

ROOF AND HOUSE STYLES

Construction Technology
TCJ20
Grade 10
June 2020



**ONLINE
RESOURCE**



Table of Contents

Introduction	2
Project Outline.....	2
Prior Knowledge.....	2
Student Activities.....	2
Resources	3
Video	3
PowerPoint presentation.....	4
Files.....	4
Images/Photographs.....	5
Websites for Teachers.....	5
Planning Notes.....	5
Instructional Strategies.....	5
Motivational Strategies.....	6
Learning Goals and Success Criteria.....	6
Overall and Specific Expectations.....	7
Overall Expectations.....	7
Specific Expectations.....	7
Safety Concerns and Expectations	7
Differentiation of the Project / Activity.....	8
Career and Industry Extensions	8
Appendix A - Roof and House Styles – Digital Assignment Sheet	9
Appendix B: Roof and House Styles – Print Assignment Sheet.....	14
Appendix C - Roof and House Style Record Keeping Form.....	24
Appendix D – Roof and House Style Reference Sheet.....	26
Appendix E – Roof and House Style Quiz.....	30
Appendix F – Components of a Roofing System.....	34
Appendix G – Roof Truss Diagram	36
Appendix H – Roofing Terminology Questions.....	38
References.....	39

Introduction

Course Code: TCJ2O
Broad base Technology: Construction Technology
Destination: Open
Grade Level: 10
Online Project Name: Roof and House Styles

Project Outline

Students will be introduced to different roof and house styles in this project. Before potentially building a roof style on a shed, model house or actual building it is good to know and be able to identify the different roof styles, house styles and identify their characteristics.

Activities in this project include,

- Students will socially distance by going outside in their communities to seek out examples of roof and house styles
- Students will photograph and assemble a document with their findings
- Students will do additional research of house styles, provide definitions and photos
- Students will be given a quiz to see how they have retained the information

Prior Knowledge

This is a grade 10 level course with no prerequisite, therefore no prior knowledge of roof styles, roofing or building design is required. An interest in architecture and building construction along with good spatial awareness and shape identification is a benefit but is not necessary.

Student Activities

Students will be asked to perform several activities in order to complete this project. They include:

1. Watch the [Roof and House Styles video](#)
2. Research and photograph examples of five roof and five house styles in their community
3. Assemble documentation, with locations, pictures, descriptions and submit
4. Complete a Roof and House Style Quiz ([Appendix E](#)) to display student's knowledge and understanding

5. [Extension Activity](#): Find all house and roof styles discussed
6. [Extension Activity](#): Research and find additional house styles
7. Watch the [Essential GAF Roofing System Components for Your Home video](#)
8. Read the article [IKO Roofing What Makes Up a Roof – Your Roof Components](#) and the article [Owens Corning – The Anatomy of a Roof](#)
9. Complete the Components of a Roofing System Handout ([Appendix F](#))
10. Extension Activity: Research a style of roof and create a roof truss diagram and label it ([Appendix G](#))
11. Extension Activity: Perform the Roofing Terminology Worksheet ([Appendix H](#))
12. Extension Activity: Watch the [Beginner Rafter Layout](#) video and layout a rafter in the workshop
13. Extension Activity: Watch the [Training the Trades - Cutting Common Rafters](#) video and cut a rafter in the workshop

Resources

The resources in this document can be completed online or through a blended format so that the students obtain the skill set to identify roof and house styles. The students will need to utilize a computer with internet access to view the video and research styles of houses and their characteristics. Students should follow school board computer use policies and safe internet searches when completing this assignment.

The resources in this document include an instruction video, PowerPoint presentation for in-class use and student handouts. Additional resources include: digital worksheet, printable worksheet, quiz and styles reference sheet.

Video



Roof and House Styles Video

https://www.octe.ca/application/files/5415/9762/3122/Roof_and_House_Styles_Final.mp4



Essential GAF Roofing System Components for Your Home

<https://www.youtube.com/watch?v=BZH-si4S0Ks>



Beginner Rafter Layout

<https://www.youtube.com/watch?v=kR6kGufeKIU>



Training the Trades - Cutting Common Rafters

<https://www.youtube.com/watch?v=gz-Ej0qY1pQ>

PowerPoint presentation



Roof and House Styles PowerPoint

https://www.octe.ca/application/files/3815/9762/3360/House_and_Roof_Styles.pptx

Files

1. House and Roof Styles Reference Sheet ([Appendix D](#))
2. Roof and House Record Keeping Form ([Appendix C](#))
3. Roof and House Styles Digital Assignment Sheet ([Appendix A](#))
4. Roof and House Styles Print Out Assignment Sheet ([Appendix B](#))
5. Roof and House Styles Quiz.pdf ([Appendix E](#))
6. Components of a Roofing System ([Appendix F](#))
7. Roof Truss Diagram ([Appendix G](#))
8. Roofing Terminology Worksheet ([Appendix H](#))

Images/Photographs

All photographs have been specifically sourced in the creation of this document and are royalty free and are referenced in the References section of this document.

