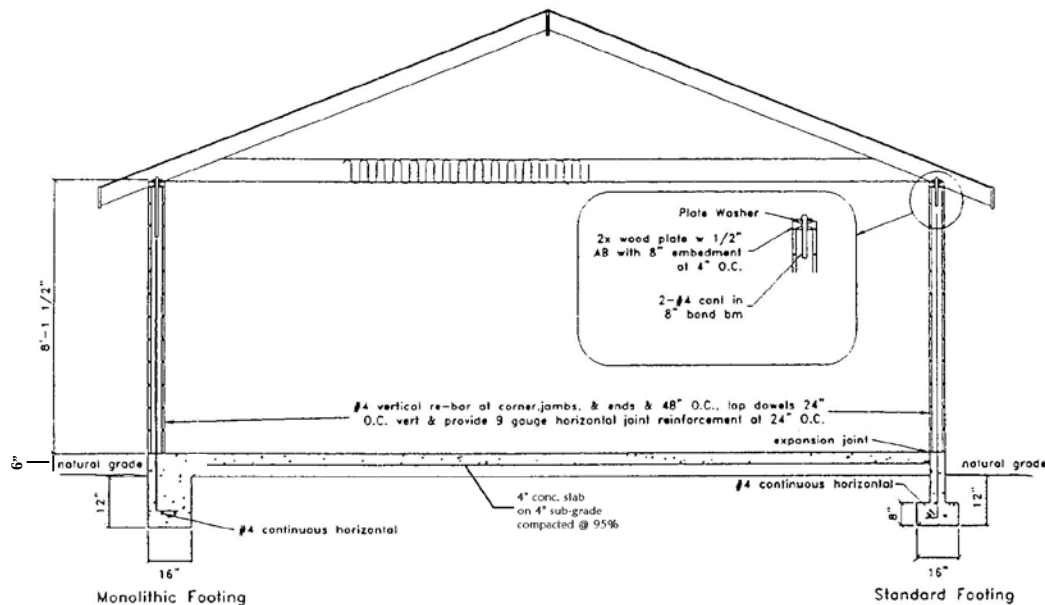
TYPICAL WOOD FRAME SECTION

[Note: This drawing is a sample and may not cover all code requirements for your project.]



TYPICAL CONCRETE BLOCK SECTION

[Note: This drawing is a sample and may not cover all code requirements for your project.]



SIZE, HEIGHT AND SPACING OF WOOD STUDS

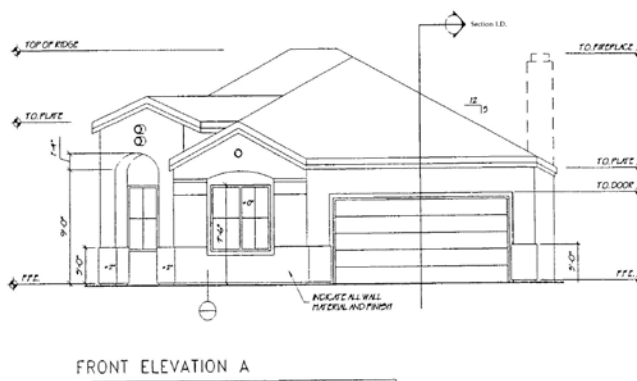
STUD SIZE (inches)	BEARING WALLS					NONBEARING WALLS	
	Laterally unsupported stud height ^a (feet)	Maximum spacing when supporting roof-ceiling assembly or a habitable attic assembly, only (inches)	Maximum spacing when supporting one floor, plus a roof-ceiling assembly or a habitable attic assembly (inches)	Maximum spacing when supporting two floors, plus a roof-ceiling assembly or a habitable attic assembly (inches)	Maximum spacing when supporting one floor height ^a (feet)	Laterally unsupported stud height ^a (feet)	Maximum spacing (inches)
2 X 3 ^b	-	-	-	-	-	10	16
2 x 4	10	24 ^c	16 ^c	-	24	14	24
3 x 4	10	24	24	16	24	14	24
2 x 5	10	24	24	-	24	16	24
2 x 6	10	24	24	16	24	20	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 square foot = 0.093 m².

- a. Listed heights are distances between points of lateral support placed perpendicular to the plane of the wall. Increases in unsupported height are permitted where justified by analysis.
- b. Shall not be used in exterior walls.
- c. A habitable attic assembly supported by 2 x 4 studs is limited to a roof span of 32 feet. Where the roof span exceeds 32 feet, the wall studs shall be increased to 2 x 6 or the studs shall be designed in accordance with accepted engineering practice.

