



# NEW HOME CONSTRUCTION

November 2022

*A City of Portage  
Building Services Team  
Department Guide to  
Building A New Home*

# INTRODUCTION

## New Home Construction Guidebook

The City of Portage Building Services Team Department has prepared this Guidebook to assist you in the process of building a new home within our City. We recognize that in order for your project to be a success, all parties involved need to work together towards the final goal; a safe, well-built home. We take great pride in being part of your success story and encourage you to keep all lines of communication open from the start to the finish. We want to know how we can help!

Included in this Guidebook is important information to help you understand the Building Permit and construction process, from application to completion. We have included details for areas that have generated confusion or construction delays in the past.

When your Building Permit application is submitted, it will go through a three-step review process:

1. **Grading Review:** This review covers work related to the property, including drainage, sidewalks, driveways, utility locations and connections. We also check for wetlands, steep slopes, watercourses, flood plains and other outside agency permits that may be required.
2. **Zoning Ordinance Review:** This review is performed to verify that your new home will meet the lot coverage, setback, height, and size requirements for your Zoning District.
3. **Building Plan Review:** This review covers the Michigan Residential Code requirements that apply to your proposed project.

Submitting a complete set of plot plans and construction drawings containing all the necessary information will expedite the plan review process. Details of submittal requirements are included in this Guidebook. The permit applicant will be notified if the information submitted does not meet the City of Portage Zoning Ordinance, grading requirements or Michigan Residential Code requirements.

This Guidebook is set up to allow you to quickly reference specific areas of interest.

**Please Note: This Guidebook is only intended to be a guide and is not all inclusive of the Michigan Residential Code or City Ordinances. For complete details of all requirements, please refer to the Michigan Residential Code. The guidelines in this Guidebook are subject to change without notice.**

We hope this Guidebook is helpful and we encourage you to provide us with any suggestions you may have as we continue to work toward improving our permitting process.

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# BEFORE YOU BUILD

## New Home Construction

The following should be checked at the beginning of your project. Any of these items can affect the type, location, cost and length of time it takes to build your home.

**Permit Process** – Please remember to allow time for the Building Permit process. Plan review time varies depending on the Building Department’s work load and the completeness of your submittal.

**Flood Plains** – Flood plains are usually associated with lakes, streams, rivers, and drainage courses. They are areas designated as “prone to flooding” during times of rain. Building in these areas is strictly regulated. If you are proposing to build a home in a floodplain, it may require a Licensed State of Michigan Engineer’s design and Additional review by the Flood Plain Manager.

**Setbacks** – The City of Portage Zoning Ordinance contains minimum dimensions required between your home and the property lines. Please see “Setback Requirements” (page 24).

**Water and Sewer** – You may check to see if City water and sanitary sewer are available by contacting the Department of Community Development at (269) 329-4466. When water and/or sanitary sewer are not available, a well and/or septic complying with Kalamazoo County standards shall be installed. Additional permits and inspections are required from the Kalamazoo County Health Department if you need to install a well or a septic system.

**Wetlands** – These areas have been determined to be indispensable and are to be protected as a natural resource. They provide numerous beneficial factors including wildlife habitat, water quality, flood controls, pollution reduction, erosion controls, open spaces, recreation areas and aesthetics. If your home will be close to or in regulated wetlands, additional paperwork, including permits, may be required from the City or State of Michigan prior to your Building Permit approval. Please contact the Building Department at (269) 329-4466 for more information.

**Deed Restrictions** - Your subdivision may have Deed Restrictions that apply. The City of Portage cannot enforce Deed Restrictions, however, we encourage you to check for any restrictions that may apply to your project.

**Demolishing an Existing Structure?** – If you will be demolishing an existing structure, additional coordination with private utility companies and permits are required.

# PHONE DIRECTORY

## CITY OF PORTAGE

Common City of Portage telephone numbers to refer to as needed during the review, permitting, and building processes.

Office Hours: Monday – Friday (except holidays) 8:00 a.m. – 5:00 p.m.  
Please note: Building Services Department Inspector Hours 8:30 a.m. – 4:30 p.m.

<u>DEPARTMENT</u>	<u>PHONE</u>
<a href="#">Finance</a> .....	(269) 329-4455
<a href="#">Assessing (WCA)</a> .....	(269) 329-4433
<a href="#">Building Services / Inspection Request Line</a> .....	(269) 329-4466
<a href="#">City Clerk</a> .....	(269) 329-4511
<a href="#">Transportation &amp; Utilities (Engineering)</a> .....	(269) 329-4422
<a href="#">Public Works (DPW)</a> .....	(269) 329-4444
<a href="#">Fire Prevention (DPS – Fire)</a> .....	(269) 548-4058
<a href="#">City Manager</a> .....	(269) 329-4400
<a href="#">Parks &amp; Recreation</a> .....	(269) 329-4522
<a href="#">Planning/Zoning (Community Development)</a> .....	(269) 329-4477

City Website: <https://www.portagemi.gov>

[City GIS Viewer](#)

### **OUTSIDE AGENCIES, PERMITTING AGENCIES**

<a href="#">Kalamazoo County Road Commission</a> .....	(269) 381-3171
Kalamazoo County Health & Community Services.....	(269) 373-5210
<a href="#">Environmental Health Division</a> (septic, wells etc...)	
Michigan Dept. of Environment, Great Lakes, Energy (EGLE)...	(269) 567-3500
MI Water Resources Division (sea wall permits).....	(517) 284-5567
<a href="#">Wetland Regulations</a> , State of MI Part 303	
<a href="#">Consumers Energy</a> .....	1-800 477-5050
<a href="#">MISSDIG / 811</a> .....	(811)
<a href="#">City of Kalamazoo water and sewer service</a> .....	(269) 337-8000

# **BUILDING CONSTRUCTION**

## **Important Information**

### **New Home Construction**

The Building Construction Section of this Guidebook contains important information to help you understand the process of building a new home in the City of Portage.

The following information is presented in a start-to-finish sequence to guide you as you progress through your project:

**Codes Currently in Effect** – A list of the current Codes that will apply to your project.

**From Application to Completion** – Your general guide through the entire process. These pages provide information on application requirements, permits, inspections and Certificates of Occupancy.

**Building Permit Fees** – A list of standard fees related to building a new home.

**Plan Review Checklist** – A guide to help you understand the information that is required on your construction drawings. This information should be given to the person preparing your plans. Please take time to make sure your drawings are complete. Construction drawings that contain all the necessary information and details will help expedite the plan review process.

**Inspection Requests** – This Section contains details required for requesting an inspection, making sure your job is ready for inspection, the time inspections are done and what the inspection tags mean.

**Building and Trade Inspections** – Explanation of the standard Building and Trade Inspections required and some of the common items the Inspector checks for during an inspection. This should be used as a guide for Builders, Superintendents and Homeowners to verify the project is ready before calling for an inspection.

**Sample Roof Truss Schematic** – A sample roof truss layout from a truss manufacturer.

It is very important to include the property address on all documents submitted to the Building Department. The use of lot numbers without addresses may cause a delay in responding to your request.

