Good Morning & Welcome "The Stone Masonry Workshop Series"

• Refreshments & Introductions Name Industry Interest in Stone Masonry CEU Questions/Concerns

• Ice Breaker Activity "My Favorite App"









The Stone Masonry Workshop Series

Stage 1 Dry Stack Stone Wall Building Workshop Level 1



Think about this question:

Why use stone walls?

Stone Walls

"Rocks laid with thought and gravity." (Vivian, 1993)

This book is one of my favorite resources for stone wall building. The quote above can be found in this book.



Historic dry-laid stone walls, constructed from fieldstone that was gathered and stacked by farmers who cleared fields for crops two centuries ago, line routes of many old roads in New York State and New England. (*Millbrook, New York p.46*)



History of Stone Walls in America

A well-built stone wall will endure for hundreds of years. The combination of the use of "rocks" as a material to maximize "gravity" has allowed man to build lasting monuments. Historical monuments like the Egyptian Pyramids, The Great Wall of China, Stone Hedge and the many beautiful stone walls and churches throughout the American countryside.



Stones gathered from nearby fields and meadows were dry laid to make this spectacular New England wall. (Great Barrington, Massachusetts)

Stones gathered from nearby fields and dry laid to make this wall. (Great Barrington, Massachusetts p.153)



An intriguing pattern, copied from a stone wall at Delphi in Greece, winds through this ashlar wall in a Southwest garden. (Santa Fe, New Mexico)

Safety Gear

A cubic foot of rock weighs well more than 100lbs

• gloves

• steel toe boots w/good supports

o safety goggles

o knee pads



Building Tools

- Levels site level, string level, 2ft/4ft/6ft levels torpedo level (8 inches)
- Hammer
- Chisel
- Square
- Pick
- Shovel
- Rake
- Wheel Barrel
- String
- Stakes
- Crow Bar

Layout Tools

- String
- Hose
- PVC Pipe
- Calculator
- Tape Measure
- Site or Water Level
- Wooden Stakes
- Pencil
- Ground Marking Paint



Stone Characteristics

Stone selections must fit your space in <u>size</u>, <u>scale</u>, and <u>colo</u>r.





Characteristics

<u>Size</u> = average stone 8in x 12in long & wide and 1-3 inches thick on average, using larger stones can get the job done faster if you are able to move and handle them around the site



Characteristics

<u>Scale</u> = if your wall is going to be really tall and really wide, use larger stones. As the converse you do not want to use large stone for a small wall. Are the size of your rocks proportional to the size of your wall.





Characteristics

<u>**Color**</u> = Rocks from different geographical locations form at different temperatures under ground and that determines color.

Stone Sourcing

• Local Stone Retailers -

Scott Stone Southern Stone Supply Site One Others?

Old Foundations & Structures
 & Quarries





Kinds of Stone 3 Basic Types of Stone

 igneous – resulting from cooling & solidification of hot liquid rock. Igneous rocks are categorized as intrusive vs. extrusive i.e. granite (used as counter tops in kitchens & bathrooms), pumice (used in beauty products), obsidian, basalt)

Kinds of Stone 3 Basic Types of Stone

 sedimentary – produced by consolidation of sediments formed by weathering then piled up by agents of erosion (wind & water). i.e. bluestone, sandstone, limestone, Iron Ore, siltstone, coal, rock salt, conglomerate & shale



Kinds of Stone 3 Basic Types of Stone

 metamorphic – the result of either sedimentary or igneous types being changed by pressure, heat and chemically active solutions. i.e. slate, marble (used as counter tops in kitchens & bathrooms), QUartzite(used as counter tops in kitchens & bathrooms), SOApstone (used as counter tops in kitchens & bathrooms) schist, gneiss)

Kinds of Stone



 Stone Products – Stone products can be called a lot things based on size, location, and color.

• Reading & Understanding Stones

Turning a stone on the side and looking at the veins can tell you a lot.



- Start with a 2 x 2 square wall and add 6 inches in width for every 1 foot in height. Consider building 2 smaller walls instead of one taller wall.
- Walls over 4 foot in height usually require a **footing**. The footing must be below the frost line in your area.



- Wall area must be clean of trees, stumps and roots. Should be graded and a consideration for drainage based on site location/setting.
- Layout is of the utmost importance. Gather the following tools string, hose, pvc pipe, calculator, tape measure, site or water level, wooden stakes, pencil and ground marking paint.



How do you move materials to the project and around the project?



- Utilizing the design map layout, the proper engineers or architects scale, can help you to **picture the wall in 3-D.**
- In order to calculate volume, you would use length x height x width = volume/ cubic feet. Remember the formula for every 1 foot height the wall gets 6 inches wider, starting with a 2 X 2 wall.

