City of Tracy

Residential Permits

A Step by Step Guide

- **New One and Two Family Dwellings**
- **Additions**
- **Remodels / Alterations**

City of Tracy
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Tracy, CA 95376

DEVELOPMENT SERVICES

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Dear Home Owner:

Would you like some assistance to be able to design, submit and build your own construction project? To that end, the City of Tracy has worked hard to develop this booklet as an aid to help you in understanding what paperwork is required to be submitted to the City to secure a building permit and what those submittals should contain. This will save you time and expense as you endeavor to renovate, remodel, alter, add to or build your own home! It is arranged in a step by step format that closely follows the same order that a project typically moves through in the initial planning, review, construction, and inspection phases.

It is our goal that the use of this manual will give you valuable insights as you move your project from concept to construction and ultimately, to occupancy!

This booklet is most effectively used when a Building Permit Technician has had the opportunity to assist you in making recommendations to tailor the content specifically to your project. If you have obtained this manual without the benefit of meeting with a Building Permit Technician, please visit us for assistance; no appointment is necessary. We are located at 333 Civic Center Plaza and are open Mon-Thurs 8:00am-6:00pm and every other Friday 8:00am-5:00pm. We can also be reached at (209) 831-6400.

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Step 1

Planning Your Project

Planning Your Project

Overview

Now that you have decided on a construction project, what's next? A successful project is one that has been thoroughly researched and planned before any significant investment of time and money has been made. To get started, it is important to understand what reviews and approvals will be required, which fees are applicable, and whether other jurisdictions or outside agencies need to be contacted.

The Development Services Building Safety Division can provide you with information about the standards, regulations, or potential constraints that may affect your property. The information is typically from the perspective of Zoning, Civil Engineering, Fire Prevention, Water Resources, and the Building Codes. Staff can also provide you with fee information, as well as, identify other jurisdictions or outside agencies you may need to contact; all in a single visit.

Review Criteria

Zoning is governed by the Tracy Municipal Code (TMC), Title 10 Planning and Zoning. You can view the Zoning Ordinance and the entire TMC online and at the Development Services front counter or online at www.ci.tracy.ca.us . Each piece of land in town has been designated a specific zone, and each zone is regulated by standards that help shape the overall look and feel of Tracy at the neighborhood level and the greater community level. These standards contain information about permitted land uses, building size and setbacks, and parking and landscaping requirements. Some projects are reviewed at the staff level, and others require Planning Commission or City Council approval. Planning staff can identify the type of review process required for your project and explain how to successfully complete the project.

Civil Engineering information typically comes from city maps and records that show the location of underground utilities, sanitary sewer mains, storm sewer lines, water mains, and recorded easements. Easement information can be obtained at the front counter or from the San Joaquin County Recorders Office located at 44 N San Joaquin St., 2nd Floor #260, Stockton, CA 95202, phone (209) 468-3939. In addition, information can be obtained about grading, street trees, driveways, curb/gutter/sidewalks, water service, and encroachments from Engineering staff located in City Hall. Engineering staff will help determine the location of easements, utilities, or other infrastructure improvements on and around your property.

Fire Prevention information is a key element to the overall safety of any project. The City has a fire sprinkler ordinance that outlines the requirements for needing sprinklers. This ordinance can be found in the TMC, Title 9 Building Regulations, Chapter 9.06 Fire Protection & Prevention. Not all residential buildings or projects

are required to be sprinklered. Fire Prevention staff can determine if your project is subject to being fire sprinklered or required to have other preventive systems.

Building Code information is vital to the development of any project and is contained in the California Building Code, California Mechanical Code, California Plumbing Code, California Electrical Code, California Fire Code, California Building Energy Efficiency Standards, California Green Building Code including building accessibility requirements. The Codes are designed to ensure the minimum fire-life safety of occupants throughout the life of a building. Building Safety Division staff can help you obtain specific code information for your project.

Inspections are required at specified intervals during the course of construction. Upon your request, the inspector will visit the job site and perform the scheduled inspection and record the results on your inspection record. It is the function of the inspector to ensure that all zoning, civil engineering, fire prevention, building codes, and other regulations are being met and that your project is being constructed in conformance to the approved plans. Building Safety Division staff can outline the specified inspections necessary for your project. *There may be specific inspections for Fire Sprinkler systems which are provided by the Fire Department. (Please see Step 8: Inspections).*

Outside Agencies

Depending on the location and type of project you are planning, it is possible that other agencies may need to be informed. In the case of a demolition project, for example, a clearance from the San Joaquin County Valley Air Pollution Control District (APCD) must be obtained. Other outside agencies that could be involved are: State of California Fish and Game, Army Corp of Engineers, San Joaquin County Environmental Health Department, and utility companies to name a few. While it is not likely that a project on an established lot will need to interface with these jurisdictions, there is always the chance that one or more may have an obligation to review a project. Permit Assistance Center staff can identify any Outside Agency that may have easement rights or review obligations on your property.

Gas and Electric Services are delivered by PG&E and they are the only utility that can set main gas and electric meters. PG&E has approval authority over the design, engineering, and installation of infrastructure improvements up to and including the service meters. The property owner is then responsible for the gas pipes, electrical conduit and electrical wire on the “Building” side of the meters. When planning a new project where no PG&E service exists or working on an existing structure where gas and electrical service upgrades are required, always contact the new business department of PG&E for guidance.

Water Services are provided though the City of Tracy Finance Department.

Storm Sewer Services are provided by the City of Tracy. Each project is required to control the flow of storm water into the storm water inlets, conveyance pipes, and culverts maintained by the City of Tracy. Each construction project is evaluated for the amount of impervious surface being created and an appropriate storm water fee is assessed.

Sanitary Sewer Services are provided by the City of Tracy and each new home in the City of Tracy's jurisdiction is required to connect to the city sewer system. This is accomplished through the installation of a lateral line (sewer lateral) that completes the connection of the home to the sewer main. The main sewer system is maintained in good working order by the city to ensure sanitary conditions are met.

Fees

Fees are needed to account for the time and resources that are necessary for a thorough review of your project. In addition, there are infrastructure improvements and city programs that some projects are required to participate in where a fee is necessary. Typically, there are four types of fees a project is subject to: time and material fees (typically your permit and inspection fees), development fees, mitigation fees, and taxes. Time and material fees cover staff wages and overhead, such as utilities and equipment. Development fees cover the costs of existing and future infrastructure and programs. Additionally, there are School Mitigation fees and City and State taxes that may be applicable.

Regardless of the category they fall in, all fees are implemented to cover direct fees for services, fund public improvements related to the project, or fund public programs as approved by City Council. The basis for each fee can be found in the TMC. Permit Assistance Center staff can identify and further explain each fee your project is subject to.

Design with Green Building in Mind

As energy costs rise and resources become increasingly scarce, good design, improved construction methods, and specifying eco-friendly materials can lead to a more efficient project. During the planning stage for example, consider the orientation with respect to the sun when deciding where to place windows, doors, and skylights since these openings will greatly effect the inside temperature and the need to heat and cool your new space as well as provide lighting. This is equally important if you have chosen to install a solar electric system.

The use of alternate framing methods and composite lumber products are becoming a popular way to make more efficient use of forested resources. Many builders, for example, are evaluating their framing methods and using less lumber when possible. The use of “right-sized” headers, composite beams, truss joists, and finger jointed moldings are just a few ways lumber is being used today.

All the materials and building products you use to construct your project contribute to the overall air quality of your new space. There are many products on the market today that have low or zero amounts of Volatile Organic Compounds (VOC) or formaldehyde, resulting in cleaner air to breathe. The use of more eco-friendly paints, solvents, adhesives, and stains can greatly increase the quality of indoor and outdoor environments and decrease chances of illness for builders and building occupants.

Step 2

Preliminary Drawings

Preliminary Drawings

Sketches

You probably have a mental picture of how great your project will look. Start by making sketches of the project area to see how the space fits with the overall design and circulation of your home. Make several sketches of alternate designs so you can determine what will look and work best. Keep your sketches; even those that seem unworkable, since sometimes they are just the thing to improve a new design. Some rules of thumb to follow are:

1. Draw the basics first. Don't waste time doing special detail.

2. Show your drawings to a friend or family member before submitting them to the Building Safety Division. If they can understand what you plan to do, the Building Safety Division should also.

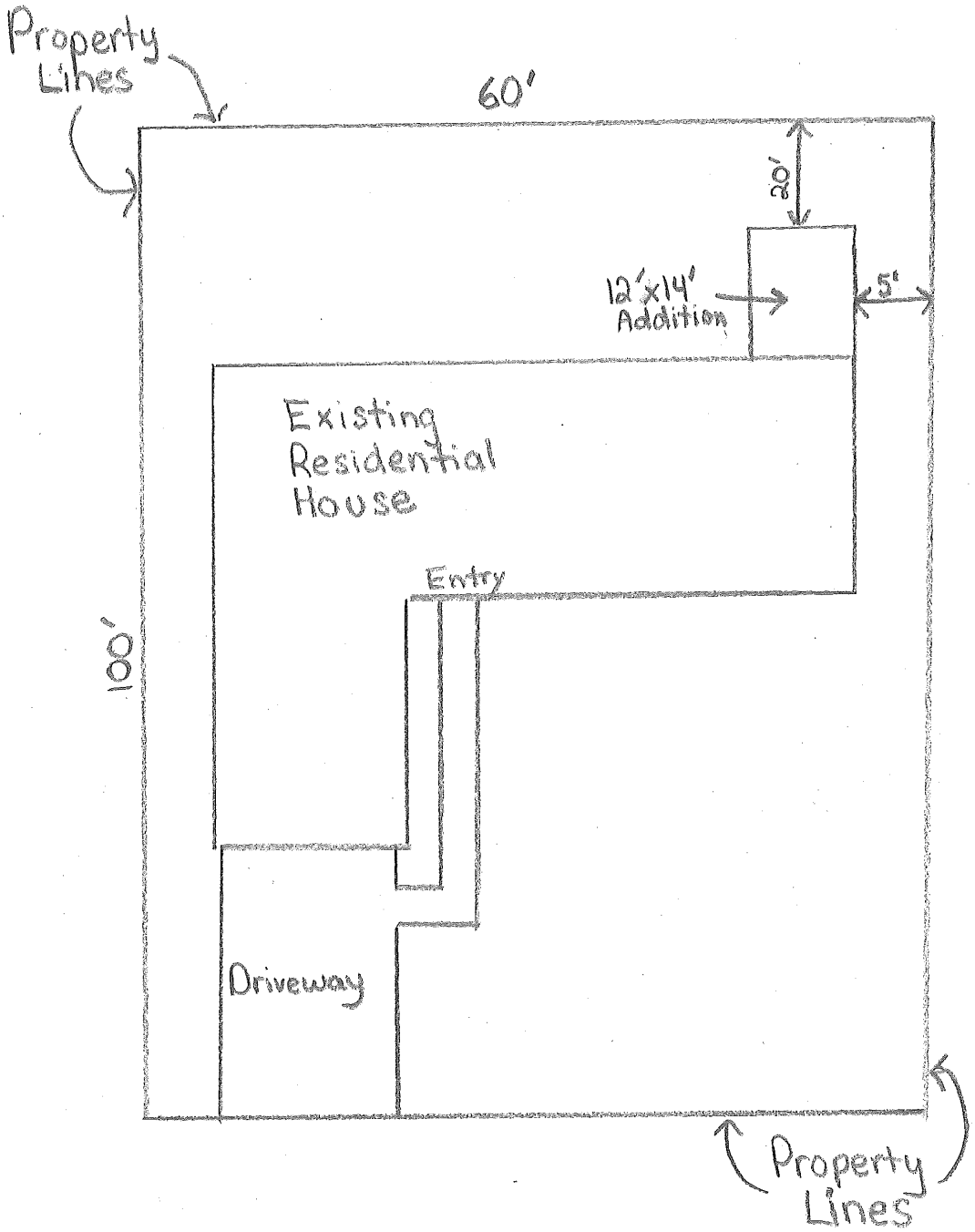
3. You may make your drawings on standard 8-1/2" x 11" paper so that you can make quick and inexpensive copies. Where the scale proves too large for a single sheet of 8-1/2" x 11" paper, additional sheets can be placed together to complete the drawing. These sheets can be taped together for copying to a larger format later.

4. Dimensions are very important. Take the time to make your drawings accurate. The dimensions you show should be exact. The additional time it takes to do this will be well worth it when you go to build the project as you envisioned it. It is especially important to show the location of all structures, existing and proposed, in relationship to the property lines as this is where zoning and some building regulations may affect your project. If the alteration or addition is to occur in the front yard, property lines some times begin between the front edge of your lawn and the back of the sidewalk.

5. To fully communicate the scope of the project, sketches should include a site/plot plan, floor plan(s), and elevation drawings. Photographs of the existing project area can also be helpful. Generally, floor plans and elevations are drawn at 1/4" equals 1'-0" while plot plans are drawn at a scale no smaller than 1" equals 20'. While these drawings do not need to be to scale, the more exact they are now will make the drawing process easier later. If you do not make the drawings to scale, the dimensions should still be exact.