Please take the time to review this information. It may save you valuable time in building your new home.

## CODES CURRENTLY IN EFFECT

City of Portage  
November 2022

### **Building:**

Residential: MRC 2015 (Michigan Residential Code 2015)

### **Plumbing:**

Residential: MRC 2015 (Michigan Residential Code 2015)

### **Mechanical:**

Residential: MRC 2015 (Michigan Residential Code 2015)

### **Electrical:**

Residential: MRC 2015 (Michigan Residential Code 2015)

### **Fire Suppression:**

Residential: NFPA 13D (2013)

### **Energy Code:**

Residential: MRC 2015 (Michigan Residential Code 2015)

Code books can be purchased by going to the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes & Fire Safety, Lansing MI 48909, or their website at: [www.michigan.gov/bcc](http://www.michigan.gov/bcc) - Codes and Standards.

# FROM APPLICATION TO COMPLETION

## New Home Construction

### A General Guide Through the Entire Process

#### 1. Information required for a Building Permit application.

The following shall be submitted with the application. Please note that all forms need to be filled out completely.

- A. **Building Permit Application** – Process initiated through City of Portage BS&A
- B. **Plot Plan –PDF** – Please see “Plot Plan Requirements” – pages 28-30.
- C. **Construction Drawings – PDF** – Including braced wall design information – Please see “Plan Review Checklist” – pages 8-10.
- D. **Roof Truss Layout or Truss Design Data Sheet**– Please see sample drawing – page 20.
- E. **Energy Worksheet for New Single-family Residential Buildings** - indicating which method of energy compliance will be used, along with supporting documents.
- F. **Soil Erosion Control Permit** – Required if Disturbing more than 1 acre or within 500’ to waters of the State of Michigan.
- G. **Demolition Permit** – If project includes razing of an existing structure.

Per State of Michigan Law, Owners may submit a permit application for work on property that is, or will be, on completion, their place of residence.

**Please note:** Any contractor, hired by the Owner for a contract price of \$600.00 or more, shall be licensed in accordance with the State of Michigan Residential Builders Laws.

#### 2. Registration of Builders License

- Builders shall be registered with the City of Portage to be able to submit a Building Permit application.
- Builders not currently registered can register at the time of application by providing the following information:
  - The original or a copy of your Builder’s License.
  - A copy of the license holder’s Driver’s License, if not present in person. This will be returned to the Applicant.
  - A completed Contractor Registration Form with an original signature by the license holder.

A Contractor Registration form is available online at [www.portagemi.gov](http://www.portagemi.gov) or at the Building Department Service counter.

#### 3. Plans Reviewed and Approved

- Building and plot plans are reviewed for compliance with the Michigan Residential Code and City Ordinances.
- Plans are reviewed in the order they are received based on the application date. Plan review time varies depending on the Building Department’s workload.
- Plans and construction documents that contain all the necessary information and details will help speed up the review process.
- The Permit Applicant will be notified if the information provided does not meet the City of Portage Zoning Ordinance, grading requirements, or Michigan Building Code requirements, or if any other information is required.

#### 4. Permit Ready

- The Permit Applicant will be called when the Building Permit is ready to be picked up.
- Building Permit fees are due at the time of the Permit issuance. Permit fees can be paid by cash, credit card, debit card or check.
- The Building Permit shall be secured within 6 months of the application date or the application will be canceled.



- Issued Permits that have no activity for more than 6 months will be canceled.

**5. Additional Fees – Water and Sanitary Sewer**

- Water and sanitary sewer fees can be paid when you pick up your Building Permit. These fees shall be paid prior to Water and Sanitary Sewer Open Trench Inspection Permits being issued. (Please see page 32)

**6. Trade Permits – Plumbing, Mechanical & Electrical**

- These types of Permits are required and can be applied for and obtained **after** the Building Permit has been issued.
- All items to be installed shall be listed on the appropriate Permits.
- Items not listed can be added to the appropriate Permits prior to the Final Inspection.
- Please note: A Certificate of Occupancy cannot be issued until all fees have been paid.

Permits and fee schedules are available at the Building Department Service counter or online at [www.portagemi.gov](http://www.portagemi.gov)

**7. Additional Permits – Water and Sanitary Sewer Open Trench (Plumbing)**

- Contractors that are registered with the City of Portage may obtain Water and Sanitary Sewer Open Trench Inspection Permits (Plumbing).

When the Building Permit has been obtained, construction may begin. Trade permits may be secured after the Building Permit has been issued. Revisions to the building or grade after issuance of the Building Permit will require re-submittal of revised plans, approval from the Building Department, and the payment of any additional review and Permit fees.

- The following items shall be installed and maintained throughout the construction process:
  - The Street Address and lot number shall be posted and clearly visible from the street.
  - The Street shall be kept clean at all times.
  - Temporary soil erosion control shall be in place and maintained.
  - All construction materials and debris shall be contained on the property.
  - Toilet facilities shall be provided for construction workers and such facilities shall be maintained in a sanitary condition.

**8. Inspections – Please refer to pages 12-19 for details regarding Inspections.**

- Footings
- Open form/Rebar
- Backfill
- Water & Sanitary Sewer Open-Trench
- Underground plumbing
- Basement Slab/Radon
- Rough Plumbing
- Rough Mechanical
- Rough Electrical
- Rough Building
- Energy Code Compliance / Insulation
- Sidewalks and Drive Approaches
- Final Plumbing
- Final Electrical
- Final Mechanical
- Final Building
- Final Grade

**9. Water Meter Installations**

- You may schedule a water meter installation by calling the City Department of Portage utility contractor (Veolia)Public Works at (269) 329-9235.
- Scheduling varies depending on workload. Please allow time for your scheduling.

**10. Final Inspections** – Please refer to pages 12-19 for details regarding Inspections.

- Final Plumbing
- Final Mechanical
- Final Electrical
- Final Fireplace – Both Masonry Fireplaces and Pre-fab Fireplaces
- Final Building
- Final Grade
- Final Tree – if applicable for platted subdivision

**11. Project Close Outs**

- All bills shall be paid.

**12. Certificates of Occupancy (C of O)**

- A Certificate of Occupancy (C of O) is required before a new home can be used or occupied.
- A C of O can be requested by calling the Building Services Division Department at (269) 329-4466.
- All inspections shall be completed and approved before a C of O is requested.
- Please allow time for processing a C of O. State Law allows 5 business days from the time the request is received to the issuance of a C of O.

**13. Temporary Certificates of Occupancy (TCO)**

- A TCO is required before the new home can be used or occupied and is issued **only** when a Certificate of Occupancy cannot be issued as determined by the Building Department.
- A TCO can be requested by calling the Building Services Division Department at (269) 329-4466.
- A TCO is issued for a limited length of time for uncompleted grading issues and weather-related items **only**, when, in the opinion of the Building Official, weather conditions prevent the work from being completed.
- All outstanding items shall be completed and approved by the expiration date indicated on the TCO.
- Proper drainage away from the building is required.
- Temporary soil erosion control shall be installed. Please see the Temporary Erosion Control section of “Building Inspections” on page 19 for details.
- Off-street parking spaces usable in all weather conditions are required on site before a TCO can be issued.

