DAACS Cataloging Manual: Glass Vessels

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The DAACS Glass Vessel Manual documents how glass vessels used for the storage, consumption and preparation of liquids and food are cataloged in the DAACS PostgreSQL database. This manual is one of sixteen DAACS Cataloging Manuals. Each manual documents a specific module of the DAACS database, and they provide protocols for using each module. In addition to defining each data field (meta data), the manuals describe how data should be entered into data field, provide guidance on artifact identification, and give examples of how artifacts should be cataloged.

The DAACS database was developed in 2000 by Jillian Galle and Fraser Neiman, in collaboration with members of the DAACS Steering Committee. Jillian Galle, Fraser Neiman, and DAACS Staff, including Leslie Cooper, Lynsey Bates, Lindsay Bloch, Elizabeth Bollwerk, Jesse Sawyer, and Beatrix Arendt, led the development of cataloging protocols. In addition to DAACS staff and steering committee members, Monticello current and former Archaeology Department staff, Jennifer Aultman, Sara Bon-Harper, Derek Wheeler, Donald Gaylord, Karen Smith, and Nick Bon-Harper also contributed to the development of cataloging protocols. Jennifer Aultman and Katherine Grillo produced the initial versions of these DAACS manuals in 2003. They have been continuously revised by DAACS staff in the intervening years.

This manual was substantially revised for the introduction of the Bronze, Silver, and Gold cataloging tiers in 2022, and in preparation for the new website launch in 2024. These revisions were made by Galle and Bollwerk and by DAACS analysts Iris Puryear, Allison Mueller, and Catherine Garcia.

Convoy, a web design and graphic design company based in Charlottesville, Virginia, initially programmed the DAACS database in SQLServer (2001-2013). The University of Virginia's Institute for Advanced Technology in the Humanities (IATH) built and currently maintains the PostgreSQL version of the DAACS database (2014-present). Convoy also designed the original DAACS website (2004), and has since redesigned the website twice (2014, 2024).

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1. THE DAACS DATABASE

The DAACS database was designed by Galle and Neiman in 2001, with the direct input from the DAACS Steering Committee and collaborating institutions. The large relational database is programmed in PostgreSQL and comprises over 200 related tables. This structure instantiates the protocols and standards outlined in the DAACS manuals. The database is linked to Ruby-on-Rails web-based interface, which allows the DAACS Research Consortium members to access the database through a web browser with a login from anywhere with a working internet connection. For a detailed summary of the DAACS database and history of DAACS, please see Galle, Bollwerk, and Neiman 2019.

In 2018, a major grant from the National Endowment for the Humanities' Digital Humanities Division provided funds to develop a tiered cataloging interface that would allow DRC users to engage with the database on a variety of levels while retaining the data standards and integrity built into the original system. This new interface, with its Bronze, Silver, and Gold tiers, went live in March 2022. This project was a collaboration between DAACS, The University of Virginia's Institute for Advanced Technology in the Humanities, and Convoy.

2. ABOUT THE GLASS VESSEL MODULE

The **Glass Vessel Module** is designed to record attributes from all types of glass vessels, including tablewares, food and liquid containers, and bottles. It is also used to record attributes from glass objects that were once part of a complete vessel, including milk glass jar lid liners and wine bottle seals, even though they themselves are not vessels. Non-vessel glass, such as window glass, lamp glass, glass furniture insets, glass doorknobs, and mirror glass, should be cataloged as General Artifacts. Toys made of glass (e.g., glass marbles) and components of glass jewelry or personal items (e.g., glass paste jewels, eyeglass lenses) should be cataloged in the General Artifacts module. However, glass beads are cataloged in the Bead module and glass buttons in the Button module.

The **Glass Vessel Manual** is divided into two main sections. The first provides details on the fields recorded for the DAACS Gold, Silver, and Bronze interfaces and the protocols specific to each cataloging tier. The second section explains what information is recorded in each field and describes how this attribute data is identified or measured.