Websites for Teachers

[Top 20 Roof Types and Pros & Cons – Roof Styles](#)

[National Roofing Contractors Association Glossary](#)

[JTC Roofing Contractors Ltd. – Roof Types](#)

[Medeek Trusses Resource](#)

Planning Notes

It is estimated that the combination of video, internet research, and assignments will take learners 5 hours to complete. Accommodation of extra time may be required for some learners.

- Utilize your school board LMS or create a digital space for each learner to submit and receive the material (e.g., Microsoft One Drive, Google Drive, Dropbox, etc.)
- Direct students to watch Roof and House Styles video (once or twice)
- Direct students to print out House and Roof Styles reference sheet
- Provide each learner with ROOF AND HOUSE STYLES Digital and/or Print out Assignment Sheet(s)
- Post or provide the learners with the materials at timed intervals or all at once.
- Provide timely feedback to learners;
- Administer ROOF AND HOUSE STYLES Quiz in class or convert to Google doc to have them take online

Instructional Strategies

Instructional strategies for this project include,

- Independent, guided video
- Feedback on submitted assignment
- Internet research for both online and blended format

Motivational Strategies

- Students can complete the project with a camera (or Google maps) and Microsoft Word (or comparable software). This project requires no construction tools (hand or power) to complete.
- The project can be done independently or in small groups (socially distanced) as they either ride their bikes or walk through their neighbourhood.
- Students are able to get outside.

Learning Goals and Success Criteria

By the end of this project students will be able to:

- Demonstrate the ability to communicate to the teacher through audio or live video communications.
- Describe the components and systems of buildings
- Will use keywords in an internet search.
- Will demonstrate learning skills that include Responsibility, Organization, Independent Work, Initiative, and Self-Regulation.

Success criteria to meet some of those learning goals might look like,

- I am able to identify multiple styles of roofs and houses
- I can confidently state characteristics of house styles and their features
- I can communicate through the use of correct construction terminology and can describe building components
- I can describe the components and systems of buildings

Overall and Specific Expectations in Support of Ontario Curriculum Grades 9-10 Technological Education

Overall Expectations

A1. Describe the components and systems of buildings, the properties of various building materials, and the processes in which those materials are used;

A3. Use correct terminology to describe building components and construction materials, tools, equipment, and processes.

Specific Expectations

A1.1 Identify the different components of a residential construction project (e.g., footings, foundation, joists, studs, trusses, rafters, millwork, trim, cabinetry), and outline the sequence in which these components are usually installed;

A1.2 Identify the various systems in a building (e.g., foundation, framing, electrical, plumbing, cabinetry), and describe their functions;

A1.4 Describe the processes used to produce common construction materials (e.g., cutting and milling lumber and trim, gluing together the layers of plywood);

Safety Concerns and Expectations

This project has been designed as an online or blended assignment and therefore construction tools and machinery are not required, minimizing the risk and need to address shop safety. The students however will need to utilize a computer for research and should be mindful of proper ergonomics. Additional safety concerns include,

- Students are old enough to roam or ride their bicycle through their community
- Students need to obey traffic laws and be aware of their surroundings, accessing a safe and well-known neighbourhood for their safety
- Students may or may not have their own cell phone or digital camera in order to take photographs. Students should be stopped and standing in a stable position in order to take their photographs. It is advised not to use your phone while riding your bicycle at the same time.
- Students must take photos from sidewalks and not trespass on properties
- Project should not require parental supervision however parents can assist in transporting their son or daughter to obtain the necessary photographs in order to complete the assignment.

Differentiation of the Project / Activity

There are a number of ways in which this project can be differentiated for instruction. They include,

- Teacher can use the stand alone PowerPoint presentation to introduce assignment in class and then have students do research away from in class time
- Teacher can find examples of roof and house styles in neighbourhoods, record addresses and have students visit them and determine which roof or house style is being represented
- Entire project can be presented online and done by students away from school entirely using video provided
- Teachers may allow students to work with partners.