• A story pole helps to create the vertical rise of the wall. Let's create a story pole. Showing the footing, ground level, the wall and the cap.







- To calculate square footage we use the formula (length x width = square footage or l x w= sqft). For example when calculating square footage for building a patio.
- To calculate cubic feet we use the formula (length x height x width = cubic feet or volume or l x h x w = cubic feet or volume). This formula is used when calculating cubic footage for building a classic dry stack stone wall. (volume and cubic footage means the same thing)

Design & Layout Worksheet

- A client calls you to design/build a backyard patio. There is 250sqft of available patio space in the backyard.
- That would allow you to design a patio for example 25 x 10. (length x width = square footage, 25 x 10 = 250sqft).
- If stone for the patio is 4 inches thick we need to figure the amount of material needed. To figure cubic volume we convert inches to feet. If you divide 1 inch by 12 inches the answer is .08333 feet. 1 inch equals .08333 feet.

Design & Layout Worksheet

Calculating Cubic Volume

• 4 inches of stone for the patio is calculated by using 4 x .08333 = .333

 4inches is1/3 of a foot. Convert 1/3 to .333 to calculate cubic volume we would multiply 250sqft times our depth of .333

250 x .333 = 83.25 83.3 cubic feet of material is needed.

• Additional Industry Notes:

22.5sqft on a standard pallet of stone in order to measure length x height x width. 27sqft per yard



Building the Wall

 Proper stretching and readiness needed prior to physical labor.
 Proper heavy lifting techniques.

Let's head outside for some hands on learning & practice.

See handouts for Projects 1-3

Group 1

Layout and construct a 3x3ft L-shaped wall. What is the square footage?

Group 2

Layout and construct a 3ft radius 1/4 circle wall. What is the square footage?

Group 3

Layout and construct a 2x2ft square wall. What is the square footage?

References

- Vivian, John. <u>Building Stone Walls.</u> Storey Communications. Pownal, Vermont 1976.
- Whitner, Jan <u>Gardening with Stone: Using Stone Features to Add</u> <u>Mystery, Magic and Meaning to your Garden.</u> Macmillan, New York, N.Y. 1999.

• Footnote:

All presentation pictures are either projects performed by TJ Husted, Outdoor Images, Inc. or photographs from the <u>Gardening with</u> <u>Stone: Using Stone Features to Add Mystery, Magic and Meaning to</u> <u>your Garden by Jan Whitner.</u>

• T.J. Husted, content matter expert, stone masonry consultant, and instructor. Workshop curriculum objectives, projects and presentation was written by Wendy Husted. Outdoor Images, Inc., Copyright 2020



Dry Stack Stone Wall Bidding Workshop Level 1

The Business of Building a Stone Wall

Bidding Mathematically

• Face Feet

Length x Height = Face Feet



• Cubic Feet

Length x Height x Width = Cubic Feet/Volume

Cubic Feet & Volume is the same thing.

Bidding Mathematically - continued

• Cost of Product & Cost of Labor (Warranty / Contingency / Profits

o Presentation of Bid

(Options: A & B Installation Product Cost)

• Movement of Materials on Site

Insurance / Bonds Workers Compensation



Attracting Labor

• Group Discussion

Building Recognition for your Business "**Branding**" (the promotion of a particular product or company by means of advertising and distinctive design)

o Strategies for Branding

 Importance of Company Logo/ Name
 Logo & Name goes on everything – t-shirts, trucks, all marketing materials
 What are ways you have branded your company?

Marketing your Business

Marketing (the action or business of promoting and selling products and services, including market research and advertising)

Now that you have begun to build your brand you must market. (Your brand is your business)

Strategies for Marketing your Business
Market before the busy season

• Target your ideal customer What is your niche? Who is most likely to ask for your services? Prioritize services... What are your most profitable services?

• Build a portfolio site

Lot's of different mediums today website, Facebook, Instagram, YouTube,

Anyone have experiences with these mediums they would like to share?

Success/Failures/Up for Debate? Where have you found your "audience"?

• Use EDDM (Every Door Direct Mail from US Postal Service)

Affordable all necessary information is online at the US Postal Service (Easy affordable targeting of specific zip codes & neighborhoods.)

Go to <u>http://www.usps.com</u> Click on the link for Business and follow the link for Every Door Direct Mail. There are step by step rules.

• Utilize Business Listings Google, Yelp, Home Advisor, Thumbtack, Houzz, Angie' List & Porch

Prioritize Retention

Improve existing customer experience closely tied to evaluating customer service. What other services might an existing customer need? Enhancements?

• Testimonials / Reviews Post Positive Reviews on Yelp, Google etc.

• Keep Social Media Updated



Thank you for attending The Dry Stack Stone Wall Building Workshop.

Drive safely, have a wonderful afternoon.