2.1 Comparison of Glass Vessel Attributes recorded for Bronze, Silver, and Gold Cataloging Levels

Bronze	***Silver***	***Gold***
Artifact Count	Artifact Count	Artifact Count
Glass Color	Glass Color	Glass Color
Fluoresces Blue?	Fluoresces Blue?	Fluoresces Blue?
Category	Category	Category
Form	Form	Form
	Completeness	Completeness
Manufacturing Technique	Manufacturing Technique	Manufacturing Technique
	Mold Type	Mold Type
	Mended?	Mended?
Decoration?	Decoration?	Decoration?
Notes	Notes	Notes
		Sherd Thickness
	Maximum Sherd Measurement	Maximum Sherd Measurement
Sherd Weight	Sherd Weight	Sherd Weight
	Mended Sherd Weight	Mended Sherd Weight
		Base Length
		Base Diameter
		Mended Base Diameter
		Rim Length
		Rim Diameter
		Mended Rim Diameter

		Pontil Mark
		Total Container Height
		Element
		Shape
		Manufacturing Technique
		Stemware Body Shape
		Stemware Foot Shape
		Stem Shape
		Stem Length
	Decorative Technique	Decorative Technique
	Applied Color	Applied Color
	Glass Stylistic Element	Glass Stylistic Element
	Mark	Mark
	Location of Mark	Location of Mark
		Burned?
		Patination?
		Solarized?
		Post-Manufacturing Modification?
		Conservation?
	Images	Images
Objects	Objects	Objects
		Mends

2.2 Location of Attributes in the Glass Vessel Module Interface

Field Location in DAACS Glass Vessel Module	***Bronze***	***Silver***	***Gold***
Main Tab	Artifact Count	Artifact Count	Artifact Count
	Glass Color	Glass Color	Glass Color
	Fluoresces Blue?	Fluoresces Blue?	Fluoresces Blue?
	Category	Category	Category
	Form	Form	Form
		Completeness	Completeness
	Manufacturing Technique	Manufacturing Technique	Manufacturing Technique
		Mold Type	Mold Type
		Mended?	Mended?
	Decoration?	Decoration?	Decoration?
		Maximum Sherd Weight	
	Sherd Weight	Sherd Weight	
		Mended Sherd Weight	
	Notes	Notes	Notes
Measurements			Sherd Thickness
			Maximum Sherd Measurement
			Sherd Weight

			Mended Sherd Weight
			Rim Length
			Rim Diameter
			Mended Rim Diameter
			Base Length
			Base Diameter
			Mended Base Diameter
Bottle Info			Pontil Mark
			Total Container Height
			Element
			Shape
			Manufacturing Technique
Stemware Info			Stemware Body Shape
			Stemware Foot Shape
			Stem Shape
			Stem Length
Decoration/Marks		Decorative Technique	Decorative Technique
		Applied Color	Applied Color
		Glass Stylistic Element	Glass Stylistic Element
		Mark	Mark

		Location of Mark	Location of Mark
Condition			Burned?
			Patination?
			Solarized?
			Post-Manufacturing Modification?
			Conservation?
Images		Link to Images	Link to Images
Objects	Link to Objects	Link to Objects	Link to Objects
Mends			Link to Mends

3. Bronze Level Cataloging Protocols

3.1 Bronze Overview

The main benefit of cataloging vessel glass at the Bronze Level is the ability to batch larger quantities of shards by a smaller number of diagnostic fields. The result is that you and your staff can catalog more artifacts at a faster pace. However, think carefully about the analytical tradeoffs. If you catalog in Bronze, you will not record key pieces of information, such as Mold Type (which might be useful for dating your site) or Decoration Type. The choice of cataloging level should reflect the research goals, as well as time and/or budgetary considerations, specific to a given project.