Career and Industry Extensions

Industry extensions and career exploration for students to include:

- Structural engineer
- Architect
- Architectural Technologist
- Carpenter

Appendix A - Roof and House Styles – Digital Assignment Sheet

Roof Style #1:

Roof Style	House #	Street Name	City

Roof Style #2:

Roof Style	House #	Street Name	City

Roof Style #3:

Roof Style	House #	Street Name	City

Roof Style #4:

Roof Style	House #	Street Name	City

Roof Style #5:

Roof Style	House #	Street Name	City

House Style #1:

House Style	House #	Street Name	City

House Style #2:

House Style	House #	Street Name	City

House Style #3:

House Style	House #	Street Name	City

House Style #4:

House Style	House #	Street Name	City

House Style #5:

House Style	House #	Street Name	City

Extension Activity 1 – Bonus Roof Styles

Bonus Roof Style #1:

Roof Style	House #	Street Name	City

Bonus Roof Style #2:

Roof Style	House #	Street Name	City

Bonus Roof Style #3:

Roof Style	House #	Street Name	City

Bonus Roof Style #4: Combination Roof

Roof Style	House #	Street Name	City

Extension Activity 2:

Bonus House Style #1:

House Style	House #	Street Name	City

Bonus House Style #2:

House Style	House #	Street Name	City

Bonus House Style #3:

House Style	House #	Street Name	City

Bonus House Style #4:

House Style	House #	Street Name	City

Extension Activity 3:

Bonus House Style #5: Cape Cod

House Style	House #	Street Name	City
Cape Cod			

Cape Cod Definition (two sentences):

Bonus House Style #6: Queen Anne

House Style	House #	Street Name	City
Queen Anne			

Queen Anne Definition (two sentences):

Bonus House Style #6: Timber Frame

House Style	House #	Street Name	City
Timber Frame			

Timber Frame Definition (two sentences):

Appendix B: Roof and House Styles – Print Assignment Sheet

Roof Style #1:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Roof Style #2:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Roof Style #3:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Roof Style #4:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Roof Style #5:

Roof Style	House #	Street Name	City

Picture or sketch	Description

House Style #1:

Roof Style	House #	Street Name	City

Picture or sketch	Description

House Style #2:

Roof Style	House #	Street Name	City

Picture or sketch	Description

House Style #3:

Roof Style	House #	Street Name	City

Picture or sketch	Description

House Style #4:

Roof Style	House #	Street Name	City

Picture or sketch	Description

House Style #5:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Extension Activity 1 – Bonus Roof Styles

Bonus Roof Style #1:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Bonus Roof Style #2:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Bonus Roof Style #3:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Bonus Roof Style #4: Combination Roof

Roof Style	House #	Street Name	City

Picture or sketch	Description

Extension Activity 2:

Bonus House Style #1:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Bonus House Style #2:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Bonus House Style #3:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Bonus House Style #4:

Roof Style	House #	Street Name	City

Picture or sketch	Description

Extension Activity 3:

Bonus House Style #5: Cape Cod

House Style	House #	Street Name	City
Cape Cod			

Cape Cod Definition (two sentences):

Bonus House Style #6: Queen Anne

House Style	House #	Street Name	City
Queen Anne			

Queen Anne Definition (two sentences):

Bonus House Style #6: Timber Frame

House Style	House #	Street Name	City
Timber Frame			

Timber Frame Definition (two sentences):

Appendix C - Roof and House Style Record Keeping Form

Student Name: _____

Date: _____

ROOF STYLES	HOUSE #	STREET NAME	CITY
Roof #1			
Roof #2			
Roof #3			
Roof #4			
Roof #5			

HOUSE STYLES	HOUSE #	STREET NAME	CITY
House #1			
House #2			
House #3			
House #4			
House #5			

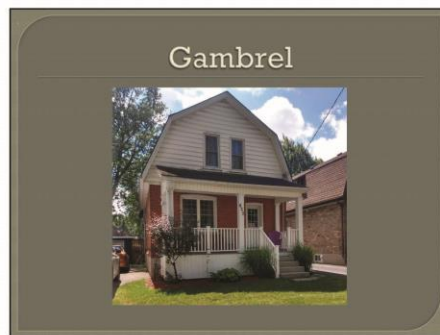
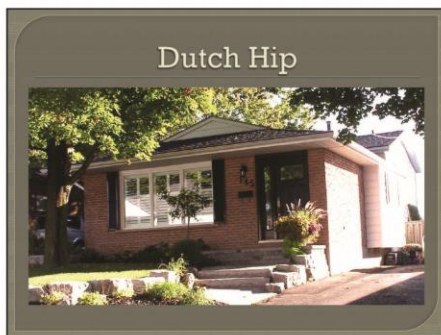
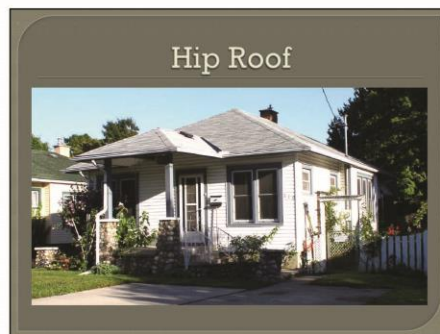
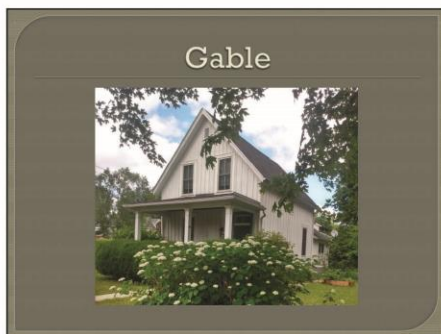
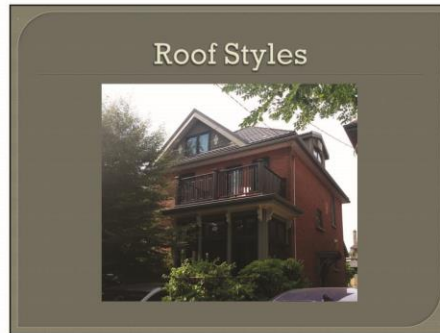
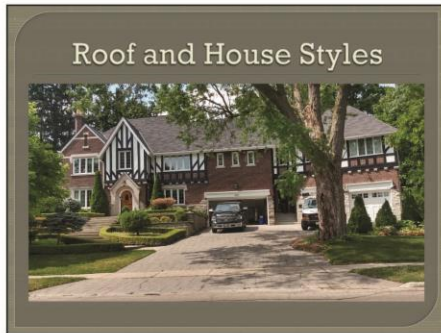
BONUS STYLES	ROOF	HOUSE #	STREET NAME	CITY
Roof #1				
Roof #2				
Roof #3				
Roof #4 - Combo				