This itemized list is provided as a guide to help you understand the process for building a new home in the City of Portage. It covers the most common types of projects. If your new home is beyond the scope of this Guidebook, it may require additional information, Inspections or Permits. Please call the Building Department at (269) 329-4466 if you have any questions on how to apply this Guidebook to your specific project.

**CITY OF PORTAGE**  
**DEPARTMENT OF COMMUNITY**  
**DEVELOPMENT**  
**CONSTRUCTION PERMIT FEES (Effective January 2022)**

4. **BUILDING PERMIT FEE - RESIDENTIAL**

Project valuations are determined by utilizing the square footage cost calculations from the Building Valuation Data table as published by the International Code Conference.

<u>Valuation</u>	<u>Fee</u>
Up to \$2,000	Minimum fee of \$50.00
\$2,001 to \$25,000	Minimum fee of \$50.00 or \$31.41 for the first \$2,000 plus \$5.45 for each additional \$1,000 or fraction thereof, to and including \$25,000.
\$25,001 to \$50,000	\$156.76 for the first \$25,000 plus \$4.02 for each additional \$1,000 or fraction thereof, to and including \$50,000.
\$50,001 to \$100,000	\$257.26 for the first \$50,000 plus \$2.80 for each additional \$1,000 or fraction thereof, to and including \$100,000.
\$100,001 to \$500,000	\$397.26 for the first \$100,000 plus \$2.24 for each additional \$1,000 or fraction thereof, to and including \$500,000.
\$500,001 to \$1,000,000	\$1,293.26 for the first \$500,000 plus \$1.89 for each additional \$1,000 or fraction thereof, to and including \$1,000,000.
\$1,000,000 and up	\$2,238.26 for the first \$1,000,000 plus \$1.47 for each additional \$1,000 or fraction thereof.

# PLAN REVIEW CHECKLIST

## New Home Construction

This list is provided as a guide to help you understand what information is required on your new home construction drawings. Please share this information with the person preparing your plans for their use.

### **New Home construction documents submitted for plan review shall contain the following information:**

1. **PDF of construction drawings** meeting the following requirements.
  - Drawn to scale in a draftsman-like manner, scale not less than 1/8" = 1'0".
  - Drawing shall be clear, readable and understandable.
  - Drawings for homes with over 3,500 square feet of habitable space shall include complete construction and plumbing plans. All plans for these sizes of homes shall have the original signature, seal and date of a State of Michigan licensed Architect or Engineer.
  - Electrical plans are required when the electrical system rating exceeds 400 amps.
  - Mechanical (HVAC) details are required for **all** new homes, regardless of the size. Mechanical (HVAC) details shall include the following information:
    - Equipment sizing and efficiencies.
    - An indication that all ducts shall be sealed.
    - An indication showing R-values for duct insulation and methods of installation.
    - Manual J calculation.
2. **PDF copy of the Michigan Residential Code Energy Compliance standards.**
  - Please indicate type of compliance. (Prescriptive, performance or energy rating alternative)
3. **PDF set of pre-engineered roof truss schematics** (if applicable) or Truss design data with the following information:
  - The location of all bearing walls and point loads for both interior and exterior walls.
  - The location, direction, span and spacing of all trusses including girder trusses (if trusses are being used). Please see "Sample Roof Truss Schematic" - page 20. Please note – These schematics may be provided to the Building Inspector during the Rough Frame inspection – see page 15.
4. **PDF set of plot plans** that match your construction drawings.
5. **A Foundation Plan** that contains the following information:
  - Footing and column pad sizes with all layout dimensions.
  - Sizes and spacing of beams and columns.
  - First floor joist direction, size, spacing and span.
  - Size of support for all bearing walls and point loads from above.
  - Framing details at stair and fireplace openings.
  - Basement floor thickness, type of vapor barrier and a 4-inch sand or gravel base shall be indicated.
  - Basement wall types, thickness and reinforcing steel sizes and spacing (if applicable).
  - Location and sizes of all emergency egress windows and window wells or doors leading directly to the exterior.
  - Sizes and types of sill plates and size, type, and spacing of anchorage shall be indicated.
  - Wall bracing anchor requirements, if applicable (other than typical foundation anchors).

6. **Provide 1st & 2nd Floor Plans** (as applicable) that contain the following information:
  - Full dimensions and use of all rooms.
  - Ceiling height of all rooms.
  - 2nd floor joist direction, size, spacing and span.
  - Roof framing direction, size, spacing and span.
  - Sizes and locations of all support for bearing walls and concentrated loads.
  - Sizes of all doors and windows. Please note on the drawings any second floor windows greater than 72" above grade & less than 24" above the finished floor.
  - Sizes and types of all headers indicated for every opening.
  - Operable emergency egress windows or exterior doors in all sleeping rooms.
  - Details of the separation required between the attached garage and home.
  - Locations of all smoke and carbon monoxide alarms on every floor.
  
7. **Provide a Roof Framing Plan** (if applicable) indicating the location, direction, size, spacing and span of all roof and ceiling framing members. Indicate support for all bearing walls and concentrated loads from ends of hip and valley rafters, ceiling joists, rafters, trusses and girder trusses. Indicate the roof pitch for all portions of the roof.
  
8. **Provide Building or Wall Sections** showing the following information: (Depending on the complexity of your project, more sections or details may be required.)
  - Footing and basement wall sizes, type and height, and any required reinforcing.
  - Basement wall waterproofing/damp-proofing and drain tile with stone.
  - 1st and 2nd floor ceiling heights.
  - Location of finish grade.
  - All basement egress windows or doors.
  - Insulation types and R-values being used.
  
9. **Provide Wall Construction Details** including the following information:
  - Interior finishes.
  - Type of exterior sheathing.
  - Anchor bolt size and spacing.
  - Type and thickness of subfloor.
  - Size and spacing of wall studs.
  - Insulation with R values for all areas per the Michigan Residential Code Energy Worksheet for Single-family Residential Buildings.
  - Truss & rafter connectors to plates.
  - Roof construction details with thickness and type of sheathing, felt paper, snow and ice shield, and type of roof covering. Include type and amount of attic ventilation.
  - Brick veneer (if applicable):
    - Base course flashing.
    - Weather-resistant membranes.
    - Lintels and flashing.
    - Brick wall ties and flashing.
    - Weep holes (33 inches on center maximum)
  - Provide details for all walls over 10 feet in height and any walk-out walls. These walls shall be designed to resist wind load and support all other imposed loads.  
**Please note:** Details may be required to be signed and sealed by a Structural Engineer as determined by the Plan Reviewer.
  