We also strongly recommend *against* using the Notes field to record further details on decoration or measurements. Adding unstandardized detail in an open text field will negate the time and resources you are attempting to save by using the Bronze level interface and create data that are harder to use. If you find the additional detail decoration or measurements are important to your research, consider using the Silver or Gold Interface.

The fields recorded at the Bronze level are:

- Artifact Count
- Glass Color
- Fluoresces Blue?
- Category
- Form
- Manufacturing Technique
- Decoration? (Y/N)
- Sherd Weight
- Notes
- Link to Objects

We begin by offering suggestions for cataloging efficiency and introducing Bronze level batching protocols. Note that Machine-Made and Non-Machine-Made glass have different cataloging protocols.

3.2 Bronze Level Sorting Recommendations

We recommend the following steps for sorting fragments prior to cataloging. This sorting process will expedite cataloging.

1. Empty a context onto a table.
2. Sort fragments into two categories based on manufacturing technique. Separate non-Machine-Made fragments (i.e., sherds with a manufacturing technique of Free Blown,

Mouth Blown, Mold Blown, or Unidentifiable) from sherds identified as Machine-Made or Likely Machine-Made. Set Machine-Made and Likely Machine-Made group aside.
3. Within Non-Machine-Made group, sort by Glass Color, Fluorescence, Category, Form, Manufacturing Technique, and presence or absence of decoration.
4. For Machine-Made and Likely Machine-Made fragments, sort only by Glass Color.
5. Note that at the end of this process you could have a "batch" of multiple fragments, and/or a "batch" of only one fragment. A batch of one is still considered a batch and should be recorded using the same prescribed guidelines.

Note: We strongly recommend *against* putting extraneous information that is not captured by existing Bronze level data fields into the Notes field. While it may be tempting to record decorative genre or detailed measurements in this section, this is not the purpose of the open text field. Using the Notes field in this way makes it difficult to extract consistent data and effectively negates one of the key benefits of cataloging at the Bronze level by reducing cataloger efficiency. If a higher level of data collection is desired, please consider upgrading your cataloging level to "Silver" or "Gold."

3.3 Bronze Batching Protocols for Non-Machine-Made Vessel Glass

Batch all shards that share the following attributes:

- Glass Color
- Fluorescence
- Category
- Form
- Completeness
- Manufacturing Technique
- Decoration (Y/N)

Note that:

- Decorated shards should be batched separately from undecorated shards.
- Mended shards can be batched together with un-mended shards.
- Artifact Count should record the total number of shards in the batch.
- Shard weight should be recorded as the total weight of the batch.

3.4 Bronze Cataloging Protocols for Non-Machine-Made Vessel Glass

Record fields as follows for Non-Machine-Made glass:

Artifact Count: Number of shards in batch
Glass Color: As appropriate
Fluoresces Blue?: Y/N
Vessel Category: As appropriate
Form: As appropriate

Manufacturing Technique: “Free Blown,” “Mold Blown,” “Mouth Blown,” or “Unidentifiable”
Decoration?: Record presence or absence (Y/N).
Sherd Weight: Enter weight of the batch in grams

3.5 Bronze Batching Protocols for Machine-Made and Likely Machine-Made Vessel Glass

Batch all shards that share the following attributes:

- Manufacturing Technique
- Glass Color

Note that:

- Decorated and undecorated shards can be batched together.
- Mended shards can be batched together with un-mended shards.
- Artifact Count should record the total number of shards in the batch.
- Sherd weight should be recorded as the total weight of the batch.