BONUS STYLES	HOUSE	HOUSE #	STREET NAME	CITY
House #1				
House #2				
House #3				
House #4				

BONUS STYLES	HOUSE	HOUSE #	STREET NAME	CITY
Cape Cod				
Queen Anne				
Timber Frame				

Appendix D – Roof and House Style Reference Sheet

Roof Styles Reference Sheet



Mansard Roof



Flat



Shed Roof



Eyebrow



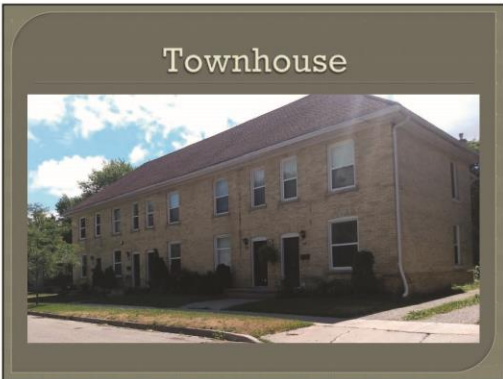
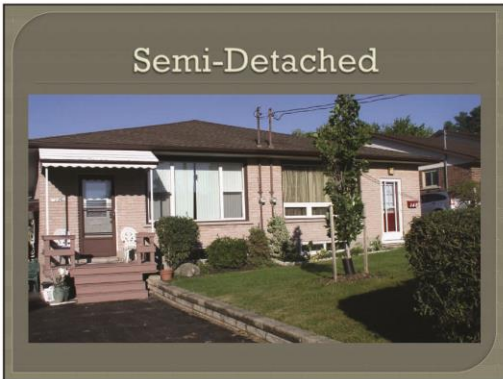
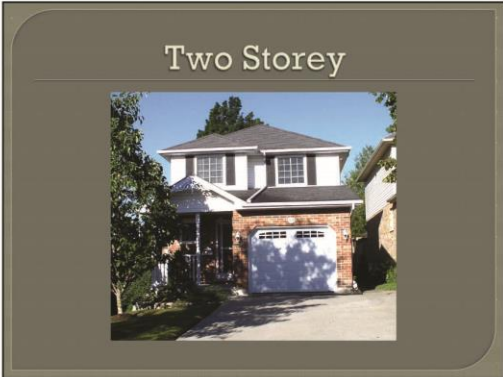
Multi-Roof Styles



House Styles



House Styles Reference Sheet



Tudor



Victorian



Contemporary



Contemporary



Craftsman



Appendix E – Roof and House Style Quiz

Using the clues below, match the appropriate house and roof style for each photo shown.