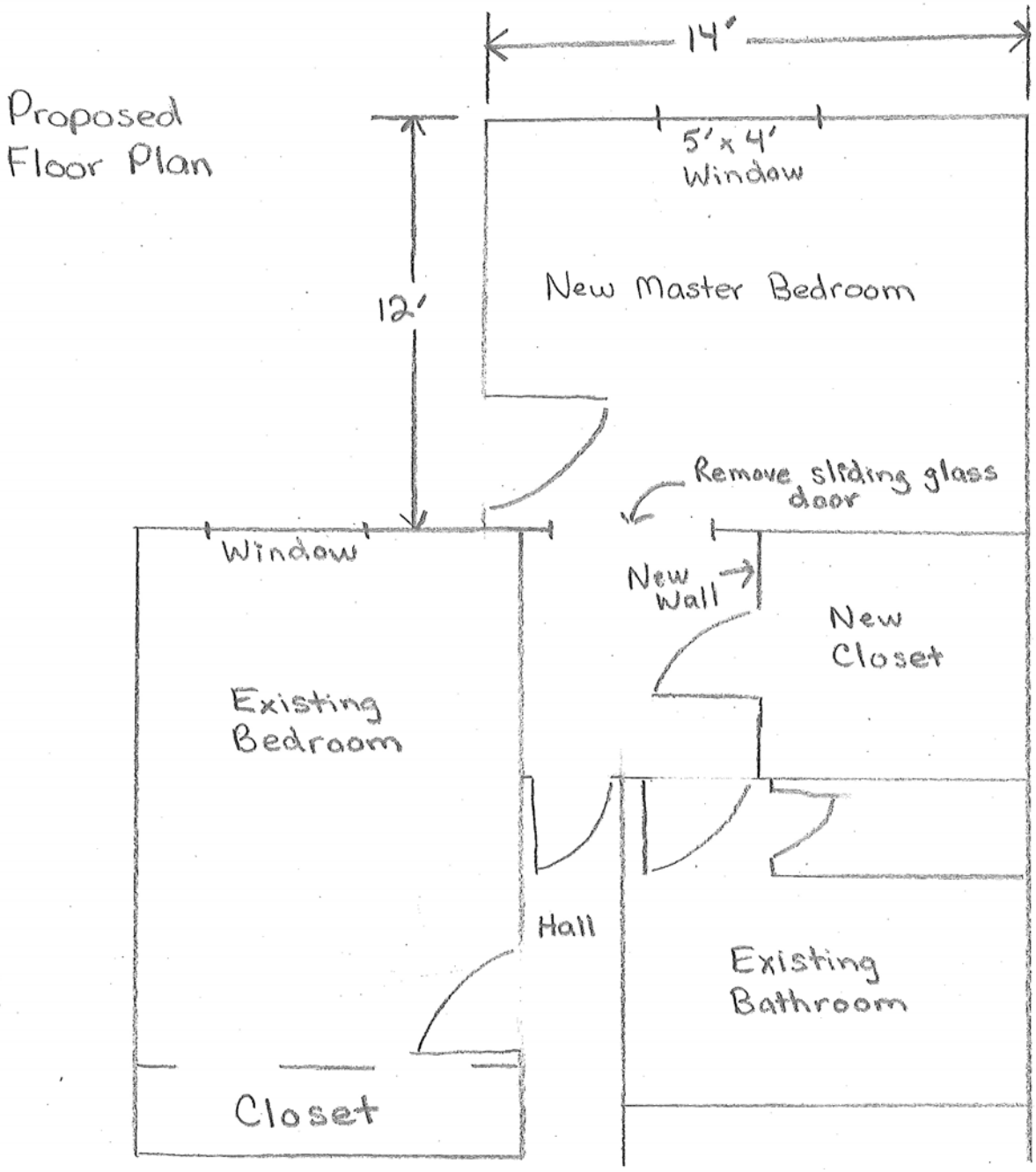
Note: Your sketches are not necessarily the same drawings that will be used to submit for permits but rather are a tool to be used later for the development of more detailed and accurate drawings.

(Please see the attached sample sketches on the next 3 pages)

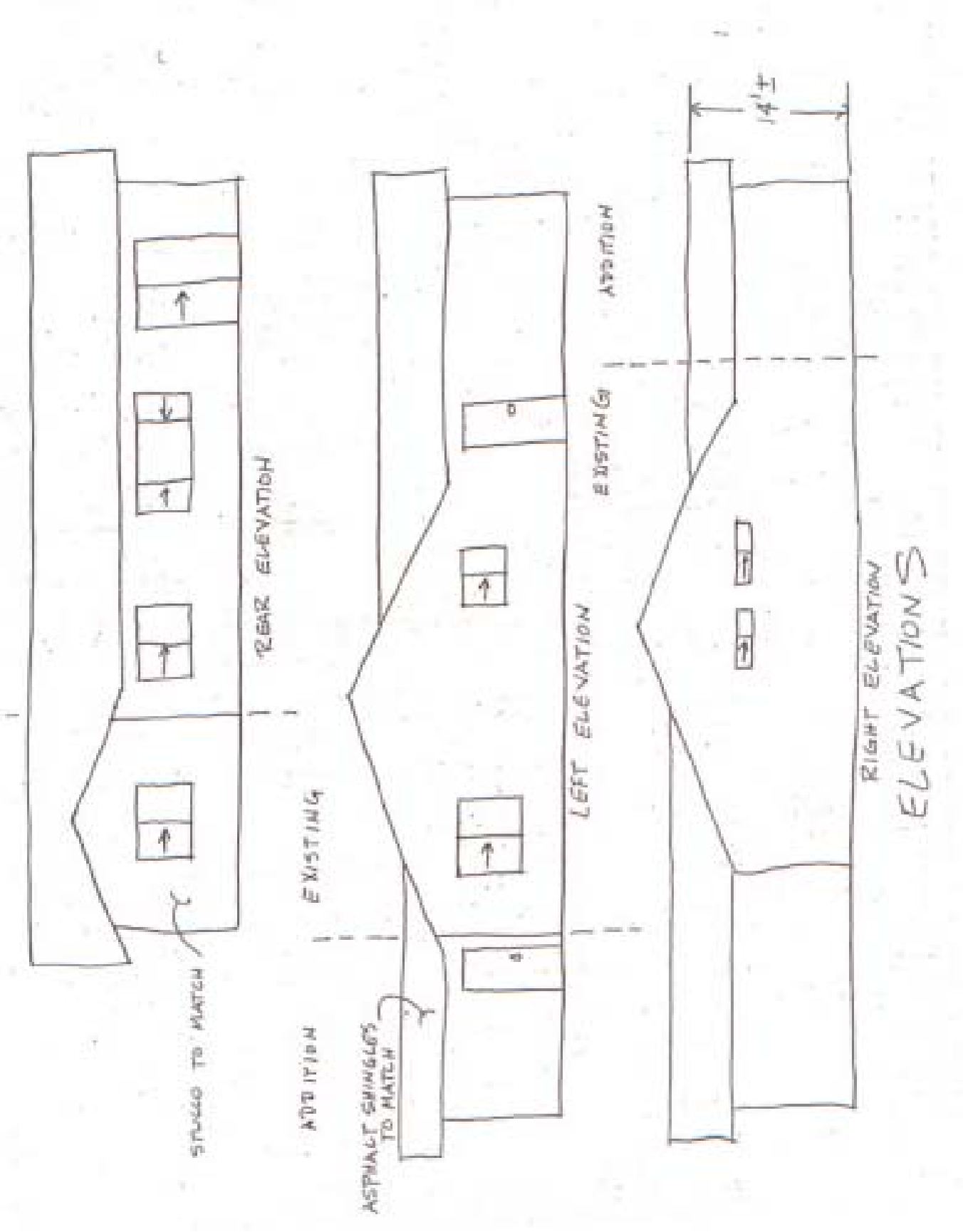


1234 Sample Street

SITE PLAN


Proposed
Floor Plan
14'
5' x 4'
Window
12'
New Master Bedroom
Remove sliding glass door
Window
New
Wall
New
Closet
Existing
Bedroom
Hall
Existing
Bathroom
Closet

Preliminary Drawings



Step 3

Preliminary Review

Preliminary Review

Now that you have completed your sketches, it is time to have them reviewed by the Development Services staff to determine the zoning requirements, what planning approvals/permits will be required, if there are any physical constraints, if the project needs to be fire sprinklered, what the applicable code requirements are, and what the potential fees will be. Building Permit Technicians will also identify additional plans and document requirements such as framing, structural, plumbing, electrical and or mechanical plans, or energy documentation. These reviews are from the perspective of Zoning, Civil Engineering, Fire Prevention, local ordinances, and Building Codes. Additionally, the Building Safety Division staff will identify any other applicable rules, regulations, or ordinances that apply to your project. While these reviews are performed in a single visit, they may be performed by one or more Development Services staff members.

The following pages should be used to record information you receive from Development Services staff. In addition, staff will use the attachment pages to assist you with the necessary information required for your project.

Zoning

This review is important because it applies the zoning codes that determine allowable heights, lot coverage, distances from property lines, distance from other structures, minimum open space, off-street parking and yard setbacks, if applicable. During this review, planning staff will determine whether your project meets these zoning standards. If the project requires more information, planning staff will ask you to provide additional details.

Notes:_____

Engineering

The Engineering review, conducted by Engineering staff, will be for the purpose of identifying any easements, utilities and/or other infrastructure improvements that might fall within the project area. This review will determine if there are any legal constraints or physical utility improvements that will prohibit construction in your proposed project area. In addition, this review evaluates drainage, driveway locations, and street improvements to ensure continuity to the public way. Engineering staff will determine if any encroachment or other permits are required.

Notes:_____

Preliminary Review

- **Attach Site Map**
- **Attach Applicable Easement Language**
- **Attach Applicable Engineering Permit Submittal Requirements**
- **Attach Engineering Permit Applications**
- **Attach Applicable Permit Fee Schedule**

Building Codes

A Building Permit Technician will identify applicable Building Code requirements. Generally, this review is from the perspective of the Building Codes, as well as City Ordinances, to establish baseline information from which the Building Permit(s) are reviewed. Trade work such as Mechanical, Plumbing, Electrical, and Fire Sprinkler installations can also be discussed at this time but usually, the project planning step is too early for specialized reviews. More specific plan reviews will be performed upon your actual permit submittal package during the Building Permit plan check. At this time, a Building Permit Technician can provide information regarding building permit fees, development fees, school fees, and any other fees that the project may be subject to.

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- **Attach Personalized Building Permit Fee Estimate**

- **Attach School Fee Information**
- **Attach Fire Sprinkler and Security Ordinance Information**

Preliminary Review Wrap-Up

While this preliminary review may seem daunting, consider what has been accomplished. By virtue of providing sketches, you have obtained the information you need to begin the permit process for your new one or two family home, addition, remodel or alteration. For additions, you have planned your project to be integrated into the existing structure design by providing architectural continuity and interior circulation. In addition, you know if your project conforms to applicable codes, ordinances, and property constraints. Of greatest benefit, however, is that little to no financial investment has been made to get to this point. With the information gathered from the Development Services staff, it is now time to move to the next step of project development.

Step 4

Building Permit Drawings

Building Permit Drawings

You are now ready to complete your construction drawings, also known as working drawings. Many of the drawings are similar to those you have previously generated but you will now be adding a greater depth of information and you will need to make additional drawings that communicate what is being built, how it is being built, and what materials are being used. Unlike your earlier sketches, these drawings are very technical and contain exact dimensions and measurements, details, cross-references, symbols, and other information. Furthermore, you may need to include engineering calculations, soils reports, energy forms, product specifications and testing approvals, or other documents as identified by City staff.

The main function of the construction drawing review is to examine the plans to ensure compliance with the building codes. Currently, the California Codes are the 2007 editions of the California Building Code (CBC), California Mechanical Code (CMC), California Plumbing Code (CPC), California Fire Code (CFC), California Electrical Code (CEC), and the 2008 edition of the California Building Energy Efficiency Standards. These codes are available for review at the Development & Engineering Services department. City staff can assist you in identifying the correct codes and sections that apply to your project. The current code information should be shown on the front sheet of the plans to indicate that the minimum design criteria from these codes have been incorporated in the design of your project.

The following information is provided as a guideline to develop drawings suitable for building permit submittal. A full set of construction drawings will include; a Cover Sheet, Site Plan, Foundation Plan, Floor Plan(s), Exterior Elevations, Roof Plan, Cross-Sections, and Details. Your plan set may also require you to include other drawings such as Floor, Wall, and Roof Framing Plans, as well as, Plumbing, Mechanical, Electrical, Landscape, and Erosion Control plans. Not all these plans, however, are required for every type of project. City staff will identify the plans you need for your project.

As a result of using the following checklists, you will have a set of plans that will be clear and concise and above all, a tool that you will use from start to finish. Your completed plans can be used not only to obtain your permit(s) but also to cost out the job, get estimates from sub-contractors, and show detail in legal documents. **A good set of plans is the most important part of your project.**

Building Permit Drawings

Title Blocks are simple to complete but the information they contain is vital for a cohesive plan review and to establish communication lines between you and the City. The title block is placed on every sheet in the set of drawings usually along the right side or bottom border of each sheet. A good title block will have the address of the project, the owners name, phone number, and address; the designer's name, phone number, address, and signature. If the plans are drawn by a licensed architect, the title block will also contain the architects stamp and wet signature. In addition, the Title Block will provide the scale to which the plan(s) are drawn, the date the plans were drawn, and the page number. Please use the checklist below to complete your Title Block.