3.6 Bronze Cataloging Protocols for Machine-Made and Likely Machine-Made Vessel Glass

Record fields as follows for Machine-Made and Likely Machine-Made glass:

Artifact Count: Number of shards in batch
Glass Color: As appropriate
Fluoresces Blue?: “Not Recorded”
Vessel Category: “Not Recorded”
Form: “Not Recorded”
Manufacturing Technique: “Machine Made,” or “Machine Made, Likely”
Decoration?: “N/R”
Sherd Weight: Enter weight of the batch in grams

4. Silver Level Cataloging Protocols

4.1 Silver Overview

The main benefit of cataloging glass vessel fragments at the Silver Level is the ability to record more diagnostic attribute data. This includes mold type, details on decorations, and more measurements fields than are offered by the Bronze interface. It also allows catalogers to work at a faster pace by removing the Gold level requirement to record detailed form, shape, and measurement data in the Bottle Element tab. However, think carefully about the analytical tradeoffs. If you catalog at the Silver level, you are not recording detailed measurements like thickness, and information about vessel elements that may be temporally diagnostic. On the

other hand, the introduction of additional data fields makes batching protocols more complex at the Silver Level, resulting in fewer batches and more time spent cataloging. The choice of cataloging level should reflect the research goals, as well as time and/or budgetary considerations, specific to a given project.

Note: We strongly recommend *against* using the Notes field to record further details on decoration or measurements. Adding unstandardized detail in an open text field will negate the time and resources you are attempting to save by using the Silver level interface and create data that are harder to use.

The fields recorded at the Silver level are:

- Artifact Count
- Glass Color
- Fluoresces Blue?
- Category
- Form
- Completeness
- Manufacturing Technique
- Mold Type
- Mended?
- Decoration?
- Notes
- Maximum Sherd Measurement
- Sherd Weight
- Mended Sherd Weight
- Decorative Technique
- Applied Color
- Glass Stylistic Element
- Mark
- Location of Mark
- Link to Images
- Link to Objects

We begin by offering suggestions for cataloging efficiency and introducing Silver level batching protocols. Note that Machine-Made and Non-Machine-Made glass have different cataloging protocols.

4.2 Silver Level Sorting Recommendations

We recommend the following steps for sorting fragments prior to cataloging. This sorting process will expedite cataloging.

1. Empty a context onto a table.
2. Sort shards into two categories based on manufacturing technique. Separate non-Machine-Made fragments (i.e., shards with a manufacturing technique of Free Blown, Mouth Blown, Mold Blown, or Unidentifiable) from shards identified as Machine-Made or Likely Machine-Made. Set Machine-Made and Likely Machine-Made fragments aside.
3. Sort Non-Machine-Made shards into two groups: decorated and undecorated.
4. Within each Non-Machine-Made group, sort shards into further categories by Glass Color, Fluorescence, Category, Form, Manufacturing Technique, and Mold Type. Decorated sherds should be catalogued individually.
5. For Machine-Made and Likely Machine-Made fragments, sort only by glass color.

4.3 Silver Batching Protocols for Non-Machine-Made Vessel Glass

4.3.1 Fragments to Catalog Individually (no batching)

Do *not* batch glass vessel fragments with the following attributes:

4.3.1.1 Decoration

- All decorated glass fragments are cataloged individually (this includes examples with lettering).
- Marks should be recorded for non-machine-made vessel glass and are considered decoration. Enter "Yes" for Decoration and select "Lettering" as the Glass Stylistic Element under the Decoration/Marks tab.
- Do not batch free blown, mold blown, or mouth blown sherds with marks, such as wine bottle seals and vessels with engraved lettering.

4.3.1.2 Post-Manufacturing Modification

At the Silver Level, all sherds with post-manufacturing modification are cataloged individually, but no thickness measurements are recorded.

4.3.2 Mended Fragments

4.3.2.1 Rules for Cataloging Mended or Mendable Fragments

- Shards that are physically glued or could be physically mended should be cataloged at the shard level, which may result in batches with counts of one (i.e., multiple records associated with a single mended vessel or vessel fragment).
- If two mended fragments have all the same attributes (including max. sherd size), then they can be batched in one record with the appropriate count.
- Do not batch mended with non-mended fragments.