ELEVATIONS

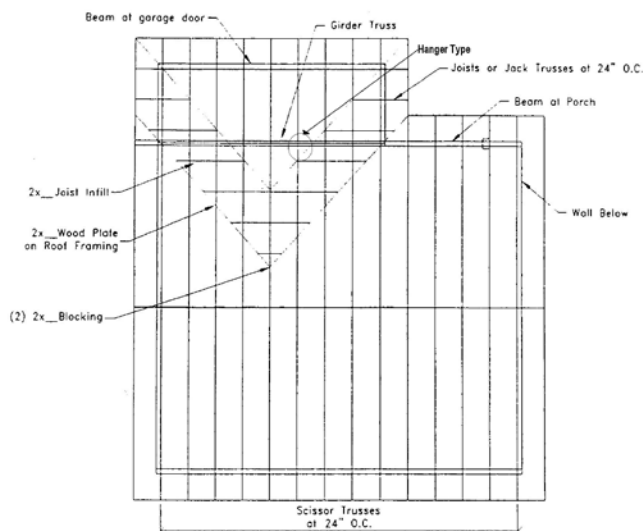
An elevation is an exterior view of the each side of a structure. They are required when constructing a new structure, adding a room to a home, or altering the exterior of an existing structure. The elevations must identify exterior features of a structure, including wall finishes, roofs, chimneys, doors, windows, openings and decorative elements. One or more elevation views may be required based on the specific project.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

ROOF FRAMING PLAN

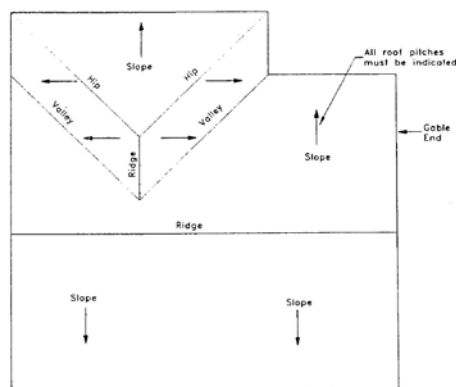
A roof framing plan, similar to a floor framing plan, shows the structure beneath the roof surface including rafters, joists, trusses, and beams. This plan is required when a roof structure contains several beams, has one beam supported by another, has trusses supported by a girder truss, or the structural elements of the roof cannot be clearly shown by a cross section. The size and spacing of all beams, supports, venting openings and structural details including types of framing hangers and connectors used must be shown on the plan. Also included is the type of construction materials, the location of exterior walls, and bearing partitions. If using pre-fabricated trusses, two sets of the manufacturer's plans must be provided. The manufacturer's plans must be sealed and dated by an engineer registered in Arizona and include the prescriptive wind load design.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

ROOF PLAN

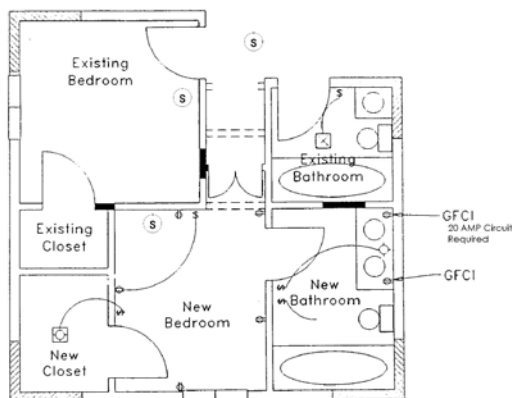
A roof plan is a "bird's eye" view of the roof. This plan demonstrates the slope of each part of the roof, and the location of any valleys, ridges, or hips. The roof plan must indicate the type of roof finish material, show how the roof will be ventilated and the approximate location of the vents. Roof ventilation calculations are also required.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

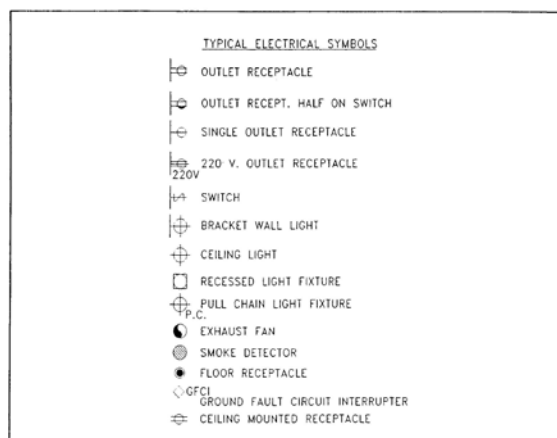
ELECTRICAL PLAN

An electrical plan is required whenever installing or replacing electrical components. All rooms must be identified by room use or name. This plan must indicate the location of all electrical outlets, lights, smoke detectors, and switches. All residential electric services require load calculations.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

Typical Electrical Symbols:



Common Electric Code Requirements:

