
1997 ACF National Convention

Ice Carving Seminar

BASICS OF ICE CARVING

- TOOLS:** Chain Saws, Die Grinders, Ice Tongs, Ice Chisels (including V-shaped, Gouge, and Flat), Hand Saws.
- CLOTHING:** Waterproof Boots, Pants or Apron, Gloves, Ear and Eye Protection and a Weight Belt.
- ICE:** 300 lb. manufactured rectangle (approximately 20 X 10 X 40) and will be as clear as possible. The white feather in the center is air bubbles and impurities - made in metal cans immersed in cold ammonia chilled salt water. (Principle of heat reduction same as making home made ice cream in a rotating bucket.) Ice from a freezer must be "tempered" or allowed to soften slightly to prevent thermal shock, so the ice does not crack from the temperature variation. This takes approximately 1-4 hours or more, depending on how cold the freezer is.
- SET UP:** Work out of sunlight and wind and also off the ground. Use a wooden base free of nails to prevent damage to saw blades and chisels. Provide good water drainage and sweep away all ice chips for secure footing.
- DESIGN:** Make a template pattern first so balance, proportion and size will fit the size of a single block of ice. More advanced techniques involve joining extra pieces of ice to make a larger and more realistic sculpture. Do not use salt to join pieces. Apply pattern to the ice and scribe an outline. Deepen with a V-shaped chisel or a chain saw blade. Remove the large unwanted ice sections from the front, to produce a silhouette design. Then move to the sides and back for a three-dimensional outline. Use various chisels to finish the project by adding surface details and faceting techniques.
- HINTS:** Cut hand holds into the bottom of the ice before setting up the carving. Leave a 6" back for transport so the ice doesn't break while moving and setting up the display. Keep finished ice covered with a box or plastic bag to preserve the details. Freezer air erodes the ice by "sublimation," which occurs when a substance goes from a solid to a gas without going through the liquid state. Set up the sculpture ½ to one hour prior to the first guest's arrival.
- LIGHTING:** It is important to assist the ice facets to "sparkle," - a light source is best when used from below and behind. Florescent lighting is best. **DO NOT USE A SPOTLIGHT.** A direct source excessively softens the ice and turns it white and opaque, which is no good.
- COST:** The cost is usually \$30 - \$45 per block of ice and may vary by area. Tools are best from Japan and could cost from \$190 to \$400 each. They are expensive and are specially hand made, so they should be treated with care and respect to prolong their usefulness. When handling chisels, do not hand off to another

person. Put the chisel down and allow the next person to pick up the expensive tool.

ICE CARVING COURSE OUTLINE

by
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1. INTRODUCTION & HISTORY

AMERICAN: George Weising 1940's Fairfield, Connecticut, Book 1954, 372 pg.
Joseph Amendola 1960 Hartford, Connecticut Book 1960, 88 pg.

JAPANESE: Hideo Hasegawa Book 1960 approximately 200 pg.
Mitsuo Shimizu 1970, 1977 to America Vol. 1, 1980

HISTORY: Origin probably China; Russia 1600's, 1st ice palace 1739 St. Petersburg.
Empress Anna Ivanova. Mid 1970's Yukichika Iijima Japanese books and tools techniques to America

2. SAFETY

EARS: Use plugs etc.; permanent and cumulative hearing loss.

EYES: Clear protective lenses; use of power tools, take precautions.

FEET: Insulated thick boots, warmth, minimal protection.

HANDS: Always wear gloves.

ELECTRICAL: Use double grounded equipment, monitor cords for cuts, shocks.

COLD: Outdoors, hypothermia, manipulatory ability, concentration.

3. TOOLS/EQUIPMENT

CLOTHING: types available

BOOTS: Indoor & outdoor use

GLOVES: Indoor & outdoor use

APRONS: Aprons, leggings, waterproof

4. BASIC TOOLS

CHAIN SAWS: Gas or electric, where working application

ELECTRIC: Planers, Circular side grinders, Die Grinders, Drills

On Ice

MANUAL: "Sanders" large hand saw

CHISELS: Flat, V-shaped, Gouge, Ice Knife

DIE GRINDERS: Basic cutting tips

(¼" shank), 1" Narrow Vee, 1" Vee 45°, Straight 2 flute, 1/4" & 1/8" single flute, End Mills 5", 4 ¼", & 3 ¾", Burs, & Roscoe Bit 2 flute cone 2 ½".

5. TOOL SHARPENING & CARE

STONES: 800, 1000, & 6000 grit, pre soak

ANGLES: 3" or less size blade - 19° 3" or larger blade - 21°

CARE of STEEL & HANDLES:

6. ICE SELECTION

TEMPERING: from 5° to 10° F freezer, 3 hours covered in the refrigerator out of drafts, loses frosty surface; ultra clear blocks add at least 1 hour.

HANDLING: Use 2 wheel cart, cushion insulate with foam, wrap pipes.

TRANSPORT: most fragile from the freezer, cushion 2 wheel cart, insulated bags.

STORAGE: Box or plastic bags prevent sublimation.

7. WORK AREA

Wood Pallet, table, cleanliness, use white #2 polyethylene base, avoid sunlight and drafts.

8. DESIGN TRANSFER

TEMPLATES: Enlargement, techniques, scratch outline on the ice; V-chisel or die grinder to deepen.

9. BLOCK PREPARATION

HAND HOLDS: Cut into bottom

TRIMMING BLOCK

ICE UTILIZATION

10. CUTTING METHODS

POWER SAWS: 30° on links, keep sharp, touch up on round file. Rocking motion, bar chain tension.

HAND SAWS: Two hands, pull toward body & downward, full strokes.

On Ice

DIE GRINDER: Types of cutting bits, 2 flute, single flute, etc.

SIDE SANDERS: 20 grit, uses - leveling, contour shapes

SAFETY FACTORS: two hands, carve forward, never towards body.

11. USE OF CHISELS & KNIVES

HAND POSITION:: Power leverage, body stance

CHISELS: 45° to ice surface, short controlled strokes

12. PRACTICE:

FORMS: Lines, circles, scales, diamond, swirls

COORDINATION: Hand/Eye, holding angles, pressure, & force

PRACTICE: Side Sander, Die Grinder, Hand Saws, Chain Saws, & Chisels

13. PROJECTS:

SINGLE PIECE SCULPTURES: Shell, Wine Holder, Tray, Waves, & Globe.

14. SPECIAL EFFECTS

APPLIED DESIGNS: Plastic Gels, paper, engraving, & snow-filled techniques

INNOVATIONS: Ice painting, ice polishing, marbling, & flat surface melting

OPTICAL EFFECTS: Cross cutting, radiating, burst designs etc.

COMPARISON: Hand tools versus Power Tools

15. MULTI-PIECE COMPOSITIONS

ICE ASSEMBLY: Patterns are essential, freezing to the ice

JOINING: Peg & Groove, ironing, low temperature gasses, water, marbling (Heat)

SAFETY: Follow all safety precautions

16. PHOTOGRAPHY

BASICS & ADVANCED

17. QUESTIONS/ANSWERS

18. SPECIAL CONCERNS

Competitions, Business, Certification, Organizations, Multi-block construction, etc.