4.3.2.2 Examples

Example 1: Three bottle fragments mend together but are not physically adhered to each other. Two are 20 mm and one is 30 mm, but all other attributes are the same. Two records would be created for this scenario: one with a count of 2 and maximum sherd size of 20 mm, and another with a count of 1 and maximum sherd size of 30 mm. Mended? is recorded as "Yes, Mends But Not Physically."

Example 2: Two wine bottle base shards that are size 30 mm and are physically glued together. One record is created, Mended? is recorded as "Yes, Physically Mended."

4.3.3 Batching for Non-Diagnostic Non-Machine-Made Vessel Glass

Batch all non-diagnostic (i.e., lacking decoration and/or marks) shards that share the following attributes:

- Glass Color
- Fluorescence
- Category
- Form
- Completeness
- Manufacturing Technique
- Mold Type
- Maximum Sherd Size (less than 20 mm, 21-30 mm, 31-40 mm, etc. We use 10 mm modified bins for DAACS Silver level cataloging)

Artifact Count should record the total number of shards in the batch. Fragment weight should be recorded as the total weight of the batch.

4.4 Silver Batching Protocols for Machine-Made and Likely Machine-Made Vessel Glass

Batch all machine-made and likely machine-made shards by Glass Color. Disregard Maximum Sherd Size, Category, Form, and Completeness in the batching.

Do not record decoration or marks for machine-made or likely machine-made glass at the Silver Level. Decorated and undecorated shards can be batched together.

Mends are not recorded at the Silver Level for machine-made and likely machine-made glass. Mended and un-mended sherds can be batched together.

4.5 Silver Cataloging Protocols from Machine-Made and Likely Machine-Made Vessel Glass

Record fields as follows for machine-made and likely machine-made glass:

Artifact Count: Number of shards in batch
Glass Color: As appropriate
Fluoresces Blue?: "Not Recorded"
Vessel Category: "Not Recorded"
Form: "Not Recorded"
Completeness: "Not Recorded"
Manufacturing Technique: "Machine Made," or "Machine Made, Likely"
Mold Type: "Contact Mold"
Mended?: "Not Recorded"
Decoration?: "N/R"
Maximum Sherd Size: Do not record (leave blank)
Sherd Weight: Enter weight of the batch in grams

5. Gold Level Cataloging Protocols

5.1 Gold Overview

The main benefit of cataloging glass vessel fragments at the Gold level is the ability to record a large number of individualized measurements and the maximum amount of attribute data for every artifact. Cataloging at the Gold level also allows you to capture formal characteristics in certain circumstances, such as specific information on bottles and stemware, base marks, condition information and detailed measurements. However, think carefully about resources and analytical tradeoffs. Batching is much more limited at the Gold level, and identifying and recording measurements for individual vessel parts can be time consuming and requires a high level of cataloger expertise. The choice of cataloging level should reflect the research goals, as well as time and/or budgetary considerations specific to a given project.

Please note that Gold Level standards represent the original Glass attribute fields that have been part of DAACS since 2001. These original fields were chosen by DAACS staff and material culture scholars. Silver and Bronze Levels are "streamlined" versions of the original DAACS Glass module.

The fields recorded at the Gold level are:

- Artifact Count
- Glass Color
- Fluoresces Blue?
- Category
- Form

- Completeness
- Manufacturing Technique
- Mold Type
- Mended?
- Decoration?
- Sherd Thickness
- Maximum Sherd Measurement
- Sherd Weight
- Mended Sherd Weight
- Base Length
- Base Diameter
- Mended Base Diameter
- Rim Length
- Rim Diameter
- Mended Rim Diameter
- Pontil Mark
- Total Container Height
- Element
- Shape
- Manufacturing Technique
- Stemware Body Shape
- Stem Shape
- Stemware Foot Shape
- Stem Length
- Decorative Technique
- Applied Color
- Glass Stylistic Element
- Mark
- Location of Mark
- Burned?
- Solarized?
- Conservation?
- Patination?
- Post-Manufacturing Modification?
- Link to Images
- Link to Objects
- Link to Mends

5.2 Gold Batching Protocols

There are complex batching rules for glass fragments in the Gold interface. Please pay close attention to the batching rules that we have listed here.