10. **Provide Crawl Space Details (if applicable)** including the following:
  - Ventilation indicated within 3 feet of each corner.
  - A minimum 18" x 24" access if in the floor, a 16" x 24" access if in a foundation wall.
  - Clearance between ground and floor joists – at least 18 inches required for untreated wood.
  - Clearance between ground and wood beams – at least 12 inches required for untreated wood.

11. **Provide Stair Details** with all tread, riser, guardrail and handrail sizes, heights, spacing, and materials indicated. Indicate headroom height.
12. **Provide Building Elevations** – Front, sides and rear.
  - Elevations shall be provided that include the location of proposed grades and clearly indicate all emergency egress windows.
13. **Provide Braced Wall Details** – For each floor
  - Details shall clearly indicate the type, size and location of all braced walls, braced wall lines and all related dimensions.
  - Details shall be provided for all portal frame openings, including garage door openings.
  - References shall be provided showing Michigan Residential Code requirements for each braced wall line vs. what is proposed for each braced wall.
  - Any special requirements, including tie-downs, strapping, etc., shall be clearly indicated.

Please note: This is not an all-inclusive list. Depending on the type and complexity of your project, more details or engineering by a State Licensed Architect or Engineer may be required.

## **INSPECTION REQUESTS**

The Building Department offers three convenient methods to request inspections:

1. **24-hour Online Inspection Requests** – An Inspection may be requested **On Line** via our **website** at [Schedule an Inspection | City of Portage | BS&A Online \(bsaonline.com\)](#) you will need your permit number to schedule your inspection.
2. **Inspection Requests by Phone** - call (269)-329-4466 to schedule an inspection providing the following information:
  - **The Street Address of the job site.**
  - **The Permit Number.**
  - **The type of Inspection you are requesting.**
3. **Inspection Requests in Person** – Visit the Building Department at [7900 S Westnedge Avenue, Portage MI.](#)

Inspections shall be scheduled with 24 hours of advanced notice. Inspections will be done Monday through Friday 8:30am through 4:30pm. Inspections may be available outside the normal business hours by special arrangement. Additional fees for “After Hours” inspections shall be paid in advance of the inspection.

**Make sure your project is ready for the inspection. Inspection will not be done and a \$71.00 re-inspection fee may be charged if the following items are not completed or in place:**

- Provide safe access to the job site and throughout the area to be inspected.
- Approved plans shall be on site.
- The job shall be ready for inspection. Refer to “From Application to Completion” pages 7-12.
- Street address posted and visible from the street.
- Temporary soil erosion control properly installed and street clean.
- All building construction materials and debris shall be contained on your property.

**Inspection results will be left on site after each inspection has been completed.**

**Green Tag**                      Inspection    approved

**Inspector’s Report**      Inspection not approved. The Inspector’s Report will contain a list of items that need to be addressed before calling for re-inspection. A \$71.00 re-inspection fee will be due for items not corrected at the time of the second inspection. Inspections shall be approved before proceeding with the next phase of construction.

It is your responsibility as the Permit holder to check the job site placard or your BS&A account for the inspection results. Please read the information on all Green Tags or Inspector’s Reports. If you have any questions regarding this information, call (269) 329-4466 between 8:00 a.m. and 5:00 p.m. to speak with the Inspector that wrote the Inspection Report.

# BUILDING AND TRADE INSPECTIONS

## New Home Construction

This list is intended to help you understand the standard inspections and some of the common items the Inspectors look for during an inspection. This is not intended to be an all-inclusive list. Additional inspections may be required depending on the type and complexity of your project.

A safe access shall be provided to the inspection site and through all areas to be inspected.

**Water & Sanitary Sewer Open-Trench Inspections** – Prior to covering any pipes.

- Requested by calling Plumbing Inspector at (269) 329-4470.
- Proper type of pipe and fittings will be verified.
- Proper depth, location and installation of pipe will be verified.
- A list of details and requirements is available from the Plumbing Inspector.

**Footing Inspections** – After the rails are formed for spread footings. This is done to verify:

- Footing sizes.
- That the footings match the approved plot plan.
- That the footings are being placed on solid undisturbed virgin soil.
- That any required reinforcing steel (rebar) is in place.
- Special footings that may require additional inspections prior to pouring are being inspected.
- Any walkout type footings in the basement are properly installed.
- That ground conditions indicate proper soil.
- That any engineered foundation system is being properly installed.
- That any engineered pile foundation system is being properly installed.
- Electrical bonding is in place.

**Basement form/rebar Inspections** – This is done to verify required reinforcing steel (rebar) is in place, is of the proper size, and is spaced as required by the Michigan Residential Code or an engineered design.

**Backfill Inspections** – These occur before backfilling, and after drain tile, stone and waterproofing or damp-proofing have been completed. The inspection will verify:

- Proper installation of lead walls with footings to the edge of the excavation.
- 6 inches of stone cover required on drain tile has been installed.
- Foundation anchors have been properly installed.
- Damp-proofing applied from the footings to the proposed grade has been installed.
- Window wells or door openings for the basement are installed per approved plans.

**Secondary footing Inspections** – Usually for garage, porch, or deck footings, these inspections verify:

- That footings rest on solid undisturbed soil.
- That footings are 42 inches below grade – minimum.
- That forming may be required to provide protection of footing due to ground conditions.
- That footings are installed in accordance with the approved plans.
- That footing locations and dimensions match the approved construction drawings and plot plan.



**Underground Plumbing Inspections** – These inspections are performed after all underground plumbing is installed and verify:

- The type and size of piping being used.
- The slope of pipe – 1/8 inch per foot minimum.
- That stone has been installed around the perforated pipe.
- That traps have been installed at all floor drains.
- That no broken or reclaimed concrete has been placed in contact with any pipe.

**Gas Piping Inspections** – These inspections are performed after gas piping that will be concealed is installed and fire-stopped with the proper material. The inspection will verify:

- Gas piping has been properly installed and no leaks exist (as witnessed by a gas pressure test).

**Rough Plumbing Inspections** – These inspections are performed after bath tubs, showers and all piping to be concealed in walls, floors and attics are installed and fire-stopped with proper material. The inspection will verify:

- The type and size of piping being used.
- That all water, sanitary and vent piping has been properly installed.
- That fire-stopping of all tubs, showers and piping per Michigan Residential Code requirements has been installed.
- Pressure testing for concealed piping, depending on job conditions, as determined by the Inspector.
- Venting methods for each fixture are those allowed for the types of fixtures connected.

**Rough Mechanical Inspections** – These inspections are performed after all concealed gas piping, duct work, return air, chimneys and electrical wiring are installed and fire-stopped with proper material. Approved Mechanical plans with Manual J calculations shall be on site for all Mechanical inspections. The inspection will verify:

- Proper clearance required between chimneys and combustible materials is maintained.
- Bath fan ducts have been installed and terminate to the outside at an approved location and at least 3 feet from any building opening (door, window, etc.).
- Complete framing and fire-stopping at all chimneys, chimney chases, return air and piping has been properly installed.
- That floor registers in bathrooms, laundries and kitchen are one (1) inch above the finish floor.
- That floor registers located in bathrooms are located a minimum of 3' from the water closet.
- That all ductwork has been sealed.
- That any exterior ductwork has been properly insulated and dampered.
- That information showing types, BTU ratings, and efficiencies of all furnaces has been provided and match the approved Mechanical plans.
- That info showing SEER ratings of all AC units has been provided and match the approved Mechanical plans.
- Any ductwork within the thermal envelope assembly and any ductwork outside the thermal envelope shall be leak tested in accordance with the Michigan Residential Code Energy requirements.