HOUSE STYLES		ROOF STYLES	
Bungalow	Victorian	Gable	Mansard
Contemporary	Townhouse	Hip	Shed
Two Storey	Split Level	Flat	Gambrel



House Style	Roof Style(s)



House Style	Roof Style(s)



House Style	Roof Style(s)



House Style	Roof Style(s)

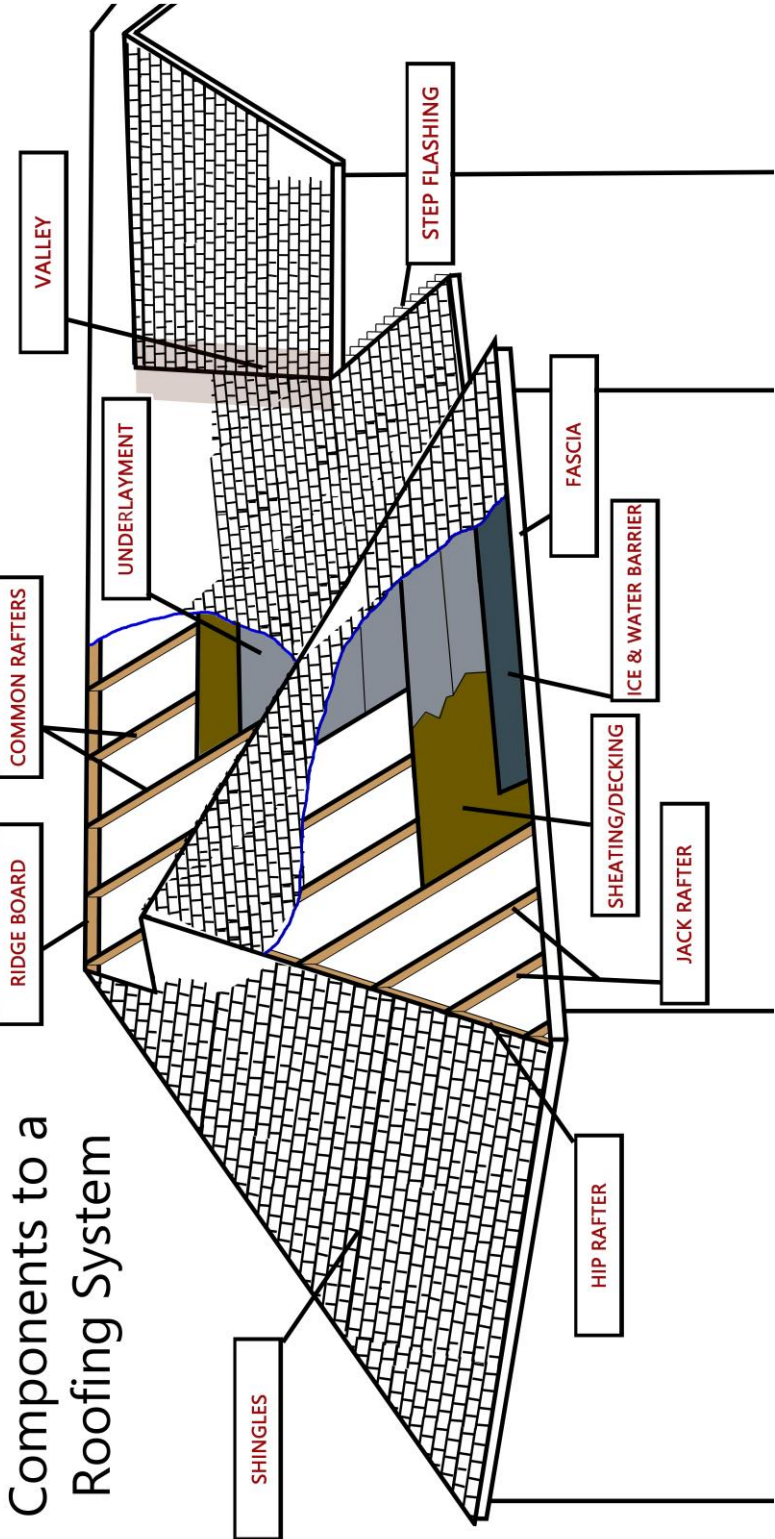


House Style	Roof Style(s)