(The opposite page is an example of a Title Block)

Title Block Checklist

- ❑ Indicate address of project
- ❑ Indicate owner's name, address, and contact information
- ❑ Architect's / designer's name, address, and contact information
  - ❑ Architects must wet stamp and sign all final plans
  - ❑ Designers must wet sign all final plans
- ❑ Indicate date plans were drawn
- ❑ Indicate page number
- ❑ Provide area for scale
- ❑ Provide area for revision information
- ❑ Provide area for plan review approval stamp

TITLE BLOCK SAMPLES (2)

SAMPLE #1

JOB ADDRESS: 1234 SAMPLE STREET	PHONE
OWNER:	
OWNER ADDRESS:	
ARCHITECT/DESIGNER:	
DESIGNER SIGNATURE:	
DATE OF PLAN: PLAN SCALE:	
PAGE ___ OF ___ PAGES	REVISIONS NO. DATE

SAMPLE #2

JOB ADDRESS: 1234 SAMPLE STREET	OWNER:	ADDRESS:	PHONE:
ARCHITECT/DESIGNER:		DESIGNER SIGNATURE:	PHONE:
DATE OF PLAN:	PLAN SCALE:	PAGE ___ OF ___ PAGES	
REVISIONS DATE # NO:			

Building Permit Drawings

The Cover Sheet is an important component to a good set of plans because this is the first place the Plan Reviewer looks to gain information about your project. The Plan Reviewer will rely on this page to verify the address for easy cross-reference with city records, identify who the designer or architect is, establish the scope of work, determine what codes will be applicable to the review, and to review the general notes for any specifications or special conditions, to name a few. Plan Review also needs to identify who they are performing the review for and who to contact for questions and review status. At a minimum, the cover sheet will contain a table of contents or sheet index, general notes, the reference codes, and a vicinity map. Please use the checklist below to complete your Cover Sheet.

(The opposite page is an example of a Cover Sheet)

Cover Sheet Checklist

- ❑ Title Block
- ❑ Table of contents or sheet index
- ❑ List of reference codes
- ❑ Project data table
- ❑ General notes
- ❑ Scope of work
- ❑ Specifications or special conditions
- ❑ Vicinity map with north arrow
- ❑ Symbol legends

Building Permit Drawings

PROJECT DATA

EXISTING BUILDING AREA:
EXISTING LOT AREA:
PROPOSED BUILDING AREA:
LOT COVERAGE PERCENT:
OCCUPANCY TYPE BY AREA:
TYPE OF CONSTRUCTION:

SETBACKS ALLOWED

FRONT 20' REAR 10'
RIGHT SIDE 5' LEFT SIDE 5'
BUILDING HEIGHT:

IMPERVIOUS SURFACE EXISTING:
IMPERVIOUS SURFACE PROPOSED:
MAXIMUM ALLOWED LOT COVERAGE:
EXISTING FIRE SPRINKLERS: YES___ NO___

JOB ADDRESS:	PHONE
OWNER:	
	REVISIONS

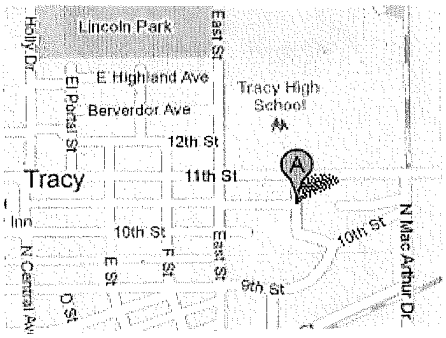
SCOPE OF WORK: BEDROOM ADDITION 168 sq. ft.

GENERAL NOTES

SHEET INDEX

PAGE	PLAN
1	COVER PAGE
2	SITE PLAN
3	FLOOR PLAN
4	
5	
6	
7	
8	
9	

VICINITY MAP



Reference Codes

2007 California Building Code
2007 California Fire Code
2007 California Plumbing Code
2007 California Mechanical Code
2007 California Electrical Code
2008 California Energy Code

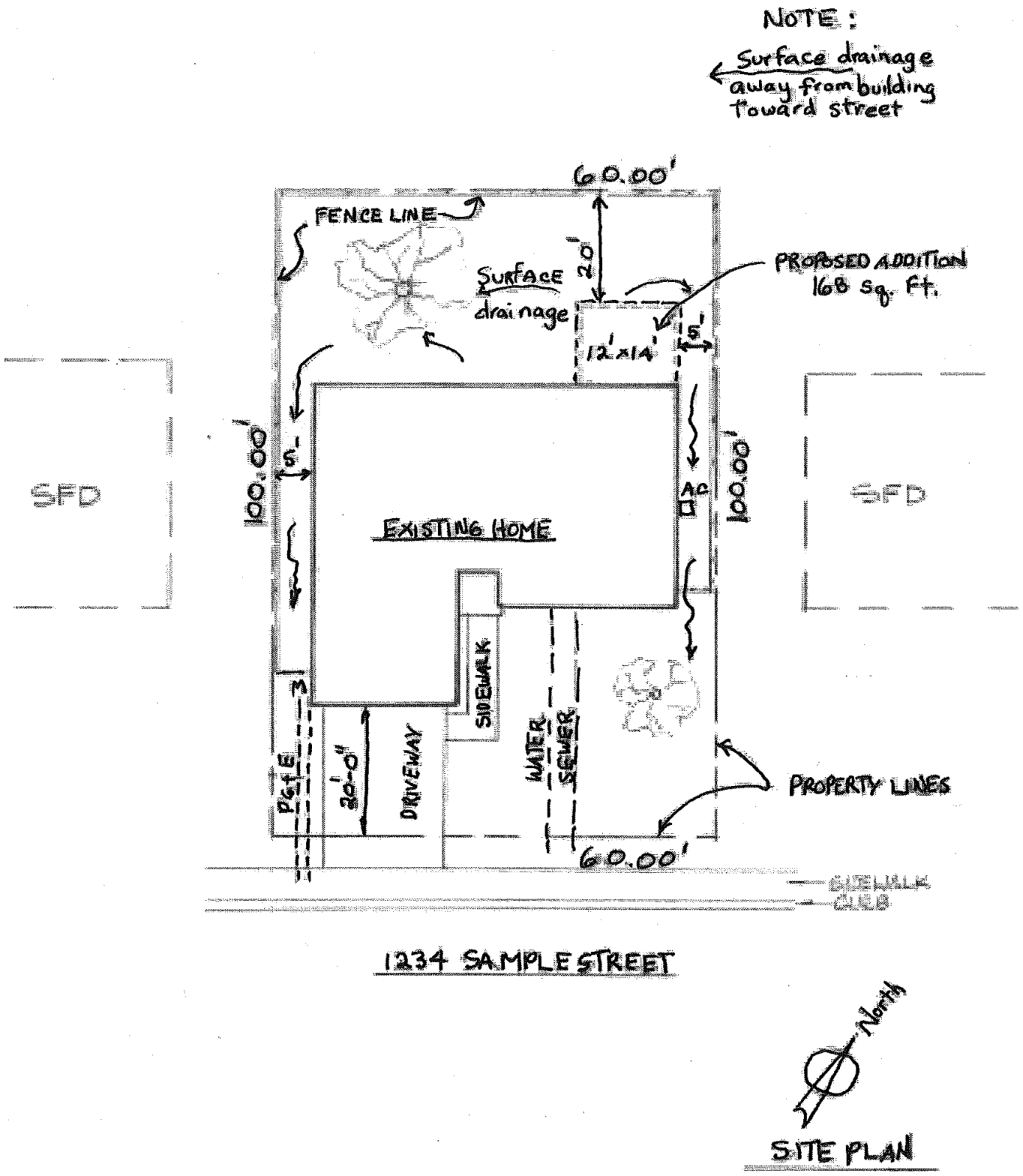
The above is an example showing the codes required. Please always reference the Current applicable Code version.

The Site Plan provides baseline information about your property and project needed to begin the plan review process. It will show the size and shape of your property, setbacks, locations of easements, and utilities, driveways and parking areas. The site plan will also show the locations of all existing structures to include the primary structure, secondary structure, detached garages, decks, pools, retaining walls, patio and patio covers, sheds, and the location of your proposed project. The site plan will be fully dimensioned and drawn to a scale of 1"=20'. Please use the checklist below to complete your Site Plan.

(The following page is an example of a Site Plan)

Site Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Lot boundaries
- ❑ Measurements to lot boundaries from area of work
- ❑ North arrow
- ❑ Street name(s)
- ❑ Location of existing buildings
- ❑ Location of proposed improvements
- ❑ Location of underground utilities within boundaries of proposed project
- ❑ Setbacks and easements
- ❑ Driveway approaches, driveways, and parking
- ❑ Curb and gutters
- ❑ Any existing and proposed off-site improvements indicated including: sewer, water, and utility tie-in locations
- ❑ Lot drainage
- ❑ Street tree locations
- ❑ Topography (elevation changes across the lot) if any


NOTE:
Surface drainage away from building toward street
60.00'
FENCE LINE
SURFACE drainage
20'
PROPOSED ADDITION 168 sq. Ft.
12'x14'
5'
SFD
100.00'
5'
EXISTING HOME
AC
SFD
SIDEWALK
WATER
SEWER
PG&E
3'
20'-0"
DRIVEWAY
PROPERTY LINES
60.00'
SIDEWALK
CURB
1234 SAMPLE STREET
North
SITE PLAN

Building Permit Drawings

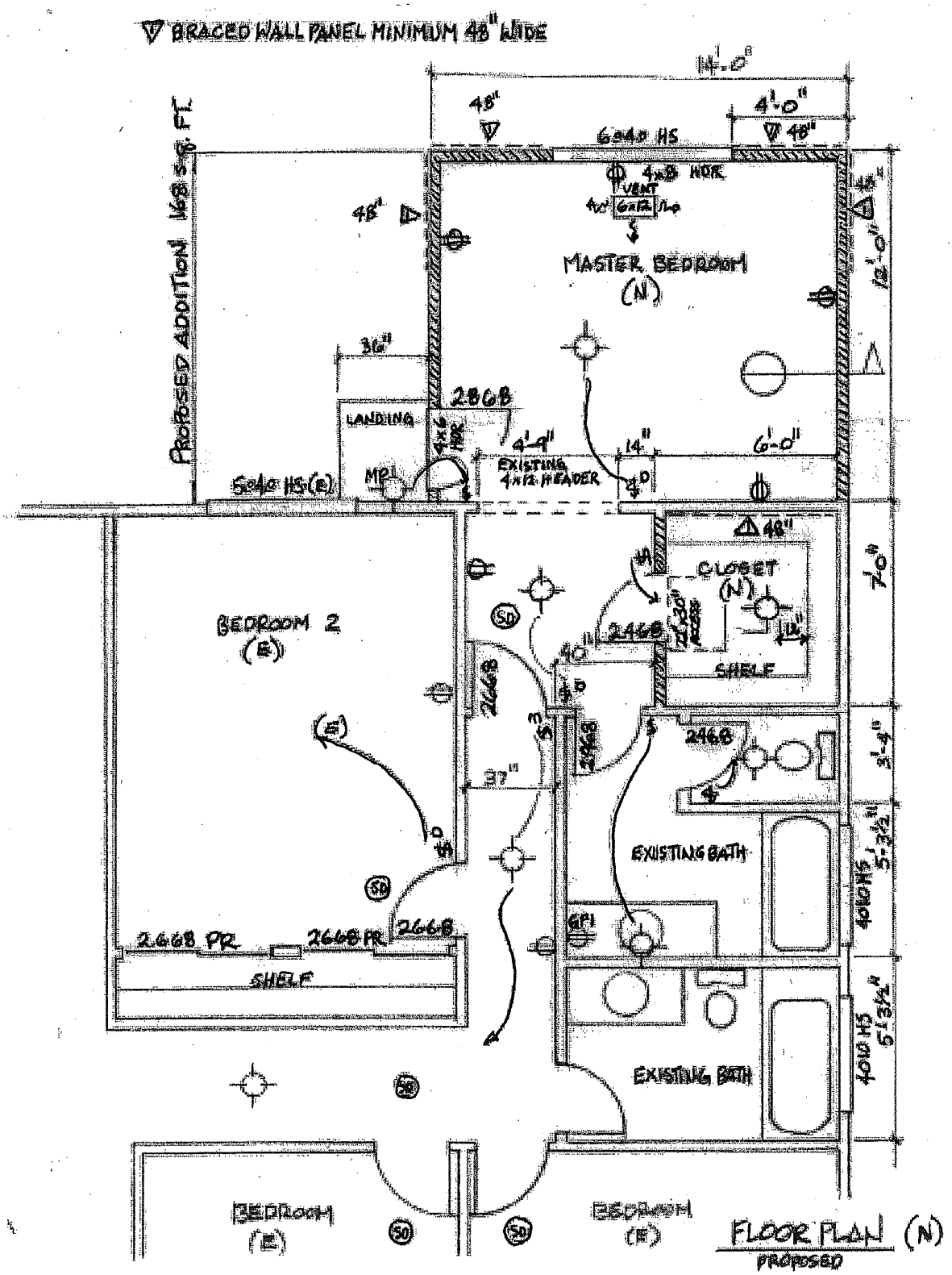
The Floor Plan is probably the drawing you have spent most of your time working on, and rightly so, because it is the drawing from which all other drawings are developed. The floor plan will show the size and locations of walls, windows, and doors, as well as, the size and shape of rooms, closets, stairways, kitchen and bathroom counters, and plumbing fixtures like bath tubs, showers, and toilets. The floor plan will also show the size and location of large appliances like stoves, ovens, refrigerators, washers, dryers, central heating and cooling and the hot water heater. For this drawing, make reference to any details or cross-sections. The Floor Plan will be fully dimensioned and drawn to a typical scale of ¼" = 1'-0". Please use the checklist below to complete your Floor Plan.
If there are to be interior alterations to the existing rooms adjacent to additions or just alterations of interior components this is where those modifications can be noted

Note: Your floor plan(s) can be duplicated to be used as the base for your Plumbing, Electrical, and Mechanical plans. The information can simply be superimposed onto the floor plan(s).