**Rough Electrical Inspections** – These inspections are performed after all wires, boxes and recessed fixtures are installed with grounds and neutrals tied together and all wire holes are fire stopped as required by the Michigan Residential Code. The inspection will verify:

- That wires extend a minimum of 6 inches out from all boxes.
- That all wires are secured as required by the Michigan Residential Code
- That smoke alarms are properly wired and interconnected with 3-wire cable.
- That carbon monoxide alarms are properly located.
- That all wire holes have been fire-stopped with proper material where required by Code.
- That vertical wires are not installed in return air areas.
- That any recessed fixtures installed in insulated ceilings are the proper type fixtures and have been installed per the Michigan Residential Code Energy requirements.
- That all switches, plugs and covers are not installed prior to the rough inspection.

## **Rough Fireplace**

- **Pre-Fab Fireplace Inspections (A Mechanical Permit is required)** – These inspections are performed after the fireplace, chimney, and hearth extension protection has been installed as required by manufacturer. The inspection will verify:
  - That everything has been installed per the manufacturer’s requirements. Installation instructions need to be on site for this type of inspection.
  - That clearance between the chimney and any combustible material is being maintained per the manufacturer’s requirements.
  - That the framing and fire-stopping at fireplace and chimney chase is complete.
  - That any concealed gas piping has been properly installed and pressure tested and fireblocked at floor penetrations.
  - That a proper hearth extension and protection per the manufacturer has been installed.

**Rough Building Inspections** – These inspections are performed after all rough plumbing, mechanical, electrical and fireplace inspections have been approved. (Approved plans and truss drawings need to be on site for these inspections.)

### **Floor Framing** – These inspections will verify:

- The approved floor joists spans have been maintained.
- That floor trusses (if used) have not been damaged or modified in any way.
- That proper joist hangers have been installed and are properly nailed.
- That floor joists have not been improperly notched or bored.
- That all structural members have proper bearing.
- That there is proper support under all header studs.
- That there is proper support under all heat, cold air and plumbing cut outs.
- That there is proper support under all bearing walls.
- That the stairway will be a minimum 36-inch wide when all the walls are finished.
- That the stair risers are equal and have a maximum rise of 8-1/4 inches.
- That all stair treads are equal and have a minimum 9-inch depth.
- That all stair winders (if applicable) meet tread width and depth as outlined in the Michigan Residential Code.
- That proper headroom is provided in the stairway, 6’-8” minimum (measured from the nosing of the tread)
- That the approved sill plates have been installed at the perimeter of the foundation and have been properly attached with foundation anchors.
- That a minimum 18” x 24” crawl space access (if applicable) has been installed in the floor, or a 16” x 24” crawl space access has been installed in the foundation.
- That crawl space ventilation has been installed within three feet of all corners.
- That the engineered floor system (if applicable) has been properly laid out per the engineering.
- The steel beam sizing and column spacing and sizes of column footings. Proper bearing and connections will also be verified.

### **Wall Framing** – These inspections will verify:

- Proper support under all beams and girders.
- Proper support under all girder trusses (if applicable).
- That studs have been doubled under any cut plates under joists.
- That the garage door header has proper support and any required straps or hold-downs have been secured to the framing.
- That treated plates have been installed where in contact with concrete.
- That any joints in top plates are staggered at least 24”.
- That bottom plates have been properly nailed.
- That solid shims have been installed as necessary under any header bearing point.
- That all narrow wall bracing has been installed per Michigan Residential Code requirements.
- That studs have not been improperly notched or bored.
- That all proper wall bracing (exterior and interior walls) has been installed where required.
- That any damaged sheathing (holes) has been repaired.
- That the sheathing, if part of the brace wall design, covers the bond joist.

- That all holes thru plates (from wiring, plumbing, HVAC, etc.) have been properly fire blocked.
- That the chimney chase has been properly fire blocked.
- That all bathtubs and shower pans have been fire blocked completely and are properly insulated.
- That all dead spaces have been properly fire blocked.
- That all furred walls have been properly fire blocked.
- That all windows have been correctly installed and none are missing.
- That all required safety glass has been installed with readable labeling.
- That fire blocking has been installed in walls at 10' intervals both horizontally and vertically.
- That all bedroom egress windows meet the size requirements of the Michigan Residential Code.
- That all studs at wall intersections have been properly nailed.
- That all wall sheathing has been properly nailed.
- That the exterior house wrap has been installed properly.
- That the opening of any operable window is at least 24" above the finished floor if the window opening is more than 72" above the finished grade or surface below.
- That air barriers have been installed per the Michigan Residential Code energy requirements.

**Roof Framing** – These inspections verify:

- That roof trusses have not been altered or damaged during installation (if applicable).
- That all trusses bear at the design bearing points.
- That properly sized truss hangers have been installed at all girder truss connections.
- That rafters (if used) have not been over spanned.
- That ceiling joists (if used) have not been over spanned.
- That any porch roofs have been properly supported.
- That any bay roof framing has been completed and is weatherproof.
- That the ridge board is not undersized.
- That collar ties and rafter ties have been provided.
- That trusses have been properly braced per manufacturer's requirements and as noted on truss the drawings.
- That roof/ceiling framing members have not been improperly notched or bored.
- That shingles have been installed and nailed properly.
- That the roof sheathing is not over spanned.
- That a 22" x30" attic access has been installed with sturdy sides built up high enough to hold in required depth of blown in attic insulation.
- That all bath fan vents have been connected to their exhaust ductwork.
- That proper roof venting has been provided.
- That all framing hangers have been sized, installed, and nailed correctly.
- That truss drawings have been provided on site.
- That required blocking between trusses or rafters for proper wall bracing has been installed.
- That any valley board that lays on roof framing has been properly sized.
- That there is adequate support at all cut ends of rafters.
- That all truss and rafter wall connectors have been properly installed.
- That multi-ply girders are properly attached together per the truss drawings.

**Insulation/Energy Inspections** – These inspections occur after all insulation has been installed. The inspection will verify:

- That insulation has been completed as required by your selected method of energy compliance per the submitted Michigan Residential Code Energy Worksheet for Single-Family Residential Buildings.
- That blown-in attic insulation (if applicable) can be checked at the Final Building Inspection.
- That insulation baffles have been installed for proper attic ventilation.
- That paper facing has been removed within 6 inches of all recessed lighting fixtures.
- That paper facing on insulation will be in substantial contact with wall, ceiling or floor coverings.
- That all doors and windows are labeled showing required U Factors.
- That the house wrap has been installed per manufacturer's installation instructions.