- Any living room, dining room, family room, or bedroom must have electrical outlets spaced within a room so that a six (6) foot cord placed along the wall line can reach an outlet without crossing a doorway or other opening, such as a fireplace.
- Every wall two (2) feet wide or more must have at least one (1) electrical outlet.
- Each room must have a switch-controlled light or receptacle outlet.
- "Ground Fault Circuit Interrupter," (GFCI) protection is required for all outlets serving kitchen countertops, bathrooms, garages, unfinished accessory buildings, basements, all outlets within six (6) feet of a bar sink, and on all exterior outlets.
- When converting a carport into a garage, an additional GFCI outlet may be required.
- Arc Fault Circuit Breakers (AFCI) are required for all kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, and similar rooms or areas.
- Outlets shall not be installed face up in the counter.
- Kitchen counters must have electrical outlets for small appliances located so that no counter space 12 inches or wider, is further than two (2) feet from an outlet. An outlet is required to be located within two (2) feet of each end of any counter space, sink, range, or cooktop. They must be on two (2) individual 20 AMP circuits.
- The two (2) or more 20-amp kitchen appliance branch circuits can serve only the kitchen, dining room and similar areas.
- Only one (1) outlet is required for an island or peninsula countertop, unless divided by a sink, cooktop, etc.
- The outlets cannot be located higher than 20 inches above or more than 12 inches below the countertop, and if mounted below the countertop they cannot be installed under counter overhangs larger than six (6) inches.
- Bathroom outlets shall be supplied by at least one (1) 20-amp branch circuit. Such circuits shall have no other outlets and must be GFCI protected. An outlet shall be installed within 36 inches of each sink.
- Outlets and switches are not allowed to be installed in a bathtub or shower space.
- Range and dryer outlets must be four-wire type for all new construction and new circuit installations.
- Incandescent lights located within clothes closets must be enclosed and any part of the fixture shall be a minimum of 12 inches from shelf edges.
- Smoke detectors shall receive their primary power from the building wiring and be equipped with a battery back-up. Detectors shall sound an audible alarm in all sleeping areas in which they are located and be interconnected to sound simultaneously.
- Switch controlled lights are required at all exterior doors.

ELECTRICAL SERVICE AND LOAD CALCULATION

Whenever planning an addition or adding electric powered equipment to your home, it is necessary to determine whether the existing electrical service is capable of handling the increased loads. To perform load calculations, the following information is required: the size of the existing service, the total "livable" square footage, the number of kitchen small appliance circuits, a list of electric appliances (range, clothes dryer and water heater), with amperage rating, and the full-load amp rating of the air conditioning and heating equipment. If it is determined that the existing system is not adequate, the electrical service must be upgraded.

Electrical Panel Schedule and Circuits:

Whenever adding new loads to an existing electrical service, new circuits may need to be added. Therefore, it is necessary to provide a panel schedule showing the ampere rating of each circuit breaker and the circuit that it protects. It is also necessary to indicate the wire type and size. New breakers need to be from the same type and equipment manufacturer.

Sample Panel Schedule (120/240V – Single Phase, Service 22,000 AIC):

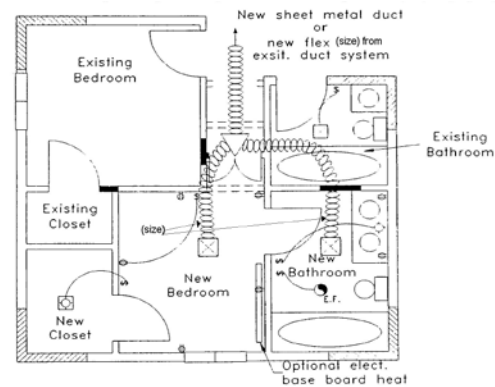
Wire Type & Size	Circuit Breaker		Circuit Protected	Circuit Protected	Circuit Breaker		Wire Type & Size
	No.	Amp			Amp	No.	
Cu #14	1	15	General Lighting/Receptacles	Air Conditioner	2P 30	2	Cu #10
Cu #14	3	15	"			4	
Cu #14	5	15	"			6	
Cu #12	7	20	Small Appliances	Range	2P 40	8	Cu #8
Cu #12	9	20	"			10	
Cu #12	11	20	Dishwasher & Disposal			12	
Cu #12	13	20	Laundry	Water Heater	2P 30	14	Cu #10
*Cu #14	15	15	Room Addition			16	
*Cu #12	17	20	Microwave Oven			18	
	19		Spare	Spare		20	

*New Circuits this Permit

[Note: This drawing is a sample and may not cover all code requirements for your project.]

MECHANICAL PLAN

A mechanical plan is required whenever installing cooling and/or heating equipment in a new or existing structure. This plan must indicate the size, capacity and location of all piping, supply and return air ducts, grills, exhaust fans, heater, combustion air vents and drains for the cooling/heating system. In addition, the capacity, location and required work space for the cooling/heating unit must be shown. The type of insulation material for mechanical pipes and air ducts must also be provided.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

SEWER OR SEPTIC SYSTEM

If your work involves any addition of plumbing fixtures, you will need to obtain a sewer card from Pima County Waste Water Management prior to issuance of building permit. If the property is served by an onsite sewage disposal system, the permit application must be reviewed by the Department of Environmental Quality (PDEQ), 201 North Stone Avenue (1st Floor) Tucson, Arizona. This review will determine if the existing system is large enough to serve the proposed addition. When installing a new septic system, PDEQ will require an engineered design and percolation testing prior to the issuance of a permit.

BATHROOM AND OTHER PLUMBING ADDITIONS

Installation of "Low Flow" fixtures, designed to save water, must be installed whenever addition or replacing any plumbing fixtures. Sinks and showers are limited to 2.5 gallons per minute; toilets are limited to 1.6 gallons per flush. Whenever adding additional fixtures to a plumbing system, it is necessary to check the size of the existing meter and yard piping to determine if they are capable of handling the increased demand. The meter and/or water line must be upgraded if determined that the existing system is not adequate.