(The following page is an example of a Floor Plan)

Floor Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Scale of plan
- ❑ Owners name and address
- ❑ Existing rooms next to addition
- ❑ Window sizes (existing and new)
- ❑ Type or configuration of windows (slide-by, single-hung, casement, fixed)
- ❑ Door sizes (existing and new)
- ❑ Dimensions
- ❑ Room labeled as to use
- ❑ Location of heating system, size, manufacturer and model number
- ❑ Location of water heater
- ❑ Page number
- ❑ Electrical layout of receptacles, lights, switches, panel boards, and smoke detectors
- ❑ Show plumbing fixtures
- ❑ Show structural elements (such as beams, posts, headers, etc.) These elements may also be shown on a framing plan which is less cluttered with non structural elements)
- ❑ Show square footage of new and existing improvements
- ❑ Indicate all energy requirements
- ❑ Attic and underfloor access openings
- ❑ Show fireplace, manufacturer and model number (if installing pre-manufactured unit)
- ❑ Location of wall brace panels (This element may also appear on structural framing plans)
- ❑ Provide reference indicator for any details or sections


BRACED WALL PANEL MINIMUM 48" WIDE
PROPOSED ADDITION 168 SQ. FT.
14'-0"
48"
4'-0"
6040 HS
4x8 HDR
VENT
MASTER BEDROOM
(N)
36"
2868
LANDING
4'-4"
14"
6'-0"
EXISTING 4x12 HEADER
5040 HS(E)
MP1
CLOSET
(N)
SHELF
BEDROOM 2
(E)
2468
40"
37"
EXISTING BATH
GFI
2668 PR
SHELF
4010 HS
BEDROOM
(E)
FLOOR PLAN (N)
PROPOSED

The Foundation Plan is probably the most important drawing you will have to do. While it is not a difficult drawing to make, it contains an abundance of information that is vital to a successful project. There are several types of foundation systems that are commonly used, some utilizing conventional design and others that are non-conventional or engineered. In some areas of town, inverted "T" type foundations are used and they have proven to be quite adequate. In other parts of town, however, conventional and non-conventional slab, pier and grade beam, or other engineered designs are commonly utilized.

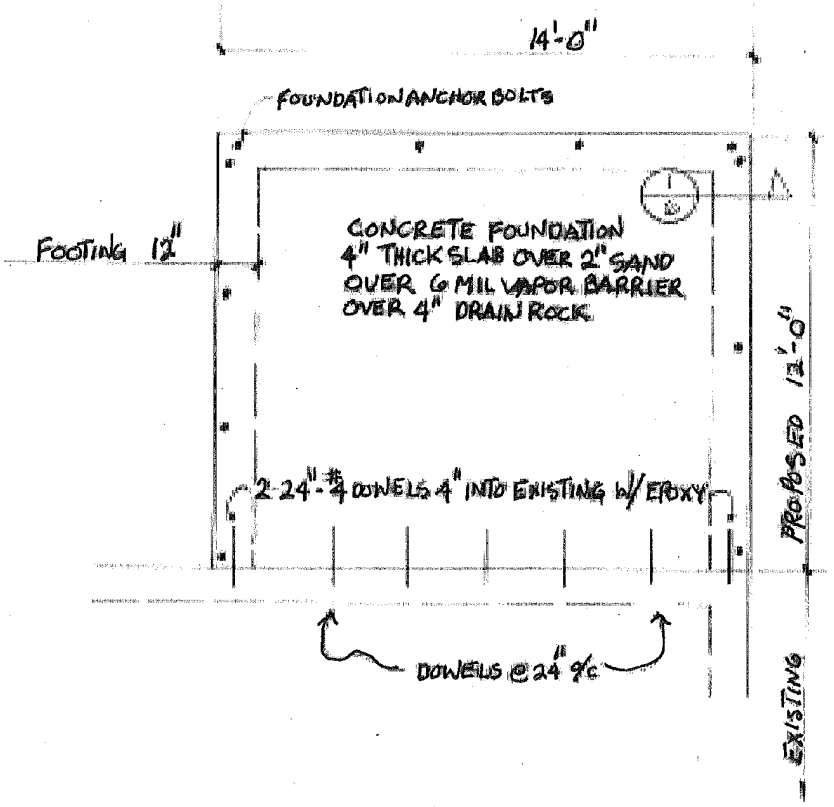
For new homes, the type of foundation system needed is typically determined by a soils engineer who has tested the soil conditions and made a specific recommendation. For additions, your foundation system needs to be consistent with the existing foundation, otherwise, your foundation system will need to be analyzed by a professional engineer and a report will need to be furnished to the Development Services Department

A good foundation plan shows the size and location of footings and piers, slabs, and pier and grade beams, as well as, supporting structural members such as girders and floor joists. The plan will also show the size and location of steel reinforcing bars (rebar), and structural connections such as hold-downs and anchor bolts. On this plan, you will also need to indicate cross-section or other details that will be included on your cross-section or detail plan. The Foundation Plan will be fully dimensioned and drawn to a typical scale of ¼"=1'-0". Please use the checklist below to complete your Foundation Plan.

(The following page is an example of a Foundation Plan)

Foundation Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Scale of the drawing
- ❑ Show all stem-wall and footing outlines
- ❑ Show pier locations and sizes
- ❑ Dimensions
- ❑ Size and location of foundation bolts and hold-downs
- ❑ Provide reference indicator for any details or sections
- ❑ Girders and floor joist, note on center spacing, dimension of material, grade and species of materials
- ❑ Detail any required connections such as posts to foundation and posts to girders
- ❑ Detail location of required blocking or special construction such as doubled joist or beams
- ❑ Location of under-floor access points and ventilation



NOTES:

1. CONCRETE - MIN. 2500 PSI
2. FOOTINGS - MIN. 12" INTO UNDISTURBED SOIL
3. PROVIDE 1/2" x 10" ANCHOR BOLTS - MIN. 7" IMBEDMENT @ 6' o/c WITHIN 12" of MUDSILL BREAKS & MIN. TWO BOLTS PER BOARD, USE WASHERS 3" sq. x .229" THICK
4. MINIMUM RE-BAR OVERLAP = 40 BAR DIAMETERS.

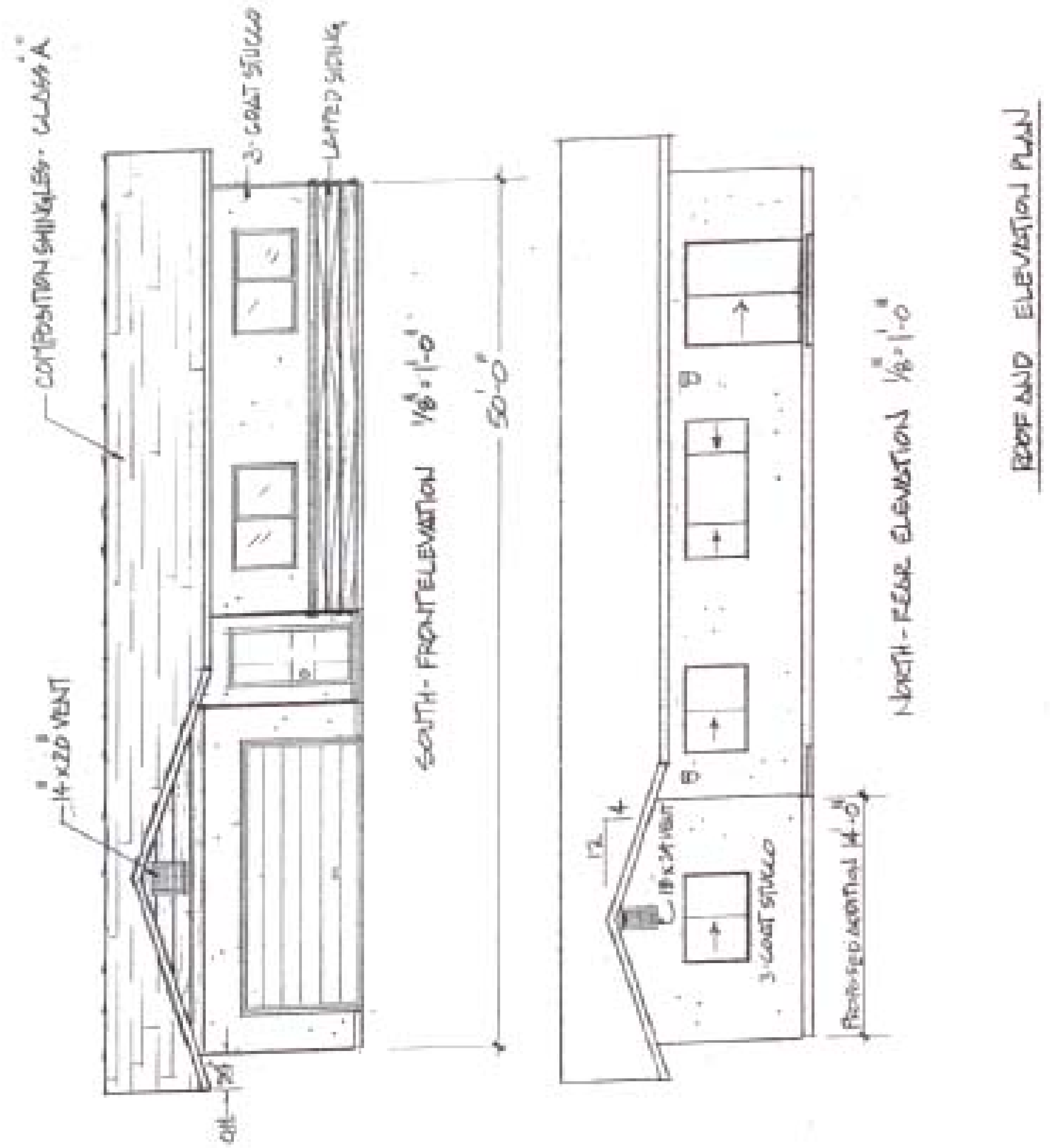
FOUNDATION PLAN

The Exterior Elevation Plans provide the opportunity to view the project from all angles. This will put the project into perspective in regards to the overall height, size, and location to the lot and existing structure(s). Furthermore, elevation plans indicate materials, show exact locations of doors and windows and provide detailed information about building trim, treatments, and other architectural features. On this plan, you will also need to indicate details that will be included on your detail plan. The Exterior Elevation Plan is drawn to a typical scale of ¼"=1'-0". Please use the checklist below to complete your Exterior Elevation Plan.

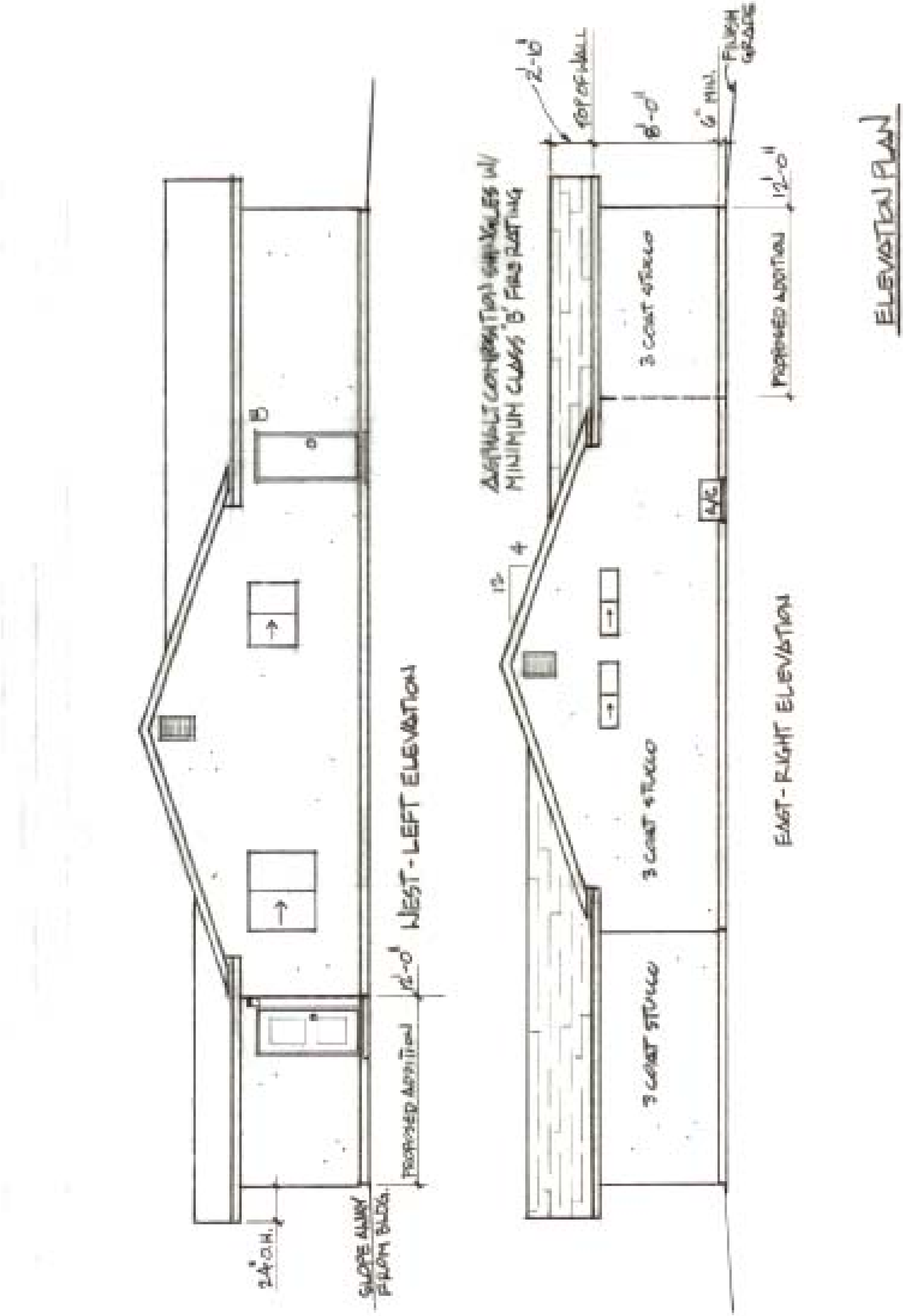
(The next two pages are examples of Elevation Plans)