**Basement Radon/Slab Inspections** – These inspections occur after all underground plumbing has been inspected and approved and the floor is ready to pour. This inspection will verify:

- That a 4-inch sand or gravel base with a 6mil vapor barrier has been installed.
- That all foundation and basement walls are free from cracks.
- That the finish floor height matches the approved plot plan.
- The location of columns and column footings are per the approved plan.
- That the columns are installed properly.

**Sidewalk and Drive Approach Inspections** – These inspections occur prior to concrete installation. The inspection will verify:

- That a 4-inch sand or gravel base has been installed and all forms are properly placed.
- The width and location will be checked according to the approved plot plan.
- That structures in or adjacent to the concrete are properly adjusted to match the finished elevation.
- 

### **Sidewalks**

- The cross slope will be checked. A 2% slope is required.
- That there is a 4-inch minimum thickness.
- That there is a 2-foot clearance from fixed objects (hydrant, utility pedestal, retaining wall, etc).
- That the sidewalk extends to the property lines and matches existing sidewalks.
- The slope for any crosswalks is a minimum 2% and a maximum 5% per sidewalk spec. sheet.
- That side yard drainage is not blocked.
- That detectable warnings are installed at all crosswalk ramps per Engineering Department requirements.

**Drive Approach Inspections** – This inspection will verify:

- The slope of the approach is a minimum 2% and maximum 10%.
- That the approach will have a 6-inch minimum thickness (including sidewalk at drive).
- That a 5-foot clearance between the drive and any hydrant is maintained.

**Final Plumbing Inspections** – These inspections take place after the water meter and all fixtures are installed and operational. This inspection will verify:

- That there is hot water to all fixtures.
- That all items installed have been listed on the Plumbing Permit. If additional items were installed they need to be added to the Plumbing Permit before final approval can be given by the Inspector.

**Final Mechanical Inspections** – These inspections take place after all gas piping, furnace, duct work and return air is installed and operational. **Approved Mechanical Plans shall be on site for all inspections.** This inspection will verify:

- That the furnace manufacturer's installation instructions are on site.
- That all ductwork has been sealed and air tested as necessary.
- That dampers have been installed for all intake and exhaust openings.
- That all items installed have been listed on the Mechanical Permit. If additional items were installed they need to be added to the Mechanical Permit before final approval can be given by the Inspector.

**Final Electrical Inspections** – These inspections take place after all electrical equipment, switches, plugs, covers and fixtures are installed and operational. This inspection will verify:

- That the electrical panel has been properly labeled indicating all circuits.
- That smoke alarms and carbon monoxide alarms are installed and operational.
- That light bulbs have been installed in all fixtures.
- That all items installed have been listed on the Electrical Permit. If additional items were installed they need to be added to the Electrical Permit before final approval can be given by the Inspector.

### **Final Fireplace Inspections.**

- **Pre-fab Fireplace** – These inspections take place after the fireplace surround and hearth extension have been installed as required by manufacturer. The inspection will verify:
  - That the manufacturer's installation instructions are on site.

- That clearances between the fireplace surround and the fireplace meet the manufacturer's requirements.

**Final Building Inspections** – These inspections take place after final plumbing, mechanical, electrical, and fireplace inspections have been inspected and approved. This inspection will verify:

- That smoke alarms are interconnected and working properly.
- That carbon monoxide alarms are installed and working properly.
- That there is proper and equal height stair risers and tread widths on all stairs.
- That exterior painting and caulking has been completed.
- That proper drainage away from the building has been provided.
- That there is complete fire separation between the home and the garage.
- That all handrails have been terminated properly and meet the graspability requirements of the Code.
- That there is a properly installed address on the building.
- That there is at least 6 inches between the final grade and any untreated wood.
- That guardrails have been installed at all raised floor surfaces and open sided stairs located more than 30 inches above the floor or grade below.
- That all intermediate rails or ornamental closures in guardrails do not allow passage of an object 4 inches or more in diameter, or 4-3/8" in diameter for guardrails at stairways.
- That any doors leading to a deck or stairs that are not in place have been secured shut and are not openable.
- That all weep holes and flashing are visible where required by Michigan Residential Code.
- That all windows in bedrooms and basement areas meet emergency egress requirements.
- That the opening of operable windows is at least 24" above the finished floor if the window opening is more than 72" above the finished grade or surface below.
- That safety glazing properly identified and installed in all hazardous locations.
- All energy compliance items have been completed, including energy information installed by label.
- That the Insulator's Certificate has been provided for all blown insulation.
- That the results of the Blower Door Test have been provided.

### **Final Grade Inspections**

Inspection to verify plot plan approvals were constructed at your site, including all sidewalks, driveways, and grading elevations,

A deferred grade inspection for a Temporary Certificate of Occupancy may be done if, in the opinion of the Building Official, weather conditions prevent the work from being completed.

**Temporary Erosion Control** shall be installed and approved by the Building Inspector. Soil erosion fabric or silt fencing shall be installed at the following locations:

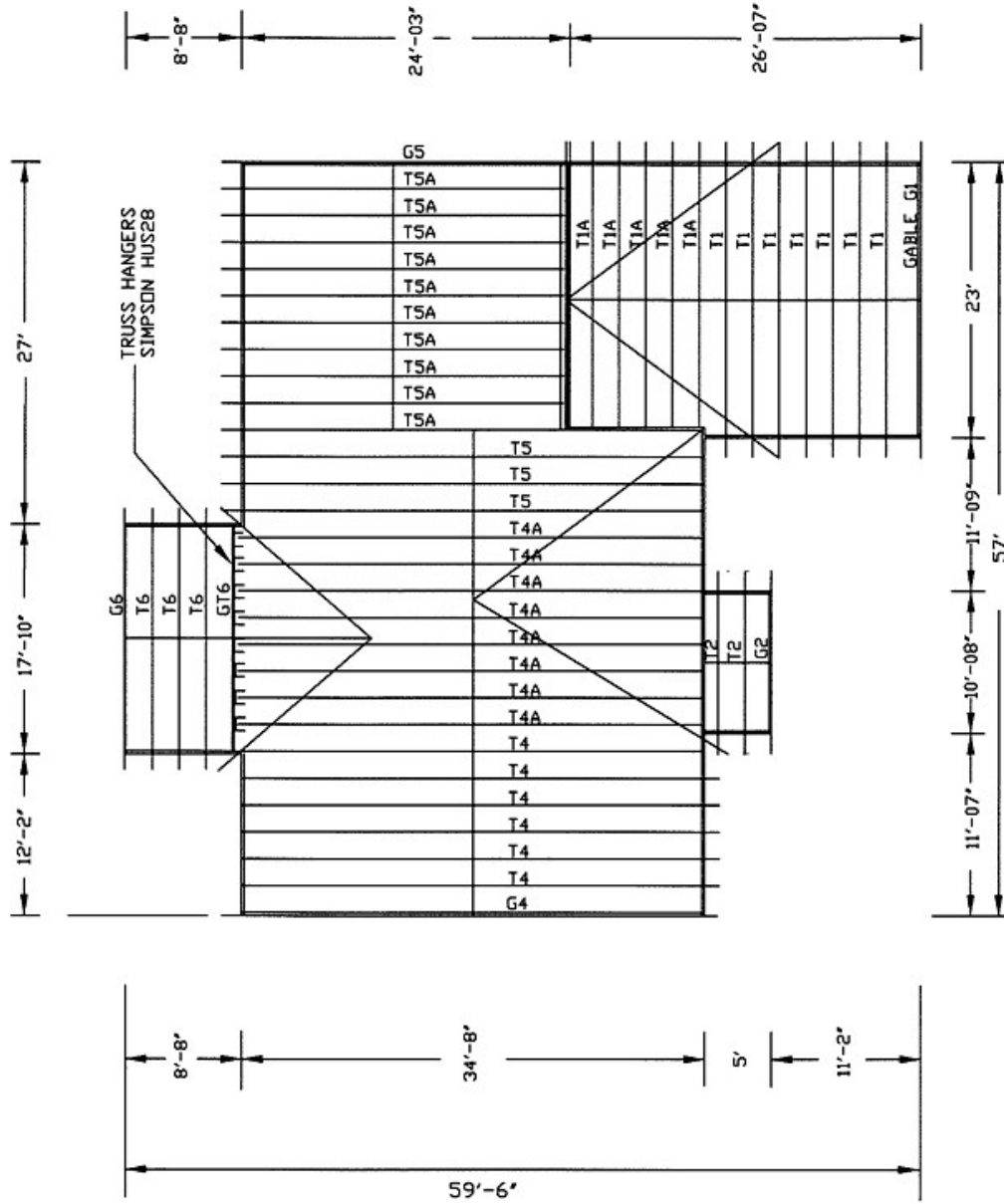
- The Right-of-Way.
- 10 feet around catch basins and storm manholes.
- Any other areas prone to erosion as determined by the Inspector.