BACKFLOW PREVENTION

Generally, people have confidence in the quality of water they drink. We open a faucet and drink, cook, and clean with the water that comes out. However, if the water becomes contaminated, sickness and even death could be the result. Many people are unaware that the common garden hose can be a dangerous vehicle for carrying such contaminated water into a home. Hazardous materials can enter a water supply system due to back-siphon. Back-siphon is the reversal of the normal flow in the water supply caused by a vacuum.

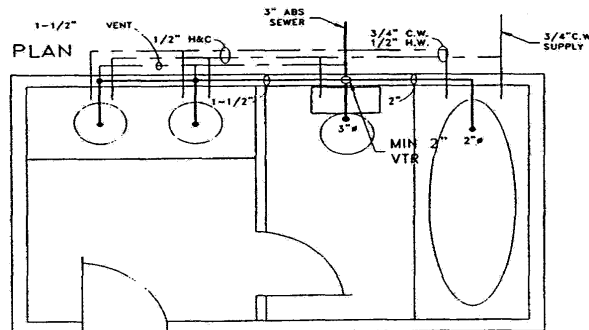
Back-siphon can occur whenever there is a loss of water pressure to a home due to a break in the service main, repairs being made on the line or nearby fire fighting activity. The effect of such a loss in pressure is the "sucking" or siphoning of water from the home piping system. In addition, an open hose left on the ground to water shrubs, or located near a cesspool or other contaminated area could cause harmful material to be "sucked" into the house piping system.

Another potential danger is a laundry tub or service sink, where an open hose hanging in the tub could allow contaminants to be siphoned back into the home piping system. While leaking gas can be smelled and smoke or fire can be seen, it is usually impossible to detect contaminated water. The only solution to prevent back-siphon and protect against contaminating the household water supply is the installation of a "back-flow preventer."

A back-flow prevention device works by means of a positive, rubber to rubber seating, which closes absolutely tight if the water supply pressure fails. This device ensures that back-siphon can not occur. The installation of a back-flow prevention device on any faucet where it is possible to attach a garden hose is required by code.

PLUMBING PLAN

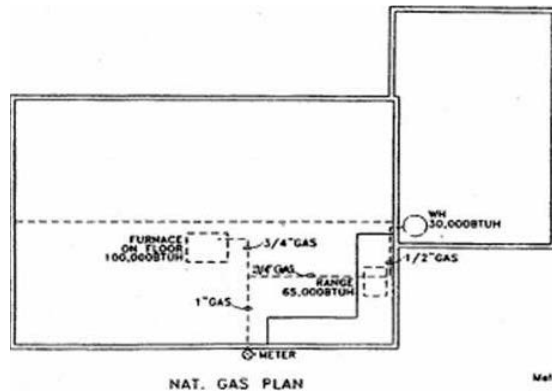
A plumbing plan is a diagram of the plumbing system which indicate the size and location of all new and existing drains, waste lines, vents and waterlines. A plumbing plan may be required when adding piping or fixtures to a plumbing system. This diagram must illustrate the proposed system as it will be installed, including all bends and branches required to fit the system inside the walls, floor, and/or roof. In addition, the plans must indicate the location of all existing and proposed traps, fixtures, drain and water piping. Each trap must be labeled with the name of the fixture and the size of each section of pipe. All new piping and the method for tying into the existing system must also be shown.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

GAS PLAN

A gas plan is a diagram of the gas supply system. A gas plan may be required when adding a new gas burning appliance to your home, replacing an existing gas burning appliance with a larger unit (measured in BTU's), or replacing the entire gas system. This diagram must illustrate the proposed system as it will be installed, including all bends and branches required to fit the system inside the walls, floor, and/or roof. In addition, the plans must also indicate the location of the meter and appliances, and the BTU rating of each appliance. The gas plan must also indicate the length and the size of each section of pipe and the total length from the gas meter to the most remote fixture. The entire system, both existing and new, must be shown.



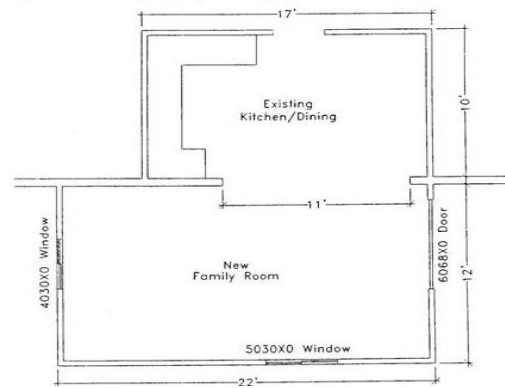
[Note: This drawing is a sample and may not cover all code requirements for your project.]

GAS SYSTEM TEST

A "gas system test" is actually an air pressure test of the gas supply system. It is required whenever adding or replacing piping. **The building inspector does not perform this test.** The property owner or owner representative must provide the equipment and set up the test before the inspection. The building inspector will verify that the pressure test gauge does not drop below the required pressure during the test. The gas test is performed by pressurizing all new gas piping to a pressure of 1½ times the proposed maximum working pressure, but not less than 3 psig for not less than ten (10) minutes.