Elevation Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Windows and doors
- ❑ Pitch of roof
- ❑ Roof cover
- ❑ Exterior wall materials
- ❑ Attic and underfloor ventilation locations
- ❑ Wall bracing
- ❑ Grade level
- ❑ Label each elevation (North, South, East, West)
- ❑ Page number
- ❑ Scale of drawing


COMPOSITION SHINGLES - CLASS "A"
3-COAT STUCCO
LAPPED SIDING
14"x20" VENT
SOUTH - FRONT ELEVATION 1/8" = 1'-0"
50'-0"
NORTH - REAR ELEVATION 1/8" = 1'-0"
12
4
18x24 VENT
3-COAT STUCCO
PROPOSED ADDITION 14'-0"
ROOF AND ELEVATION PLAN

Building Permit Drawings



Building Permit Drawings

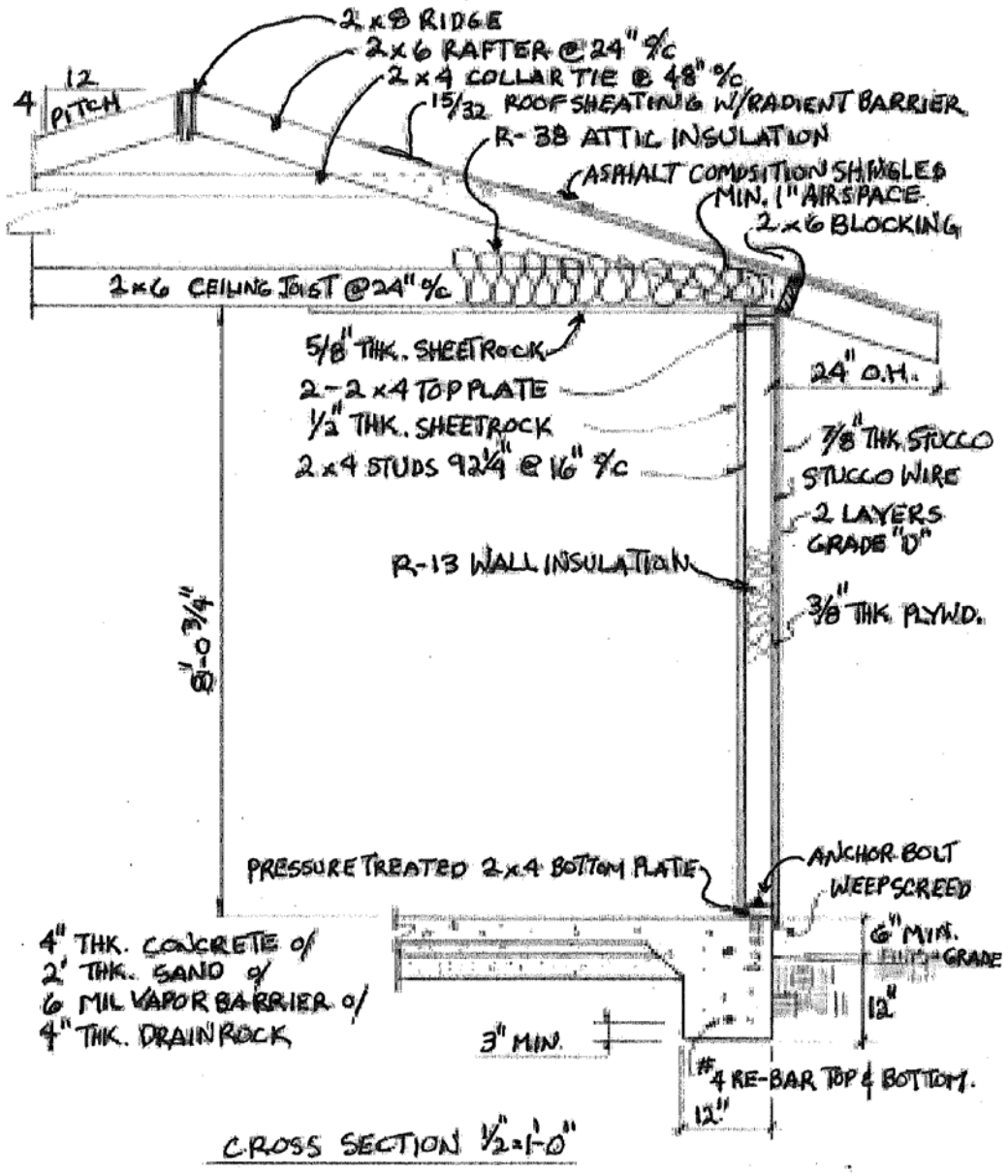
Cross-Sections are very detailed drawings that provide a great deal of information that otherwise are not typically illustrated elsewhere in the construction drawings. Many of your construction details are derived from these drawings. To visualize a cross-section, imagine cutting through your building like you would cut through a stick of butter. The cross-section will show everything contained within the project such as, foundation, floor joists or slabs, wall studs, sheetrock, exterior siding, insulation, ceiling joists, radiant barriers, roof framing, and roofing materials. The cross-section does not show movable objects such as furniture or finish treatments like carpet or wall paper. For this drawing, make reference to any details. The Cross-Sections Plan will be fully labeled and dimensioned, and is typically drawn to a scale of ½"=1'-0". Please use the checklist below to complete your Cross-Section Plan.

(The following page is an example of a Cross-Section Plan)

Cross-Sections Plan Checklist

- ❑ Title block
- ❑ Title of drawing
- ❑ Identify footing and concrete wall
- ❑ Dimensions
  - ❑ Footing depth
  - ❑ Room height
  - ❑ Underfloor joist and beam clearance to grade
  - ❑ Size of footings and concrete wall
  - ❑ Mudsill to grade
  - ❑ Roof overhang
- ❑ Anchor-bolt size and spacing
- ❑ Mudsill material
- ❑ Show size, species and grade of material for floor joist, subfloor, studs, top plate, bottom plate, ceiling joist, rafters, ridge, rafter ties, purlins, struts to purlins, floor beams, roof sheathing, etc.
- ❑ Indicate location and R-Value of insulation
- ❑ Pitch of roof
- ❑ Type of roof cover
- ❑ Interior and exterior wall cover
- ❑ Page number
- ❑ Indicate name of section with reference indicator
- ❑ Note nailing to comply with Table 2304.9.1, 2007 CBC
- ❑ Note type of wall bracing
- ❑ Scale of drawing
- ❑ Show only interior bearing walls
- ❑ Show all blocking
- ❑ Show existing and proposed finished grades

NAILING PER 2007CBC TABLE 2304.9.1
WALL BRACING PER 2007 CBC CHAPTER 23, MINIMUM 48" WIDE, 5/16" THK. SHEATHING, NAIL WITH 8ds @ 12" IN FIELD - 6" ON EDGES.



CROSS SECTION 1/2"=1'-0"

Building Permit Drawings

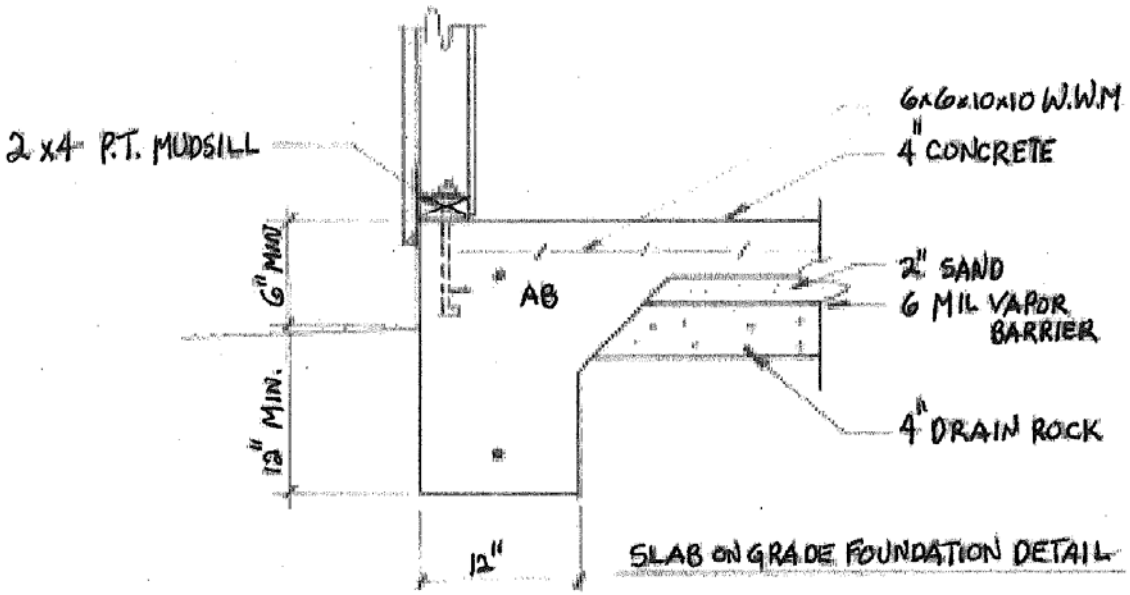
Detail Drawings are used to show; in larger scale, those items of the plan set that would otherwise, be too small to show all necessary information to construct a particular feature. In the case of a framing detail for example, the drawing could show an exact pre-made connection and how it fits and is secured to framing members. In the case of a foundation detail, the drawing would show exact measurements of footings and the placement of steel reinforcing bar, foundation bolts, and hold-downs.

This drawing will contain cross-references from your other drawings as they have been completed. For example, if you made reference on your foundation plan to a particular detail, that detail would be placed here. The same would be true for each detail referenced throughout your plan set. The Detail Plan will be fully labeled and dimensioned, and is typically drawn to a scale of ½"=1'-0" or larger depending on the amount of information needed. Please use the checklist below to complete your Detail Plan.

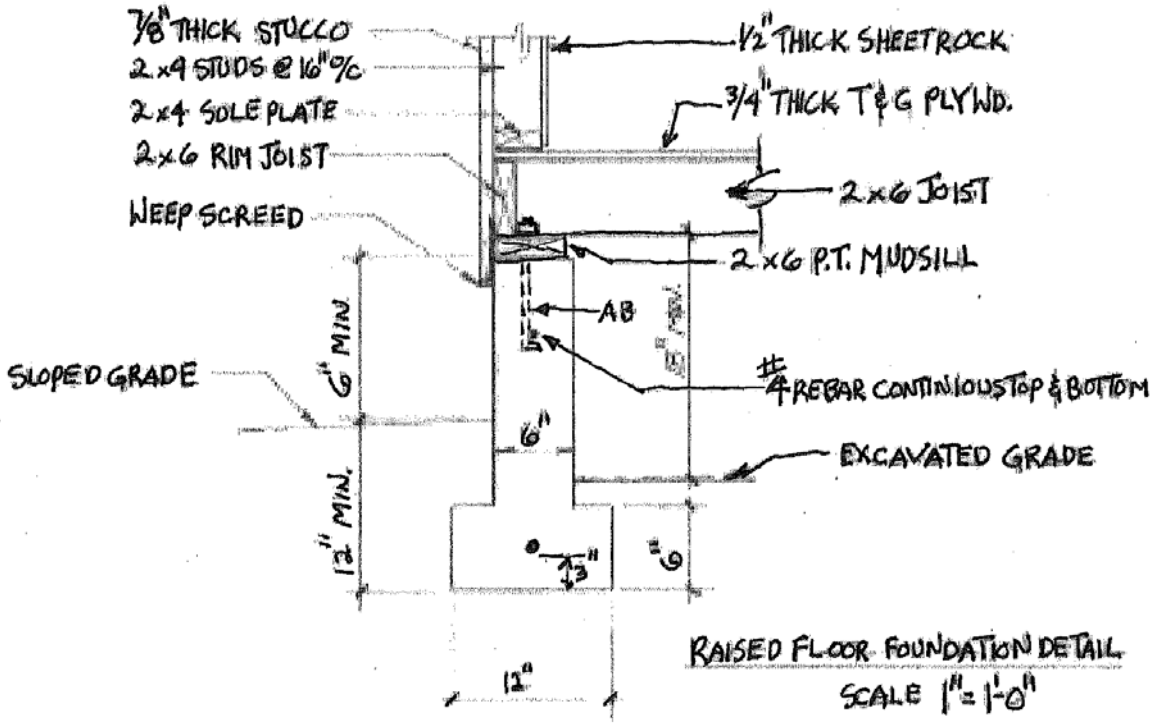
(The following page is an example of a Detail Plan)