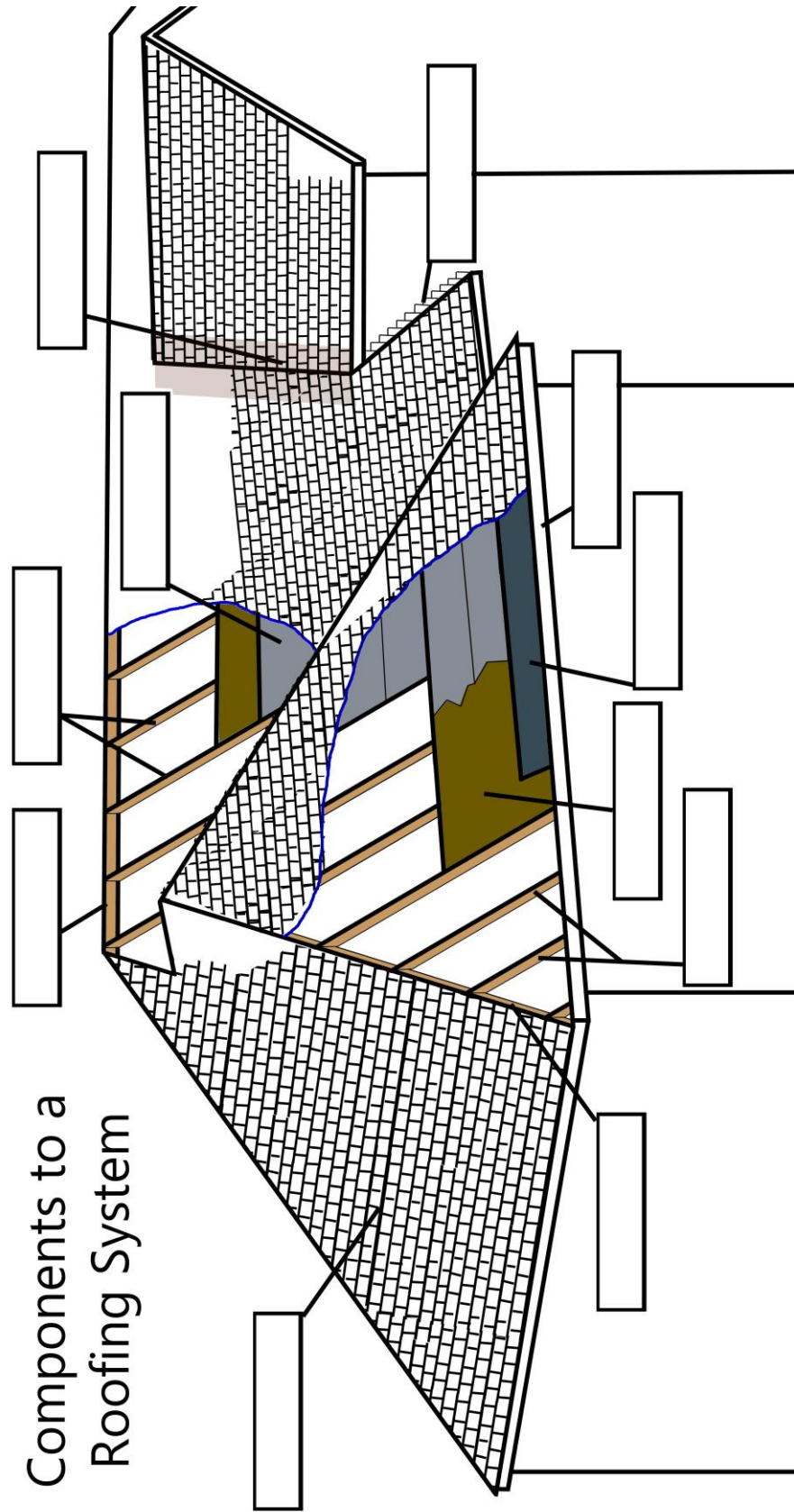


House Style	Roof Style(s)