LIGHT AND VENTILATION

When adding a room or enclosing a patio, the floor plan must demonstrate that all applicable light and ventilation requirements are met. The code requires each habitable room have natural light and ventilation. The total window area within a room must be not less than eight (8) percent of the room floor area. The total area of all windows that open must be not less than four (4) percent of the room floor area. Bathrooms and laundry rooms may have either windows or a fan vented to the outdoors.



[Note: This drawing is a sample and may not cover all code requirements for your project.]

PORCH: DESIGN CRITERIA, FRAMING DETAIL, FRAMING CHART, & SECTION

Porch Design Criteria:

1. All wood for this design must be Douglas Fir #2 or better.
2. Concrete grade must be a minimum of 2,500 psi.
3. Re-bar must be a minimum #4. (not shown)
4. Roof nailing must be 8d nails at 6" on-center at panel edges and 12" on-center elsewhere.
5. Minimum concrete toe-down at 6"h x 6"w with 1 - #3 re-bar horizontal, continuous. (Perimeter of concrete slab)
6. Assumed soil bearing 1500 psf.
7. Porch framing based on 30# dead load and live load.
8. Metal connectors to be listed products.

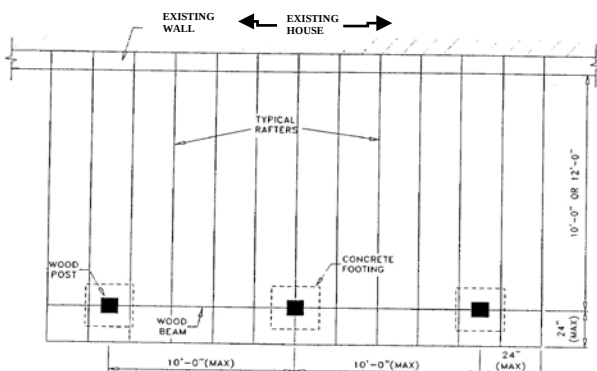
DEPTH	BEAM	RAFTER	POST	FOOTING
10' - 0"	4 x 8	2 x 6 @ 24" o.c.	4 x 4	18" SQ. x 12" D
12' - 0"	4 x 8	2 x 8 @ 24" o.c.	4 x 6	24" SQ. x 12" D

Framing Chart:

* Table based on Douglas Fir Larch #2

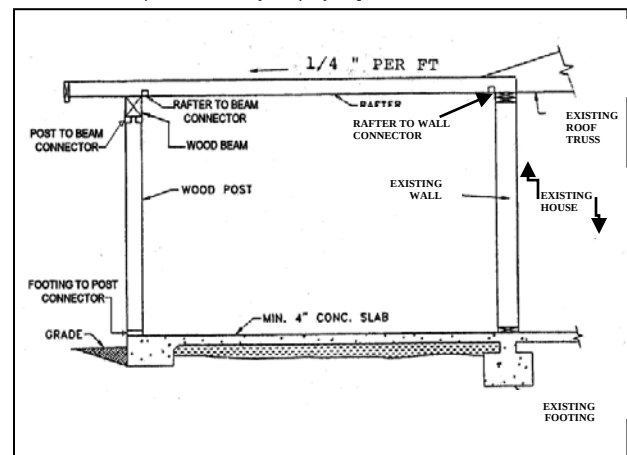
Porch Framing Detail:

[Note: This drawing is a sample and may not cover all code requirements for your project.]



Covered Patio Section:

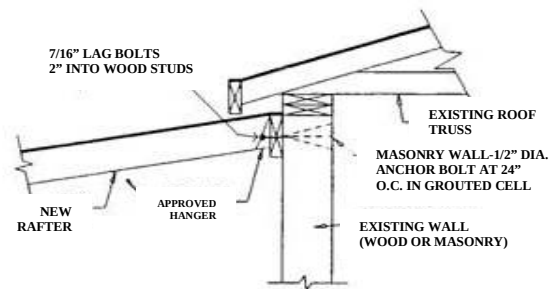
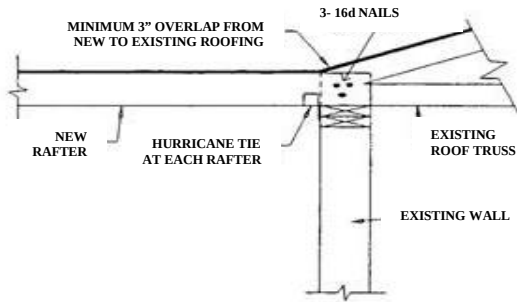
[Note: This drawing is a sample and may not cover all code requirements for your project.]