XYZ BUILDERS  
 LOT 13  
 XXXX STREET  
 ROCHESTER HILLS, MI.

**ROOF TRUSS NOTES**  
 TRUSS SPACING: 24" O.C.  
 LOADING: 47 PSF  
 TOP LL = 30  
 TOP DL = 7  
 BOT DL = 10  
 PITCH = 7/12  
 TYP DN = 16"

WALL HEIGHTS	
1ST FLOOR:	9'-1 1/8"
2ND FLOOR:	9'-1 1/8"

1. INDICATE SIZE, TYPE, AND LOCATION OF ALL TRUSS HANGERS.



**SAMPLE TRUSS SCHEMATIC**

**ZONING & GRADING**  
**IMPORTANT INFORMATION**  
**New Home Construction**

The Zoning and Grading section will help you submit a complete set of plot plans for a new home in the City of Portage.

The following pages of information are included in this document:

**City of Portage, Zoning Code** – This code is specific to the City of Portage and generally regulates land uses. Further, this code specifically regulates where buildings can be located within the city, how much parking is required for a specific use, the overall dimensions of a building, where buildings can be placed within a property, and land use elements. [Chapter 42 – Land Development](#) contains zoning regulations.

**Setback Requirements, Zoning Code** – Setbacks or also known as ‘yard setbacks’ are regulated in the zoning code and specify how far a proposed building must be located away from a specific property line. Setbacks vary by zoning district. See the ‘Setback Chart’ later in this guidebook.

**Building Height, Zoning Code** – Generally, the building height is measured from grade (immediately adjacent to building foundation) up to roof mid-point of a typical gabled roof. See the ‘Building Height’ example later in this guidebook

**Plot Plan Requirements** – A Plot Plan is a birds-eye view drawing of a property. It is similar to a site plan drawing but often less detailed. A list of required items on your plot plan is provided in the ‘Plot Plan Requirement’ page later in this guidebook. This list should be given to your plot plan preparer, which could be the homeowner (if also the builder) or contractor. Please take time to make sure your drawings are complete. Plot plans that contain all the necessary information and details will help speed up the review process.

The actual Ordinance language may contain additional requirements or exceptions.

**Please take time to review this information. It may save you valuable time in building your new home.**

## SETBACK REQUIREMENTS

### How Close Can I Build to My Property Line?

The distance between your home and your property line is called a “setback.” The Zoning Ordinance outlines specific requirements for minimum setbacks depending on the Zoning District you live in. View your property on the [City website](#) to determine your specific zoning classification. Then, refer to the chart below to determine the setback requirements for your area.

<b><u>Zoning District</u></b>	<b><u>Front Setback</u></b>	<b><u>Side Setback</u></b>	<b><u>Rear Setback</u></b>
R 1A	27(b)	8(a)	40(b)
R-1B	30(b)	10(a)	40(b)
R-1C	30(b)	12(a)	40(b)
R-1D	30(b)	12(a)	40(b)
PD	See Tentative Plan		

Exceptions may apply to the above setback requirements. Please contact the Community Development Building Department if any of the following situations apply:

- (a) For lots with less than the required lot width, side yard setback shall not be less than five feet;
- (b) For lots with less than the required area, setbacks shall not be less than the following:
  - 30 feet to the rear line;
  - 15 feet from the street line abutting on the long side for a corner lot, provided that detached accessory buildings erected not less than 60 feet from the front street line may be erected not less than three feet from the side line, and provided further that a detached accessory building erected on a corner lot may be erected not closer than 15 feet to the side line of the street other than that upon which the dwelling on that lot is faced; and
  - 25 feet from the front line, provided that when 25 percent or more of all the frontage on the same side of the street between two intersecting streets has been built up with permanent dwellings, the average setback of the dwellings shall be the minimum setback line between the intersecting streets.



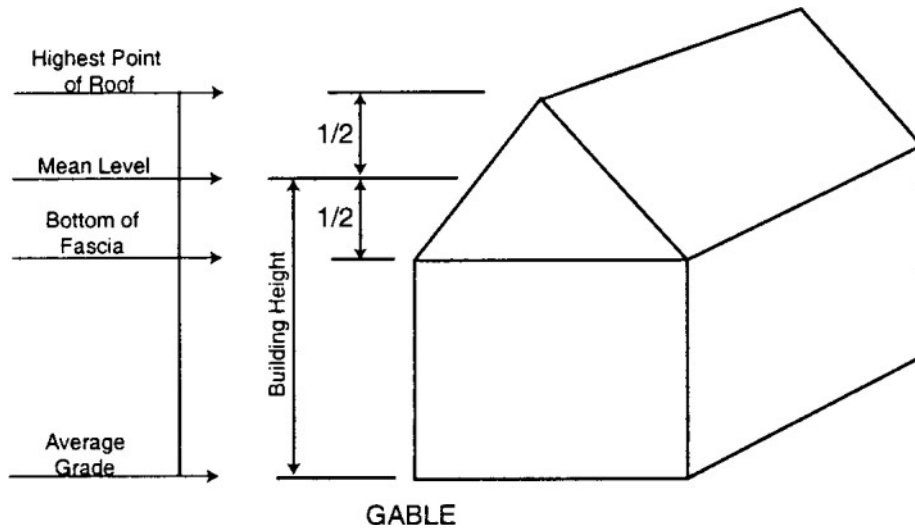
# BUILDING HEIGHT

## How Do You Calculate the Building Height?

**Building Height** means the vertical distance measured from average grade to the midpoint (mean) level of the highest gable, hip or gambrel roof. .