Detail Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Scale of detail
- ❑ Reference indicator to area of detail on plan
- ❑ Label all necessary information contained in the detail



AB = ½" ø ANCHOR BOLTS @6' o/c MAX. 2-PER BOARD WITHIN 12" OF ENDS. WITH WASHERS 3" sq. x .229" THICK

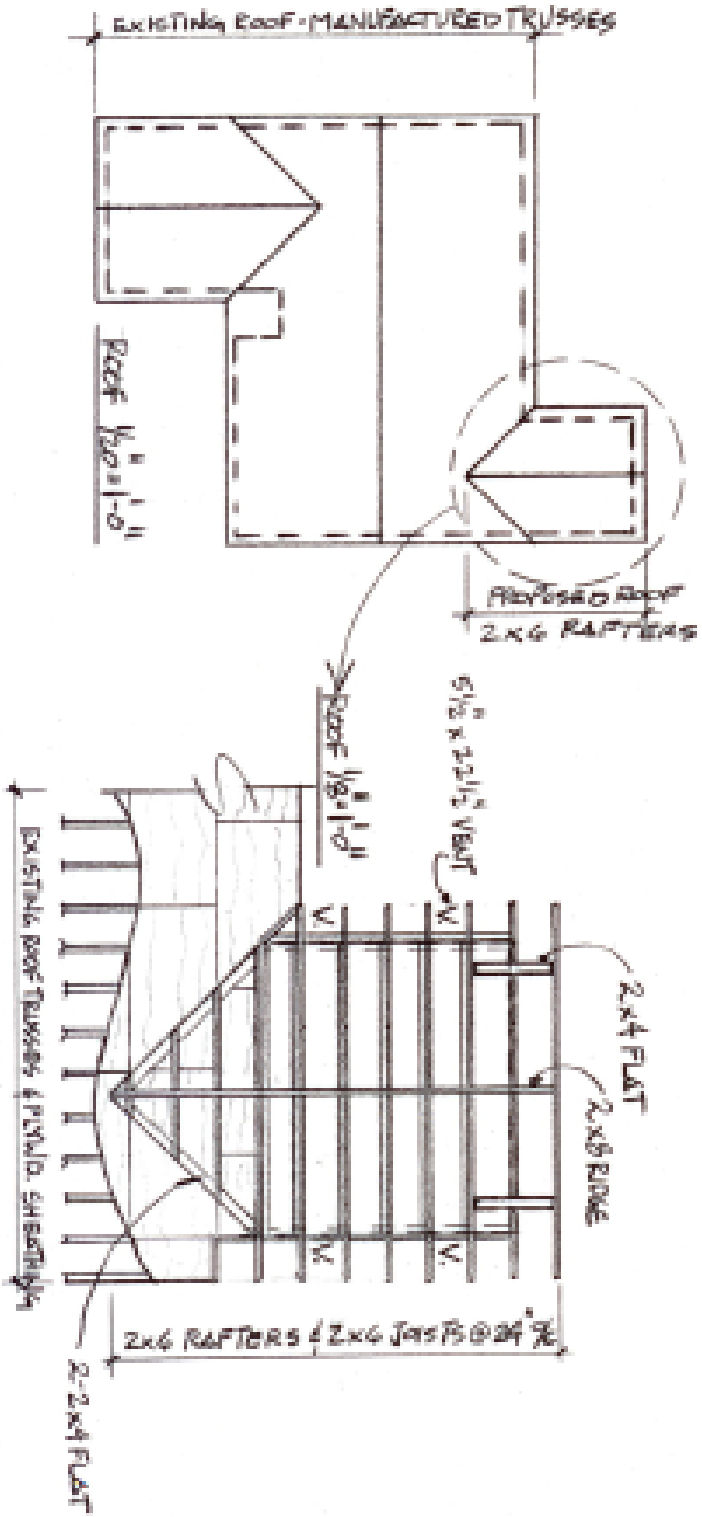


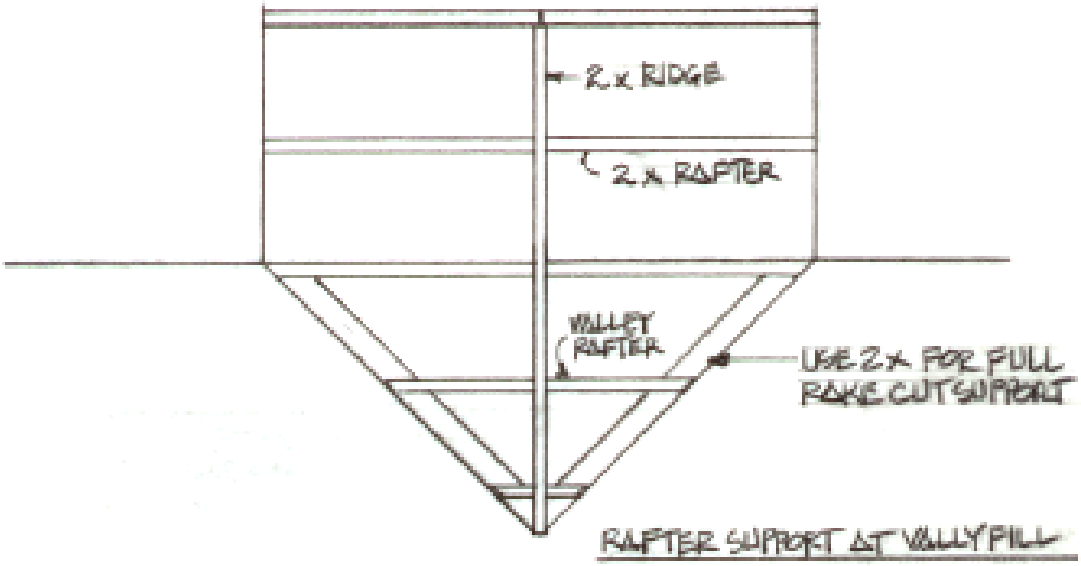
Framing Plans are much like details in that they show the exact size, location, and material used for repetitive members such as floor and ceiling joists, wall framing and roof rafters. This plan will also indicate the exact location, size and type of door and window headers, as well as other structural beams and their supports. Because there are many different framing methods that can be used, it is important to illustrate those that the builder will need to use to provide structural continuity throughout. On this plan, you will also need to indicate cross-section or other details that will be included on you cross-section or detail plan. The Framing Plan will be fully labeled and dimensioned, and is drawn to a typical scale of ¼"=1'-0". Please use the checklist below to complete your Framing Plan.

(The next two pages are examples of Framing Plans)

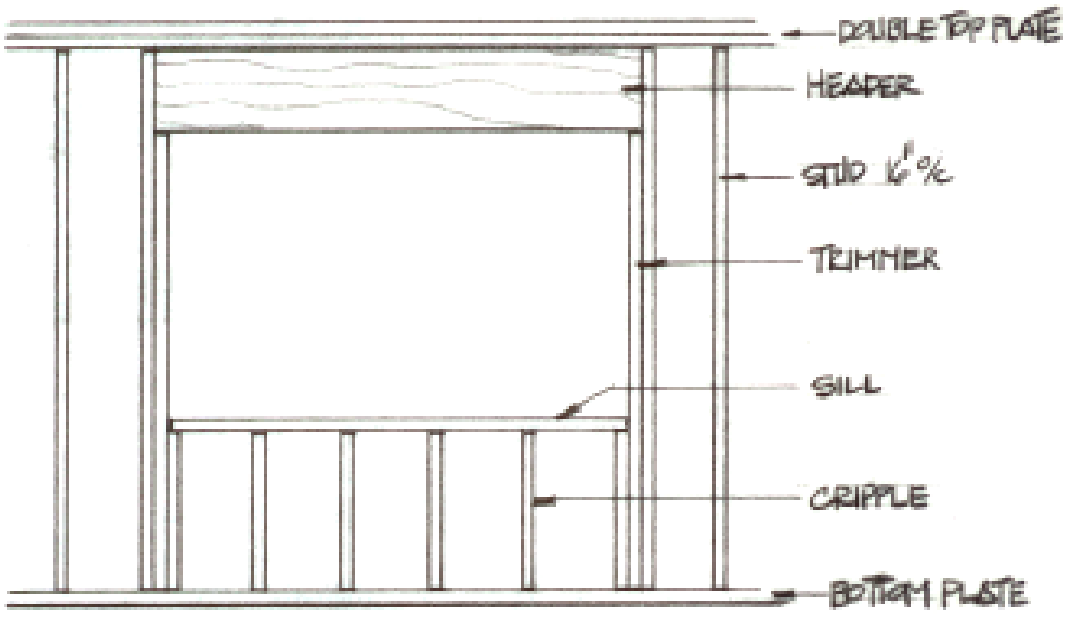
Framing Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Indicate size of repetitive members
- ❑ Indicate center to center spacing
- ❑ Indicate span
- ❑ Show and label blocking
- ❑ Indicate header sizes
- ❑ Show size, location, and type of structural beams
- ❑ Show size, location, and type of structural beam supports
- ❑ Show framing methods for corners, headers, beams, special details
- ❑ Note type and length of wall bracing
- ❑ Indicate species and grade of solid sawn framing material
- ❑ Indicate specifications of engineered material RE: Glue-Lam Beam 24F V4 E1.8


EXISTING ROOF - MANUFACTURED TRUSSES
ROOF SLOPE 1/4" = 1'-0"
PROPOSED ROOF
2x6 RAFTERS
ROOF SLOPE 1/4" = 1'-0"
5 1/2" x 11 7/8" BEAM
EXISTING ROOF TRUSSES & PLY'D. SHEATHING
2x4 FLAT
2x6 BRACE
2x6 RAFTERS & 2x6 JOISTS @ 24" OC
2-2x4 FLAT



RAFTER SUPPORT AT VALLY FILL



TYPICAL WALL FRAME AT WINDOW OPENING

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Building Permit Drawings

Plumbing, Mechanical, and Electrical Plans are developed after all other drawings have been completed. Now that you know exactly where all your plumbing fixtures, electrical equipment, and heating and cooling systems are located, it is time to illustrate this in your plans.

Note: Your floor plan(s) can be duplicated to be used as the base drawing for your Plumbing, Electrical, and Mechanical plans. The information can simply be superimposed on the floor plan(s).

The Plumbing Plan will show the locations of your water meter and water service as well as sinks and faucets, bathtubs and showers, water closets, water heaters, hose bibs, pool and spa equipment, solar water systems, etc. The plan can be in the form of a single line isometric drawing or it can be superimposed onto the floor plan(s). This drawing will indicate the length and size of pipe needed to produce the optimum volume of water required for each fixture. This plan will also include information for gas powered appliances and uses.

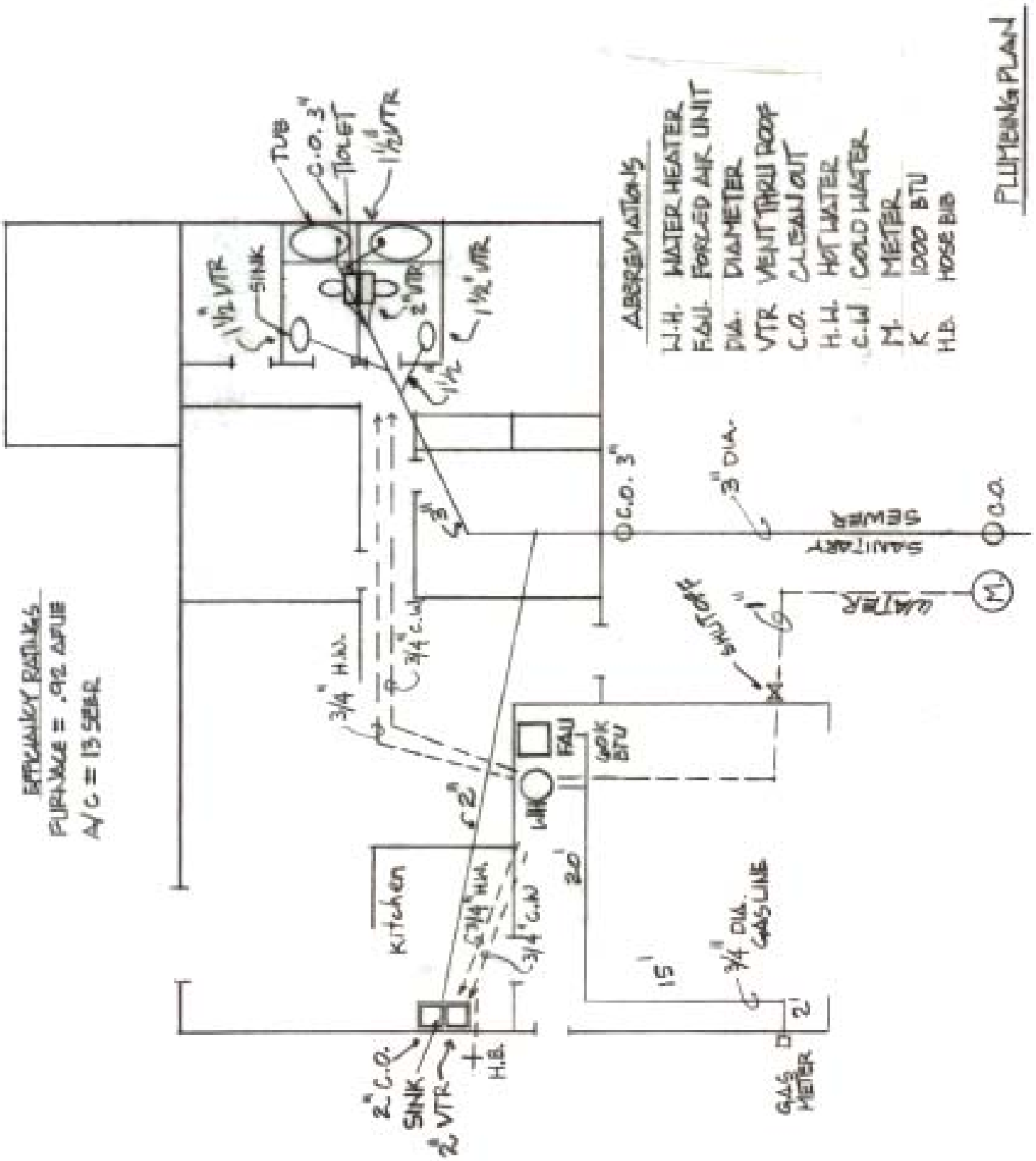
(The following page is an example of a Plumbing Plan)