5.2.1 Glass Fragments of Max. Sherd Size 15 mm or Smaller

- If Form is "Unidentifiable," and Completeness is "Body" or "Unidentifiable:"
    - Batch by **Color**, **Fluorescence**, **Manufacturing Technique**, and **Mold Type** (if applicable).
    - If some of the shards are burned or patinated, enter "Not Recorded" in these fields (Condition tab).
    - Be sure to record that the maximum sherd measurement is 15mm, and the total weight of the sherds. Record maximum sherd measurement as 15mm even if some fragments in the batch are under 15mm.
    - Remember that all shards must share the same attributes in order to be batched.
- If shards are mended, decorated, or diagnostic in form or completeness (i.e., part of a base, rim, or finish):
    - Do not batch.
- If shards are machine-made or likely machine-made, see below.

5.2.2 Automatic Machine-Made Glass (includes objects manufactured using semi and fully automatic machines)

- If Manufacturing Technique is "Machine Made" or "Machine Made, Likely:"
    - Batch all machine-made and likely machine-made shards by **Color** and **Form.**
    - Disregard Maximum Sherd Size, Vessel Category, and Completeness in the batching

Count:	Number of shards in batch
Fluoresces Blue?:	"No"
Glass Color:	As appropriate
Category:	"Not Recorded"
Form:	As appropriate*****
Completeness:	"Not Recorded"
Manu Tech:	"Machine Made" or "Machine Made, Likely"

Mold Type: "Contact Mold"
Mended?: "No" (default)
Decoration?: "No" (default)
Sherd Thickness: Do not record
Max. Sherd Size: Do not record
Sherd Weight: Enter weight of the batch in grams

*****The decision was made on August 7, 2019, to batch machine-made and likely machine-made glass by color *and* form. Prior to this date, form was not recorded in most cases for vessel glass identified as "Machine Made" or "Machine Made, Likely" at the Gold Level.

5.2.3 All Non-Machine-Made Bottle Glass and non-leaded Container glass

This includes any shards with a Manufacturing Technique of Mouth Blown, Mold Blown, Free Blown that are not tablewares or leaded container glass:

- Batch glass bottle sherds by: *
  - Glass Color
  - Fluorescence
  - Category
  - Form
  - Completeness
  - Manufacturing Technique
  - Mold Type
  - Burning?
  - Maximum Sherd Size

*Shards must share all of the same attribute values in order to be batched. See below for diagnostic sherds that should not be batched.

Example 1: five unburned wine bottle body shards with a maximum sherd size of 35 mm would have a record like the following:

Artifact Count: 5
Fluoresces Blue?: "No"
Glass Color: "Green/Olive Green"
Category: "Hollow"
Form: "Bottle, wine style"
Completeness: "Body"
Manu Tech: "Mouth Blown"
Mold Type: "Missing Information"
Mended?: "No" (default)

Decoration: "No" (default)
Sherd Thickness: Do not record
Sherd Weight: Enter weight of the batch in grams
Max. Sherd Size: 35mm [numerical value only]
Burned?: "No" (default)

Do *not* batch bottle sherds with the following attributes (catalog individually):

- Circular base sherds with a measurable length*****
- Text marks
- Diagnostic manufacturing marks such as pontil marks, string rims, and finishes
- Decoration

*****If you have multiple, non-diagnostic bottle **base** sherds with no measurable length (i.e. fragments of the push-up), then these sherds can be batched according to the bottle glass batching rules.

5.2.4 ~~All~~ OTHER NON-BOTTLE AND/OR NON-MACHINE-MADE GLASS SHARDS GREATER THAN 15 MM

Fragments that fall into this category belong to tablewares and leaded container glass. These shards should be cataloged individually.