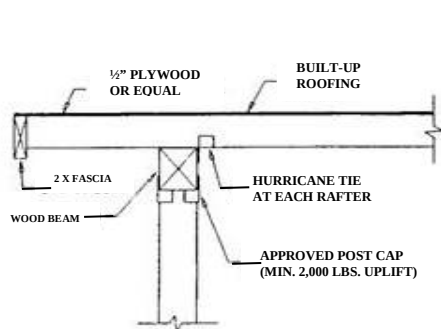
ROOF AND FOUNDATION DETAILS

ROOF AND FOUNDATION DETAILS

(Note: If this design is used to obtain a permit, the design may not be changed in the field)



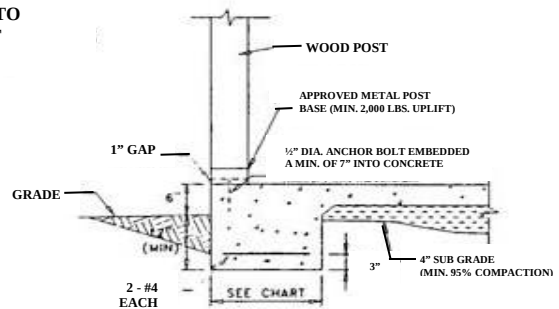
JOIST BEARING AT EXISTING WALL DETAIL



NOTE:
RAFTER CONNECTIONS TO
EXISTING FASCIA IS NOT
ACCEPTABLE

POST TO BEAM DETAIL

OPTION: LEDGER/JOIST DETAIL



FOOTING DETAIL

FENCE/WALL REQUIREMENTS

Building permits and inspections are required for fences and walls over six (6) feet in height measured from the lowest grade on either side of the wall or fence. Building permits are also required for all retaining walls four (4) feet or taller in height measured from bottom of footing. Any retaining wall carrying a surcharge (additional load other than the earth) including structures, pools, vehicles or earthen slopes, require a structural design and retaining wall permit.

A site plan must be submitted with the permit application. The plan must be drawn to scale, indicate the total length, the height(s), and the proposed location of the fence or wall relative to the property lines and any structures on the property. All parts of the retaining wall, including the foundation, must be located within the property line. If the proposed retaining wall will encroach into a utility easement, evidence of approval by utility companies holding rights to the easement, must be submitted prior to permit approval.

In addition to a site plan, relative details identifying how the retaining wall will be constructed, showing the size and type of proposed material. Retaining walls that require a permit shall be designed and sealed by an Arizona Registrant (engineer). Prior to placing a retaining wall adjacent to a street or alley it is necessary to contact the Oro Valley Public Works Department.

RESIDENTIAL SWIMMING POOL AND SPAS

Permits are required for all in ground and most above ground pools and spas. Most people have their swimming pool and/or spa built by a licensed company. Generally, the pool company obtains the required permits and requests inspections as part of their service. However, as with any other project, a homeowner may choose to be the general contractor. To obtain a building permit for an "in-ground" pool or spa, structural plans sealed by an Arizona registered engineer must be provided. When using an approved model, authorization to use such model must be provided by the designer. Aboveground pools and spas do not require engineered plans, but are required to be permitted as identified by the International Swimming Pool and Spa Code.

To obtain a pool or spa permit a site plan must be submitted. This site plan must indicate the distance from the pool or spa, to the property line and to adjoining walls, buildings, patios, ramadas or gazebos. The site plan must also show the location of the pool and/or spa filtering equipment and heater, electrical service for the home, and any electrical sub-panel installed for the pool. In addition, the plan must indicate the location of any electrical outlets within 20 feet, and lights, switches and light fixtures within five (5) horizontal feet of the water's edge.

If a natural gas or propane heater will be installed for the pool or spa, the location and size of propane tanks must be indicated on the site plan. The length and size of gas piping, and the BTU rating of the heater must also be provided. The propane tank installation also requires a Fire Department approval and inspection.

BARRIERS AND ENCLOSURES:

All pool plans submitted for permits will be required to include pool barrier and enclosure details that illustrate compliance with the following information.

- Barriers and enclosures shall be a minimum of five (5) feet in height above finished grade or other walking surface, measured on the side opposite the swimming pool. A **Barrier** is the separation from the house to the pool when the house is part of the barrier, and creates a physical separation between the pool or spa on the exterior of a residence.
- No opening in a barrier shall allow passage of a four (4) inch sphere.
- The vertical distance between the bottom of a barrier and the finished grade or walking surface shall be less than four (4) inches.
- The barrier or enclosure shall be constructed so as to not provide opportunity for climbing on the side opposite the pool.
- Footholds or handholds shall not be less than 48 inches from the top of the barrier or 48 inches from the finished grade, or other walking surface measured on the side opposite the swimming pool. Openings in chain-link fences, exceeding one (1) inch shall be slatted.
- Pool equipment must be located not less than 48 inches from a new or existing barrier or be separately enclosed with an approved barrier.
- Wrought iron or wood barriers shall be constructed with at least 48 inches between the top surface(s) of horizontal members.
- Where a protrusion, indentation, or top surface is at a continuous angle of inclination equal to or greater than 45 degrees above the horizontal and otherwise does not provide a handhold or foothold, it shall be deemed not to provide an opportunity for climbing, for purposes of this code.
- Any space which falls within the area described by a 48 inch radius, measured from the top of the barrier, must be maintained free of all natural or man made objects.
- Gates placed in a barrier shall comply with the above. All gates shall be not less than 60 inches in height and be self-closing and self-latching. Where the latch is less than 54 inches above the walking surface or 50 inches above a foothold, the latch may be installed on the poolside of the gate not less than 42 inches above the walking surface and the gate and barrier shall have no opening greater than one (1) inch within 18 inches of the latch. Gates in barriers shall be installed to swing in a direction opposite the pool.
- The pool shall not be filled with water until the pool barrier is complete. The pool barrier must be maintained to ensure the pool is safely isolated. This is a life safety issue and should not be reduced by propping gates open, allowing broken latches and closure devices, or any other action that reduces the effectiveness of the barrier.
- A pool safety cover may be used for a barrier if all of the following conditions are met:
 - o When in the closed position, a sphere four (4) inches in diameter is prevented from reaching the water surface.
 - o The cover is designed to support a static load of 485 pounds.
 - o The electric motor switch shall be key-operated or locked and there shall be an additional power disconnect located not less than 48 inches above the finished grade, deck or other walking surface.
- A wall of a dwelling or other building may be used as a barrier if all of the following conditions are met:
 - o **Windows** leading to the swimming pool area shall be provided with a **latching device** located not less than 54 inches above the floor. All windows and doors shall be identified with the window style, swing, and glass type, on a detailed floor plan.