Plumbing Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Show location of water meter
- ❑ Show location of each plumbing fixture
- ❑ Show length of each pipe run from meter to each fixture
- ❑ Indicate the location of each pipe (in ground, in wall, or overhead)
- ❑ Indicate pipe size and developed length
- ❑ Indicate pipe material

Gas Plumbing Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Show location of gas meter
- ❑ Show location of each gas appliance
- ❑ Indicate British Thermal Unit (BTU) rating for each gas appliance at the appliance location
- ❑ Show length of each pipe run, or segment of pipe,
- ❑ from meter to each appliance
- ❑ Indicate the location of each pipe (in ground, in wall, or overhead)
- ❑ Indicate pipe size
- ❑ Indicate pipe material

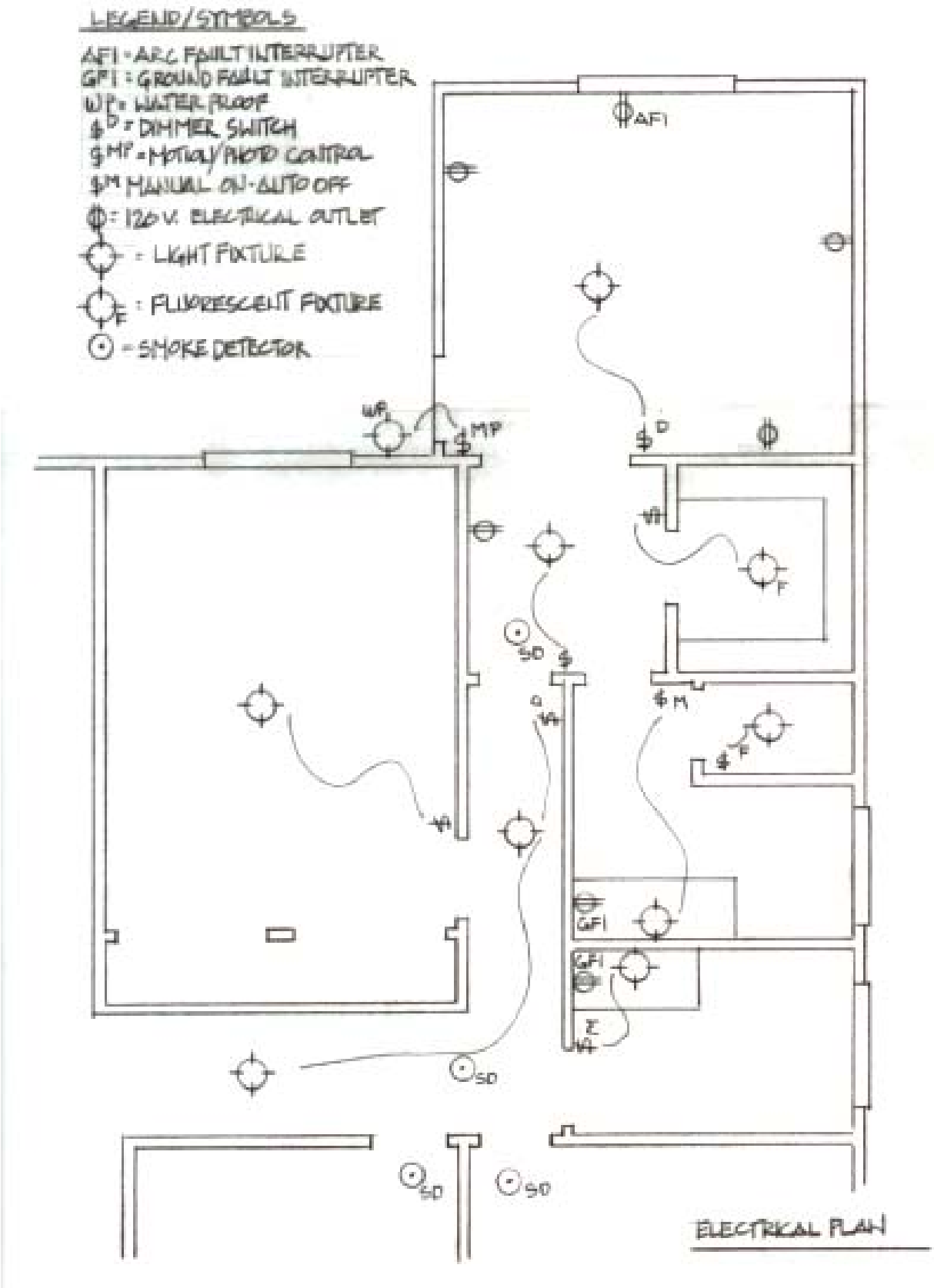

PLUMBING PLAN
ABBREVIATIONS
W.H. WATER HEATER
F.A.U. FORCED AIR UNIT
DIA. DIAMETER
VTR VENT THRU ROOF
C.O. CLEAN OUT
H.W. HOT WATER
C.W. COLD WATER
M. METER
K 1000 BTU
H.B. HOSE BIB
TUB
C.O. 3"
TOILET
1½" VTR
SINK
2" VTR
1½" VTR
1½"
3" DIA.
SANITARY SEWER
C.O.
METER
3/4" H.W.
3/4" C.W.
SHUT OFF
F.A.U.
100K BTU
W.H.
KITCHEN
20'
15'
3/4" DIA. GAS LINE
21'
GAS METER
2" C.O.
SINK
2" VTR
H.B.

The Electrical Plan will show the location of the main service panel, sub-panels, lights, outlets, switches, electric appliances, and solar electric systems. This plan provides information about the location and type of lighting equipment, outlets, and switches being used. The plan is typically superimposed onto your floor plan(s).

(The following page is an example of an Electrical Plan)

Electrical Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Show location and amperage of the main electrical panel and sub-panels
- ❑ Indicate the location of conduit (in ground, in wall, or overhead)
- ❑ Show the location of switches, fixtures and receptacles
- ❑ Show location of motorized equipment
- ❑ Indicate conduit and wire sizes for equipment
- ❑ Show the location of smoke detectors
- ❑ If applicable, note the location of required disconnects

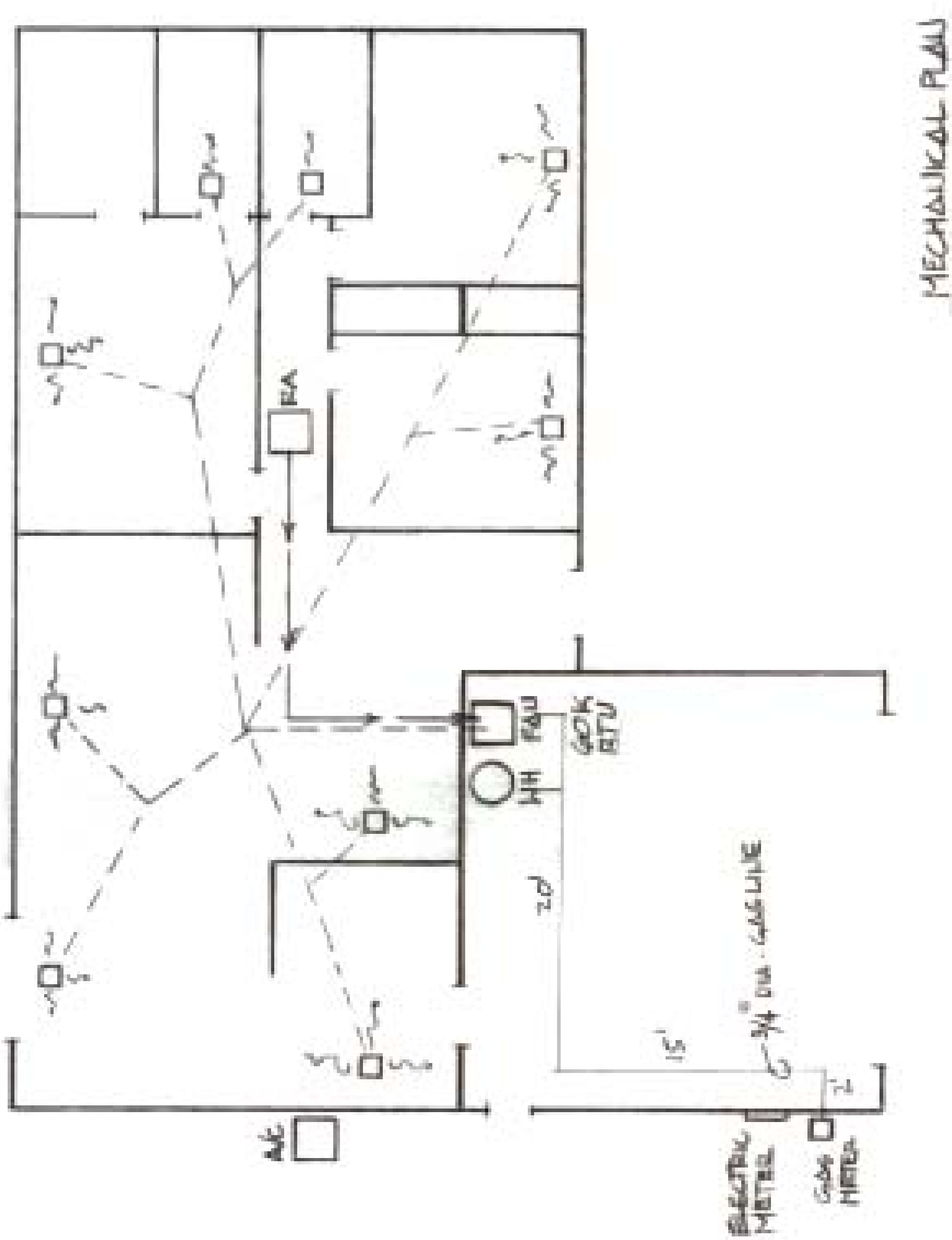

LEGEND/SYMBOLS
AFI = ARC FAULT INTERRUPTER
GFI = GROUND FAULT INTERRUPTER
WP = WATER PROOF
$D = DIMMER SWITCH
$MP = MOTION/PHOTO CONTROL
$M MANUAL ON-AUTO OFF
= 120 V. ELECTRICAL OUTLET
= LIGHT FIXTURE
F = FLUORESCENT FIXTURE
= SMOKE DETECTOR
AFI
WP
$MP
$D
F
SD
$M
GFI
ELECTRICAL PLAN

The Mechanical Plan will show the location of your air handling equipment such as central heating and air, kitchen and bathroom exhaust fans, whole-house fans, etc. The plan will also indicate the location of ducts and registers. The plan is typically superimposed onto your floor plan(s).

(The following page is an example of a Mechanical Plan)

Mechanical Plan Checklist

- ❑ Title Block
- ❑ Title of drawing
- ❑ Show the location of air handling equipment (furnace, air conditioner)
- ❑ Show the manufacturers British Thermal Unit (BTU) input and output ratings of equipment
- ❑ Show the energy efficiency ratings of the furnace and air conditioner
- ❑ Show the location and size of access openings for attic installed equipment
- ❑ Show switched lighting and electrical receptacle for attic installed equipment
- ❑ Show the location and point of termination of condensate lines
- ❑ Show the location of supply and return air registers
- ❑ Show the size, location and layout of ducts
- ❑ Show the location of exhaust fans (bath, kitchen, laundry etc.)


MECHANICAL PLAN
RA
RAU
60K BTU
WH
A/C
20'
15'
3/4" DIA. GAS LINE
ELECTRIC METER
GAS METER

Step 5

Building Permit Submittal

Building Permit Submittal

Now that you have a complete set of plans, you are ready to apply for your building permit(s). Before you submit, however, do a final review for completeness by using the plan checklists from the previous step one more time. This will help you review the set in its entirety and enable you to check for continuity of the plans and cross-references.