Note: new batching rules for all bottle glass were implemented on October 28, 2010. Prior to implementation, all mouth-blown and mold-blown glass bottle sherds that had a maximum sherd measurement greater than 15 mm were individually recorded, measured, and weighed. All other existing glass batching rules remain unchanged.

6. DAACS Glass Vessel Field Definitions and Protocols

6.1 Main Glass Table

6.1.1 Artifact Count

Numeric

This field documents the number of artifacts in that record. For example, a count of one means there is one shard being described in that record, or row, of data. A count of 13 means there are 13 fragments described by the other fields in the record.

6.1.2 Fluoresces Blue?

Controlled Vocabulary

This field records information that is useful for identifying the material type of the artifact being cataloged.

For colored glass you will enter "No." For colorless glass, an additional step must be taken to determine whether the glass contains a certain amount of lead or not. Patented in 1674 by George Ravenscroft, lead glass is colorless, heavy, and lustrous and contains between 13 and 40% wt lead (Dungworth and Brain 1989:114). These qualities improve the ability of this type of glass to be cut, polished, or engraved. For that reason, lead glass (also referred to as flint glass or lead crystal) was primarily used for tablewares, especially in the 18th century. Leaded glass was also occasionally used for medicine vials, condiment bottles, and lamp chimneys (Jones et al. 1985:12).

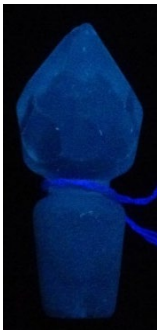

Figure 1: Leaded glass stopper from Drayton Hall, SC under short-wave UV light.

When entering data into the DAACS database, use a short-wave blacklight (UV) to test whether your fragments contain lead. To record "Yes" in this field, the fragment must fluoresce a brilliant icy blue under short-wave UV light (Figure 1). Ideally this test is done inside of a light box or other environment that minimizes light pollution and directly compared to a known example of leaded glass. If the glass does not glow or "fluoresce" under the lamp or if it fluoresces any color other than "ice blue," enter "No" for this field. Purple fluorescence is relatively common and has been found on tablewares and lamp chimneys that date to the second half of the 19th century. While this likely indicates presence of lead in composition, to date, no known chemical tests have been conducted to confirm this (Jones et al. 1985:12).

6.1.3 Glass Color

Controlled Vocabulary

This field records the primary color of the glass in the record. If the glass is decorated, you will record the decoration color in the Decoration tab.

As we have discussed elsewhere, color is a difficult attribute to record objectively among different catalogers. As a result, we use a range of Pantone Color chips, located in the **Basic Colors** section of the DAACS Color Book, to assist with color recording. When recording color, choose the Pantone chip that most closely matches the color the artifact as a whole. Brief descriptions of the colors found in the Basic Colors section are found below.

"Amber": Medium golden-brown
"Amethyst": Very light purple
"Blue": A "mid-range" or "medium" shade of blue
"**Brown"**: This color is used to describe modern, machine-made bottle glass. Do not confuse with amber glass, which is redder and lighter in color
"Colorless": Clear, transparent
"Dark Blue": Generally a deep, cobalt blue
"Grey": From a light gray tint to a dark, nearly black tint
"Green/Olive Green": Encompasses medium green and dark green, usually applies to wine and case bottle glass. Olive green examples can have a yellowish tint.
"Light Blue": A pale, sky blue (the lightest shade of blue on the Basic Color Sheet)
"Light Green/Aqua": Light greenish blue/seafoam or sage green
"Bright Green": Bright green glass, similar in color to Sprite™ bottle glass. This color is most often used for in machine-made vessels but has also been observed in some mold-blown vessels.
"Orange": Brighter in color than amber (e.g., Carnival glass)
"Pink": Pale red
"Purple": Darker than Amethyst
"Red": Encompasses medium to dark reds
"Unidentifiable": Too burned, patinated, or otherwise altered for glass color to be determined
"White": Opaque, often milky, white color, sometimes called "milk glass"
"Yellow": Any range of light-to-medium yellows

Note: Holding a darker-colored sherd to the light can help to identify its color.