- o **Doors** leading to the swimming pool area shall be provided with a **self-closing/self-latching device** on the door or the screen not less than 42 inches above the finished grade or other walking surface, measured on the side opposite the swimming pool. Screen doors may be used if protected with a substantial grill on the pool side to a minimum height of 36 inches above the walking surface. Dog doors or pass through openings may not open into the pool area. An alarm system that alerts occupants to an opening door is not permissible by code. However, the Building Official may consider the use of a hardwired alarm system when all other means of meeting code are impractical. A Petition of Appeal must be filed for the Building Official's consideration and ruling.

NOW THAT YOU HAVE YOUR PERMIT

Congratulations! Now that you have obtained an Oro Valley Building Permit, you may start construction of your project. The permit card/inspection record and a copy of the approved building plans must be kept on site, in a conspicuous location, where the inspector can access them. After final approval, it is recommended that you retain the building permit and original drawings for future reference.

A permit will remain valid for 180 days from the date of issuance. Once work begins and the first inspection is passed, the permit will remain valid as long as work continues and inspections are requested. If work ceases for more than 180 days, and/or no inspections are requested, the permit will expire. Therefore, if unexpected problems arise, or if circumstances exist that interfere with completion of the project, please contact the Oro Valley Inspection and Code Compliance Department prior to expiration. Depending on the circumstances, the permit may be extended for 180 days free of charge or renewed for a fee. However, if more than one (1) year passes without notifying the Inspection and Code Compliance Department, a new permit may be required. In this situation, new plans may have to be submitted and the full permit fees paid.

A general contractor may be hired to manage a project or a homeowner may choose to be the general contractor and hire sub-contractors. A homeowner may perform all of the work or perform only portions of the work and hire sub-contractors for other parts. For example, a homeowner may feel confident doing carpentry work, but may prefer to hire an electrician for wiring.

Helpful hints:

- We suggest that when hiring a general contractor or a sub-contractor, ask for his/her license number and check their status with the Registrar of Contractors at 628-6345 or www.AZROC.gov before signing an agreement or making any payment.
- Prior to starting construction, identify the location of any underground utilities by contacting Blue Stake by calling 811 or www.arizona811.com.

INSPECTIONS

Inspections are important to a home improvement project, and the building inspector is an objective and experienced professional whose primary function is to verify that construction is performed in accordance with applicable code requirements and the approved plans. An approved inspection indicates that work performed complies with code requirements. If a portion of the construction does not pass inspection, identified items will need to be corrected and re-inspected. No portion of work requiring an inspection may be concealed without first passing all necessary inspections.

All inspection requests received prior to 3:30 p.m. each working day is able to be scheduled for inspection on the following working day. Inspection requests received prior to 3:30 p.m. on a Friday may be scheduled for inspection on Monday. If received after 3:30 on a Friday, or on a weekend, the earliest available day will be Tuesday. Inspection requests received prior to 3:30 p.m. the working day before an observed holiday will be scheduled for inspection the next working day following such holiday. Inspection requests recorded after 3:30 p.m. may be scheduled for inspection the day following the next working day. Adherence to inspection schedules is subject to workload. It is important to plan ahead so that work will be ready for inspection when the inspector arrives. Although you are not required to be present during an inspection, you may want to be present to talk with the inspector. If someone cannot be on site, make sure that the inspector is provided access to the property, and that the inspection record card, and the approved copy of the plans are on site. The inspector will not enter the property if dogs are not contained. Certain inspections may require that someone be present.

All permits have required inspections that can be scheduled through our online scheduling system at www.orovalleyaz.gov under the Online Services tab. Inspectors can be reached the morning of the inspection at 520-229-4830 between 8:00 – 8:30 for an estimated time of arrival.

FREQUENTLY ASKED QUESTIONS

What is a permit and why do I need one?

The safety of the occupants of a building is the primary purpose of construction codes. Obtaining a permit provides the ability for the plans to be reviewed to the current adopted code prior to start of construction. A permit also enables Oro Valley to ensure public safety during construction. Oro Valley has adopted the 2018 edition of the International Codes, with local amendments, including Building (IBC), Residential (IRC), Fire (IFC), Mechanical (IMC), Plumbing (IPC), Fuel Gas (IFGC), Energy (IECC), International Swimming Pool and Spa Code (ISPSC), Property Maintenance Codes (IPMC), and the 2017 National Electrical Code (NEC).