When applying, please provide the appropriate number of plan sets and supporting documents as listed below:

New One and Two Family Residence:

Four sets of construction drawings
Two sets of fire sprinkler plans (This can be a deferred submittal)
One site plan to scale showing street frontage and adjacent lots with addresses (This is only needed if your lot does not have an address already assigned)
Two sets of Structural Calculations
Two sets of Energy Calculations and corresponding documentation
Two sets of Truss Calculations (If manufactured trusses are being utilized)
Two copies of the soils report

Additions*

Three sets of construction drawings
Three sets of fire sprinkler plans (If existing house already has fire sprinklers, this can be a deferred submittal)
Two sets of Structural Calculations (Exception: Existing buildings and additions that meet conventional light-frame construction are not required to be engineered. Permit Center staff can determine if this exception applies to your project)
Two sets of Energy Calculations (Title-24 Documentation)
Two sets of Truss Calculations (If manufactured trusses are being utilized)
Two copies of a soils report (Permit Center staff can determine if this is required for your project.

* When a second story addition is being built over an existing first story, plans must be designed and stamped by a licensed architect or engineer. (Exception: Existing buildings and additions that meet conventional light-frame construction are not required to be engineered. Permit Center staff can determine if this exception applies to your project).

Alterations and Remodels

Three sets of construction plans
Two sets of structural calculations (Only if bearing walls are being altered or removed; or other structural elements are being altered when non-conventional construction is being implemented)
Three sets of fire sprinkler plans (If existing system is being altered. This can be a deferred submittal

Step 6

Inspection Process

Inspections

Inspections are necessary to ensure that your project is constructed in conformance to the approved plans and specifications, building codes, zoning regulations, and other applicable Federal, State, and City requirements. In addition, the building inspector confirms the proper use of materials and construction methods, and that the manufacturer installation instructions are followed.

To schedule an inspection, all you have to do is call the inspection line the day before or up to 5:30 a.m. of the day you need the inspection at (209) 831-6440. In addition, you can schedule an inspection anytime you are visiting the Permit Center. Inspections can be scheduled up to one-week in advance if necessary. Inspections occur throughout each workday in two time segments; AM and PM. The AM time segment is from 8:00 AM to 12:00 AM; the PM time segment is from 12:00 PM to 4:00 PM. A few things you will need when scheduling an inspection over the phone are:

- The permit number
- The 3 digit inspection code found on the inspection record next to the type of inspection you are requesting.
- The date and the inspection time segment you would like (AM or PM)
- This is an automated system, therefore you must complete the process and receive a confirmation number before you hang up or the inspection will not be scheduled.
- Another convenient way to schedule an inspection is online. Please contact the Building Safety Division to register and get instruction on how to use this option.

Prepaid after hours Inspections are available Monday through Sunday provided there is available inspection staff. Please contact Building Safety Division staff for more information.

Note: You may call the morning of your inspection between 7:00 AM and 8:00 AM for a more specific time the inspector can be expected to arrive. The number to call is (209) 831-????.

When an inspector arrives at the jobsite, there are a few housekeeping items s/he must attend to before the inspection takes place. To aid the inspector in the inspection process, it is helpful to keep in mind the following points:

- Please have the address of the project clearly visible from the street
- The job foreman or superintendent should brief the inspector on the requested inspection
- The approved plans and specifications, inspection record, and permit must be on the jobsite and readily available to the inspector

- For inspections requiring a ladder, a ladder must be provided by the permit applicant that meets OSHA requirements (the ladder should extend a minimum of 36" above the edge of the surface to be accessed)
- Inspections of occupied building interiors require the presence of an adult (18 years or older)
- If an adult cannot be present for an inspection of the exterior of an occupied building, a note must be left on the front door or gate of any fenced area giving permission for the inspector to enter the area.

Note: The inspector will not enter a yard where dogs are loose.

When an inspection is approved, you are then authorized to move to the next phase of construction. For example, once the project is marked out, footings have been excavated, all forms, reinforcing steel, foundation bolts and hold-downs, and utilities are set in place, you can request a "Foundation" inspection. A "Passed" inspection is the approval of the completed work and you are now ready to pour the concrete for the foundation and then move to the next phase of construction. This information will be signed-off by the inspector on the inspection record.

A "Failed" inspection simply means that "Corrective Action" is required and the inspection will need to be repeated once corrective measures have been completed. A list of the items requiring corrective action will be left on the site or provided to you after the inspection has been concluded. Additionally that list is available online @ http://etrakit.ci.tracy.ca.us/ by searching for the permit by address, permit number or any available search field from the drop down menu. Once the permit is located and opened, go to the bottom of the first screen for a list of attachments, from here you can open any of the listed attachments.

Even the best planned and efficiently run project can run into problems during construction. Inspections could be missed, the project could sit idle, or the original project may change after the plans have been approved. To avoid complications, please keep in mind the following:

- It is the responsibility of the person obtaining the permit to ensure that all inspections are made and all portions of the inspection record, relating to work being accomplished, have been signed. If you are not sure what's the next appropriate step to take, please call the Building Safety Division at (209)831-6400.
- Inspectors are not authorized to pass an inspection where the work has been covered up
- Inspectors are not authorized to pass an inspection based on photographs

Inspections

- Your permit is valid for 180 days, following issuance, without any activity occurring. The permit will remain valid for 180 days following each valid inspection. If you reach 180 days without any activity or valid inspection, a one-time extension of 180 days can be obtained when a written request from the permit applicant for an extension is received by the City on or before the expiration date. A legitimate reason should be included with the request.
- All permits expire if there is no activity and no inspections have been conducted within 180 days following issuance or permit extension
- The building inspector may require any changes to the plans to be submitted to the Building Safety Division for review and approval

While every project is required to have specific inspections for various phases of work, some projects may need additional inspections or multiple inspections for the same phase. Still, some projects may be simple enough to combine inspections. Only the builder and the inspector will know for sure the exact inspections needed for your project. If you have any questions about the timing or sequence of inspections, please consult your builder and the inspector.

Special Inspections

Special inspections are designated in the Building Code for certain structural or engineered components and installations that require visual inspection, structural observation, or follow-up testing. Furthermore, your architect or engineer may specify additional features that will require special inspection. The special inspection is performed by a licensed design professional or certified third party inspection firm. The firm or person providing the service is known as the "Special Inspector." Note that items requiring a Special Inspection must also be approved by the City of Tracy Building Inspector and should be noted on your approved set of plans.

The special inspector is required to visually inspect the designated feature during installation or manufacturing and file a report of observation and findings to the Permit Center. Upon completion of the project, the special inspector files a "Final Report" of all items requiring special inspection.

The special inspector is hired by the owner of the project since a business relationship with the design professional or contractor is considered a conflict of interest. The special inspection firm needs to have a current approved Statement of Qualifications on file with the City of Tracy Building Safety Division.

Checklist

Inspections

The following checklist is provided as a guide of items required to be inspected by the City of Tracy Building Inspector prior to covering the accomplished work:

Foundation

- ✓ Property lines and setbacks marked using stakes and string
- ✓ Foundation and pier footing depth, alignment and steel placement
- ✓ Other excavations and underground work (if required)
- ✓ Footing for fireplace (if required)
- ✓ Foundation anchor bolts secured in place, placement, size, and spacing
- ✓ Hold-down anchors and straps secured in place
- ✓ Ufer ground rod

Mudsill

- ✓ Approved pressure treated fir or foundation redwood
- ✓ Holes and cut edges, sealed with preservative
- ✓ Mudsill anchored by foundation bolts with proper washers and nuts

Underfloor

- ✓ Girders, floor joists and piers (connections, sizes, and spacing)
- ✓ Foundation vents and crawlspace access
- ✓ Underfloor plumbing and heating/air conditioning ducts
- ✓ Debris removed from underfloor
- ✓ Hold-down anchors, bolts, and straps extending through floor

Insulation

- ✓ Proper R-value
- ✓ Quality installation (properly secured, no voids or compressions, face flush with top/bottom of joist edge)
- ✓ Vapor barrier; if included, facing conditioned space

Roof Sheathing and Exterior Shearwall

- ✓ Proper nail spacing, size and penetration
- ✓ Proper plywood thickness
- ✓ Exposure I plywood with exterior glue at non-weathered surfaces and

under eaves

- ✓ Plywood clips (if used)
- ✓ Grade marks on plywood

Rough

- ✓ **Frame:** Studs, ceiling joists, rafters, exterior lath or siding, subfloor, windows, roofing, attic and floor access, foundation and attic vents, fire blocking, fireplace and riser and tread dimensions for interior stairways
- ✓ **Electrical:** Wiring, boxes, service panel and subpanels
- ✓ **Plumbing:** Gas and water piping, drain-waste-vent piping, tub/shower, shower, toilet locations, and fire sprinkler system
- ✓ **Heating/Air Conditioning:** Ducts, vents and combustion air ducts
- ✓ **Energy:** Proper u value noted on labels attached to windows and sliding glass doors

Interior Plywood Shearwall

- ✓ Proper nail spacing, size and penetration
- ✓ Proper plywood thickness
- ✓ Grade marks on plywood

Insulation

- ✓ **Wall insulation:** R-Value as noted on plans. Quality installation (properly secured, no voids or compressions, face is flush with stud edges)
- ✓ **Ceiling Insulation:** R-Value as noted on plans (unless insulation is to be blown in or loose fill to be placed later, in which case, the inspection will be accomplished at time of final inspection). Quality installation (properly secured, no voids or compressions, face is flush with bottom of joist edge)
- ✓ Infiltration control
- ✓ Vapor barrier; if included, facing conditioned space
- ✓ Proper clearance around heat producing appliances and fixtures
- ✓ Radiant barrier

Sheetrock and Gas Pipe Test

- ✓ Proper nailing of sheetrock

- ✓ Proper type and installation of sheetrock for application
- ✓ Air test on gas pipe (3 psi for 10 minutes) with gas gage having 1 lb increments

Final

- ✓ **Lot Grading:** Final grading (to ensure lot drainage)
- ✓ **Electrical:** Receptacles, panels and switches for proper size, type, installation, covers and labeling, exterior walls with electrical boxes properly gasketed
- ✓ **Plumbing/Heating/Air Conditioning:** All fixtures and appliances properly installed and in operative condition
- ✓ **Insulation:** Blown in or loose fill ceiling insulation, insulation certificate posted
- ✓ **Fire Sprinklers and Alarm Operational:** Smoke detectors where fire sprinkler system is not required
- ✓ **Handrail and Guardrail installation**
- ✓ **Special Inspection:** Final Report furnished

Engineering/Public Works Inspections

Engineering or Public Works inspections are performed in conjunction with encroachment permits. An encroachment permit is issued for all projects that are permitted in the City right of way including the installation and/or repair of curb, gutter, and sidewalks; construction and/or repair of streets and utility infrastructure. If your project includes any work in the public right-of-way, then you will need to obtain the requisite inspections under the encroachment permit.

To schedule an encroachment permit inspection, please call (209) 831-6478 at least 24 hours before starting work. When calling, please have the permit number, address, date work will be ready for inspection, either AM or PM time, and type of inspection requested. Additional inspections may be required during the project and will be explained by the Public Works inspector.

Appendix A

Ordinances /Application Forms

Ordinances

In addition to zoning and building codes, city ordinances also play an important role in development. Ordinances are approved by City Council and are enacted as local law. All ordinance language can be found in the Tracy Municipal Code (TMC). The TMC is available on-line at www.ci.tracy.ca.us. Title 9 is where the majority of information is found in relation to building regulations.

Application Forms

You can obtain an application form at the Permit Assistance Center or on-line at www.ci.tracy.ca.us.

Appendix B

Abbreviations and Symbols

As used in construction plans

ABBREVIATIONS & SYMBOLS

(E) EXISTING
(N) NEW
(P) PROPOSED
A.B. ANCHOR BOLT
REBAR REINFORCING STEEL BAR
BD. BOARD
BM. BEAM
BOT. BOTTOM
CL CENTER LINE
CBC CALIF. BUILDING CODE
CDX CD EXTERIOR GRADE PLYWD.
PLYWD PLYWOOD
PL PROPERTY LINE
d. PENNY (nail)
CONC. CONCRETE
DBL. DOUBLE
DIA. DIAMETER
SQ. FT. SQUARE FEET
THK. THICK
H.S. HORIZONTAL SLIDING WINDOW
S.H. SINGLE HUNG WINDOW
TEMP. TEMPERED GLASS
DR. DOOR
W.W.M. WELDED WIRE MESH
T.&G. TONGUE & GROVE
TYP. TYPICAL
H.B. HOSE BIB
W.P. WATER PROOF
AFI ARCH FAULT INTERRUPTER
GFI GROUND FAULT INTERRUPTER
HDR. HEADER

$D DIMMER SWITCH
$MP MOTION/PHOTO CONTROL
$ MANUAL ON-AUTO OFF
⊕ 120 VOLT ELECTRICAL OUTLET
SD SMOKE DECTOR
SURFACE MOUNTED LIGHT FIXTURE
RECESSED LIGHT FIXTURE
F. FLUORESCENT

B.T.U. BRITISH THERMAL UNIT
F.A.U. FORCED AIR UNIT
A/C AIR CONDITIONER
W.H. WATER HEATER

RA RETURN AIR VENT
SUPPLY AIR VENT