Where buildings have multiple or conflicting roof styles, the highest main roofline is applicable.

**Average Grade** is the ground elevation established for the purpose of regulating the height of the building. The building grade is the level of the ground adjacent to the walls of the building if the finished grade is level. If the ground is not level, the average grade shall be determined by averaging the elevation of the ground for each face (side) of the building. A weighted average may be calculated for sloping properties.



### Maximum Building Height of Structures

R-1 Single Family Residential	30 feet (Maximum 2 stories)
PD Planned Development	40 feet (unless otherwise established)

# PLOT PLAN REQUIREMENTS

## New Home Construction

PDF set of plot plan with a current & proposed detailed topographic information shall be provided.

### **These plans shall contain the following information:**

#### **General:**

Builder's name, address, email and telephone number.

- A North arrow, legal description, street right-of-way and street name.
- The site benchmark that will be used to establish the home and site elevations. Elevations must reference a known datum (above sea level).
- The dimensions required by the Michigan Residential Code if the building is built on or adjacent to slopes greater than 1 unit vertical to 3 units horizontal.
- A Plan scale between 1" = 10' and 1" = 60'
- Soil erosion control details for temporary construction control.

#### **Zoning:**

- All the dimensions of the proposed structure and the lowest floor and first floor elevation.
- Exact lot dimensions and all setbacks from all sides of the home, measured at 90 degree angles to the property lines. (Setbacks must comply with Ordinance requirements. Please see "Setback Requirements" on page 19).

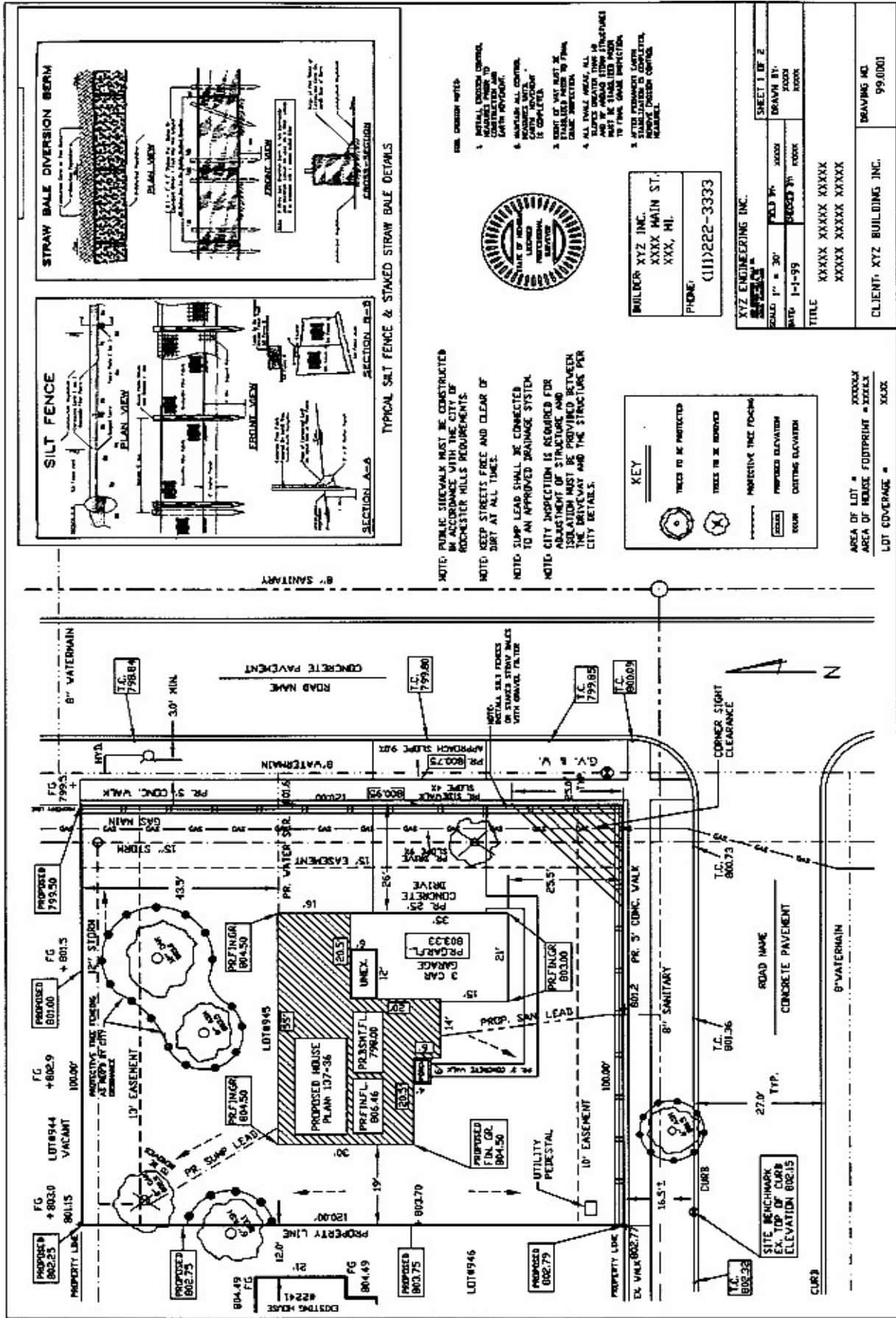
The plot plan footprint and the construction drawings shall be consistent.

**Grading and Drainage** –Elevations may deviate slightly to accommodate the natural topography and drainage requirements.

- A minimum of 6 inches of fall away from the home in the first 10 feet and a minimum of 1% grade for the remainder of the property for drainage.
- Existing and proposed elevations and drainage patterns, including all swales, drainage courses, berms and retaining walls.
- Existing and proposed elevations along all property lines, including property corners, at 2-foot intervals, on site and to 20 feet beyond the property line.
- The location and elevation of all easements and utilities including manholes, hydrants, phone, electric, gas, cable, etc. on the property.

#### **Utilities:**

- All existing and proposed utilities, including water and sewer connections.
- If a sanitary sewer lead is not available for the home, contact Community Development at (269) 329-4466 for a sewer use permit and a right-of-way permit to tap the main.
- The sidewalk (if applicable) with elevations at both side property corners and at the driveway. The cross slope requirements are 2%. The maximum incline is 1 foot vertical to 12 feet horizontal (8.33%). For crosswalks, the maximum incline is 5% (1 foot vertical to 20 feet horizontal).



**SAMPLE PLOT PLAN**