Appendix F – Components of a Roofing System

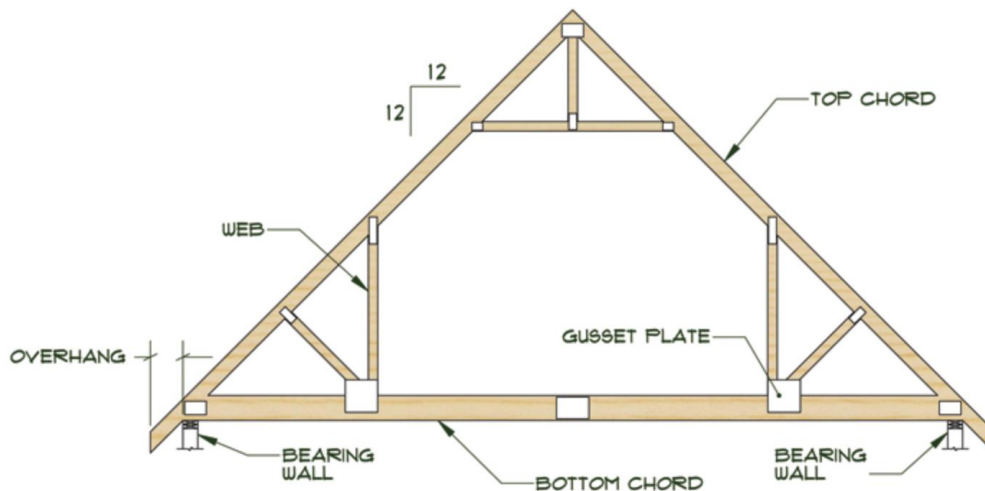


Components to a Roofing System



Components to a Roofing System

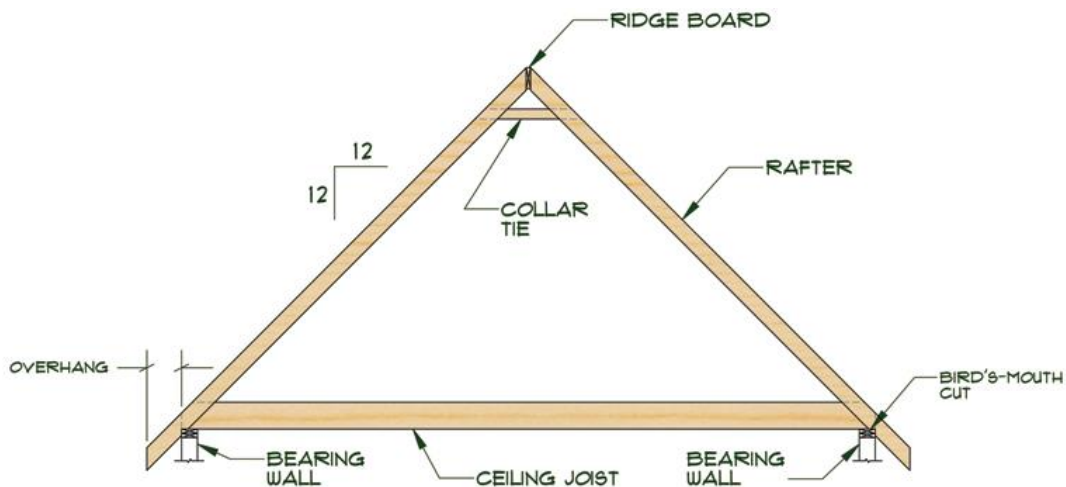
Appendix G – Roof Truss Diagram



ATTIC TRUSS

Built off job site in a Truss factory and delivered to job site.

- Lower skill level required by carpenters
- Engineered to meet load characteristics of the roof.
- Usually uses smaller dimensional lumber fastened together by gusset plates.
- Reduces amount of time on job site to build roof system.
- Trusses are very common way of construction in Canada.