When is a permit required?

Building permits are required for the construction of new a home, remodeling an existing home, additions or improvements to your home and property, swimming pool or spa, new furnace, new water heater, or any change or repair of an existing electrical, mechanical or plumbing system. Other examples of when a building permit may or may not be required are:

PERMITS REQUIRED:

- New Fireplace
- New Doors or Windows
- Replacement Water Heater
- New A/C Unit (central)
- New Dishwasher
- New Skylight
- New Pipe Work
- New Deck (>30" in height)
- Enclosed Porch or Carport

PERMITS NOT REQUIRED (EXAMPLES):

- Wallpapering, painting, carpeting, or similar finish work
- New Washing Machine or Dryer *
- Adding Insulation
- Replacement Doors **
- Roof Coverings (without wood sheathing replacement)
- New A/C Unit (window) *
- Drywall Repairs *
- Shed less than 120 sq. ft. in area (verify location with Zoning Department)
- Retaining Wall less than four (4) feet from bottom of footing (unless supporting a surcharge)
- Fence less than six (6) feet in height
- New or Replacement of Rain Gutter

* No electrical, plumbing, or mechanical work. Residential use only.

** Replacement must be same size and type (e.g. Fire door as existing door).

Single family home construction and many small homeowner projects require a permit which includes electrical, plumbing, and mechanical plans. The construction of a new home, home addition, and pool addition may also require a grading permit.

What about zoning requirements?

The Zoning Code establishes zoning districts for the Town of Oro Valley. The Zoning Code also outlines various requirements, including the uses of buildings, structures, improvements and premises in each zoning district. During the plan review process, zoning issues must be reviewed and approved by Planning Department staff. If a project cannot meet certain requirements of the Zoning Code, the property owner may apply to the Board of Adjustment for a variance. Contact a planner in the Planning Division at 520-229-4800 for more information.

How long does it take to get a building permit?

Time frames for building permit review and issuance may vary depending on the project being permitted. The following time periods can be expected for review of plans (in business days)

20 days – Single Family Residence (SFR)

10 days – SFR Addition/Alteration

10 days – Pool / Spa

The actual length of time required to review plans may vary depending on the complexity of the plans and the total number of plans under review at that time.

What if I do not get a building permit?

If a required building permit is not obtained **prior** to the start of construction, the property owner may be subject to fines, penalties and/or legal action. The property owner must immediately obtain permits for the work and pass all required inspections. If a permit application is not approved, the structure or site must be returned to its original condition.

What about inspections?

Whether work is performed by a homeowner or a contractor, the inspection phase is a method to verify that the installation is correct. It is the permittee's responsibility to request inspections during the course of construction. A contractor may request inspections, but it is the permittee's responsibility to ensure that all required inspections are made. The type of inspections required will vary depending on the project. Remember, a project is not complete until it has passed the final inspection.

How do I request inspections?

All permits have required inspections that can be scheduled through our online scheduling system at www.orovalleyaz.gov under the Online Services tab. Inspectors can be reached the morning of the inspection at 520-229-4830 between 8:00 – 8:30 for an estimated time of arrival.

What if I have a permit, but do not call for inspections?

A project is not complete until it passes the final inspection. Permits expire after 180 days if an inspection has not been performed. If a permit expires before the final inspection, all work must cease. To continue work after expiration of a permit, you must make a written request to the Building Official demonstrating justifiable cause for the inactivity. Fees to renew expired permits may be applicable.

How are permit fees determined?

Permit fees are based on the current fee schedule as adopted by Oro Valley. Individual project fees will vary depending on the type of project, square footage, and total cost of construction, including labor and materials. These schedules are located on the Permitting Department web site, or applicants may contact the department to determine approximate fees.

A FINAL WORD

After your project has passed final inspection and you are able to relax and enjoy your accomplishments, we would appreciate your feedback regarding your experience. We hope that you have found our office staff, plan reviewers and building inspectors to be courteous, knowledgeable and helpful. Please take this opportunity to complete the evaluation form provided on the last page of this booklet and return it to:

The Town of Oro Valley
Permitting Division
11000 N. La Cañada Drive
Oro Valley, AZ, 85737

You may also email completed forms to permits@orovalleyaz.gov or
Fax to the Permitting Division (520) 742-1022,
or provide input by phone at (520) 229-4800.

We welcome your comments and suggestions!



Community and Economic Development Department
11000 N. La Cañada Drive • Oro Valley, Arizona 85737
www.orovalleyaz.gov

Customer Name (Please Print)
Date

Contact Phone (Optional)

Meeting our Customer's needs is important to us. We welcome your suggestions and comments and encourage you to fill out this form.

1. Were the steps for the development, permit, or inspection process clearly explained and understandable?
☐ Yes ☐ No
2. Were the plan review, permit issuance, and inspections completed within the timeline goals prescribed?
☐ Yes ☐ No
3. Was the service professional, courteous and helpful?
☐ Yes ☐ No Would you like to name any employee(s) that you feel provided exceptional service?

4. Did you experience a problem getting the information you needed?
If yes, what aspect?
5. Any general comments?

Thank you for taking your time to help us improve!