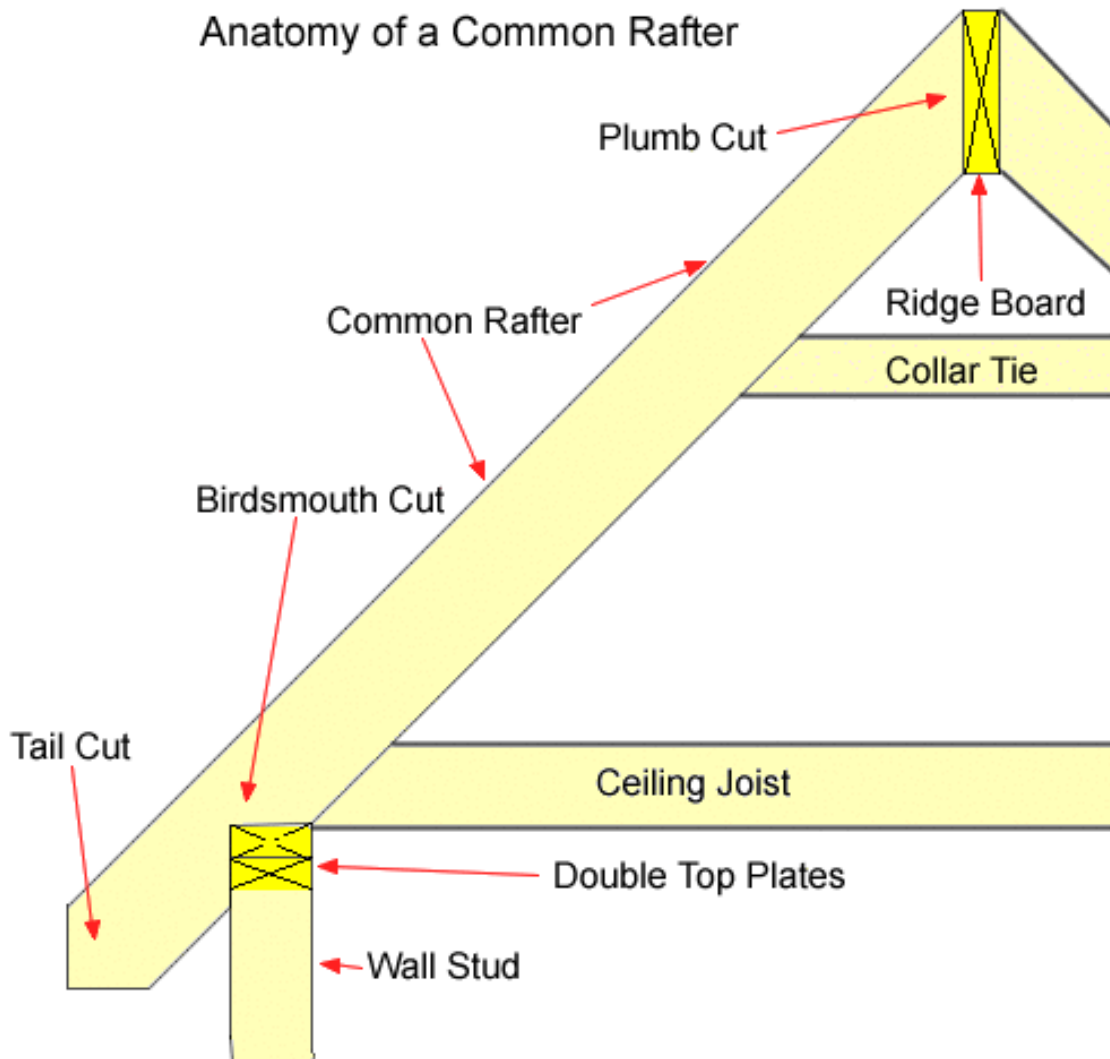


RAFTERS W/ CEILING JOIST

Built on the job site.

- High skill level of Carpenters to create roof system to withstand loads of roof.
- Built using standard dimensional lumber according to building code specifics.
- Rafters are very common way of construction in the US.

Anatomy of a Common Rafter



Appendix H – Roofing Terminology Questions

Using your Construction Technology textbook and the Internet, answer the following questions.

1. What is the purpose of a roof?

2. State three loads that are applied to a roof.

3. What is the difference between a truss and rafters?

4. Define the following terms,
 - a. Pitch

 - b. Span

 - c. 16" O.C.

 - d. Total Rise

 - e. Tail

 - f. Roofing square

5. What is the function of a ridge board?

6. What is the function of a birdsmouth cut?

7. Why is ventilation important to the life span of a roof?

References

Beginner Rafter Layout (YouTube video), 2020

<https://www.youtube.com/watch?v=kR6kGufeKIU>

Construction Technology SAFEDocs (OCTE), 2013

https://www.octe.ca/application/files/1115/3796/3108/SAFEdoc_CON.pdf

Course Codes for Emphasis courses in the Revised Curriculum: Technological Education, Grades 11 and 12, 2009

<http://www.edu.gov.on.ca/eng/curriculum/secondary/techedemphasiscourses.pdf>

Essential GAF Roofing System Components for Your Home | We Protect What Matters Most (YouTube Video), 2014 <https://www.youtube.com/watch?v=BZH-si4S0Ks>

Exploring Technologies SAFEDocs (OCTE), 2013

https://www.octe.ca/application/files/6715/3796/3140/SAFEdoc_EXPL.pdf

Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools, First Edition, Covering Grades 1 to 12, 2010

www.edu.gov.on.ca/eng/policyfunding/growSuccess.pdf

IKO Roofing What Makes Up a Roof – Your Roof Components (Article), 2020

<https://www.iko.com/na/blog/roof-components-the-parts-that-make-a-roof/>

JTC Roofing Contractors Ltd. – Roof Types (Website), 2020

<https://www.jtcroofing.co.uk/roof-types/>

Learning for All – A Guide to Effective Assessment and Instruction for All Students, Kindergarten to Grade 12, 2013

<http://www.edu.gov.on.ca/eng/general/elemsec/speced/LearningforAll2013.pdf>

National Roofing Contractors Association Glossary (Website), 2020

<https://www.nrca.net/technical/glossary>

Owens Corning – The Anatomy of a Roof (Article), 2020

<https://www.owenscorning.com/en-us/roofing/tools/the-anatomy-of-a-roof>

Photographs of Houses, (Images), taken by D Paul, 2020

Rafters vs Trusses (Image), 2020 <https://www.roofingcalc.com/rafters-vs-trusses/anatomy-of-a-roof-rafter/>

Roof and House Styles (PowerPoint presentation), 2020

https://www.octe.ca/application/files/3815/9762/3360/House_and_Roof_Styles.pptx

Roof and House Styles (Video), 2020

https://www.octe.ca/application/files/5415/9762/3122/Roof_and_House_Styles_Final.mp4

The Ontario Curriculum, Grades 9 and 10: Technological Education, 2009 (revised)

<http://www.edu.gov.on.ca/eng/curriculum/secondary/teched910curr09.pdf>

The Ontario Curriculum, Grades 11 and 12: Technological Education, 2009 (revised)

<http://www.edu.gov.on.ca/eng/curriculum/secondary/2009teched1112curr.pdf>

Top 20 Roof Types and Pros & Cons – Roof Styles, Design & Architecture (Website), 2020

<https://www.roofingcalc.com/top-20-roof-types/>

Training the Trades - Cutting Common Rafters (YouTube video), 2020

<https://www.youtube.com/watch?v=qz-Ej0qY1pQ>

Trusses (Images), 2020 <http://design.medeek.com/resources/trusses.html>