There are five colors that appear on the Basic Color Sheet that should *not* be used to describe glass vessel color. However, these colors are available for use in the Glass decoration table (see **Section X.2**). They are:

"Black"
"Bronze"
"Copper"
"Gold"
"Silver/Tin"

6.1.4 Form

Controlled Vocabulary
If the vessel form is identifiable from shard-level attributes, record the form in this field.

There are 37 different forms available in the Glass Vessel Form field in DAACS. While we do not describe them all here, examples of many of these forms are available in the *Parks Canada Glass Glossary* (Jones et al. 1985). A few, however, deserve special mention:

Form	Description
"Bottle, unidentifiable"	Used for bottles whose original shape or type of contents cannot be determined, either due to the fragmentary nature of the sherd or to the lack of a diagnostic manufacturer's mark.
"Bottle, Wine style"	Generalized term referring to globular or cylindrical bottles manufactured of dark or olive green glass, used for the storage and commercial sale of wine, spirits, and various other liquids. See Appendix 2 for specific cataloging protocols.
"Container, unidentifiable"	For sherds that were clearly part of a hollow container, but are too fragmentary to identify as a bottle, jar, or other more specific container type. This form should *not* be used if the sherd may have been part of a stemware or tableware vessel (e.g., plate, tumbler).
"Not Recorded"	"Not Recorded" is used only when glass fragments from different vessel forms are batched together. This is the case for machine-made glass vessels, which are only batched by color. See Section 1.1 for batching rules.
"Pharmaceutical Bottle/Vial"	Bottles for liquids and medicines. Pharmaceutical bottles come in a range of colors and with a variety of closure types, although most were closed with some sort of stopper. If you can distinguish for certain whether a vessel is a pharmaceutical bottle or a vial, please record "Pharmaceutical Bottle" or "Pharmaceutical Vial" in the notes.
"Tableware, unidentifiable"	Small fragments of leaded glass with apparent decorative elements are usually cataloged with a form of "Tableware, unidentified" in DAACS. This category also includes fragments of stemware and other unidentifiable table forms.
"Unidentifiable"	Encompasses sherds that are so fragmentary, burned or nondiagnostic that they cannot be distinguished as bottle, container, tableware or stemware should be cataloged as "Unidentifiable."

6.1.5 COMPLETENESS

Controlled Vocabulary

This field records which parts of the vessel are evident in the sherd being cataloged. As with the Ceramic table, the terms in the Completeness field allow you to record all portions of the vessel that is visible on the fragment. A value for Completeness should be chosen that represents, as nearly as possible, all elements present on the sherd. Term choices for Completeness are:

"Base"
"Base, Body"
"Base, Body, Rim"
"Base, Body, Shoulder, Neck"
"Body"
"Body, handle"
"Body, Rim"
"Body, Shoulder"
"Complete Object"
"Finish"
"Neck, Finish"
"Shoulder, Neck, Finish"
"Body, Shoulder, Neck, Finish"
"Foot"
"Foot, Stem, Body"
"Foot, Stem, Body, Rim"
"Handle"
"Lid Liner" *
"Neck"
"Not Recorded"
"Rim"
"Shoulder"
"Base, Body, Shoulder"
"Seal" *
"Stem"
"Stem, Body"
"Stem, Foot"
"Stopper"
"Unidentifiable"

*Note: lid liners and bottle seals have a specific set of cataloging protocols. See Appendix 2 for instructions on how to catalog these objects.

6.1.6 MANUFACTURING TECHNIQUES

Controlled Vocabulary

The manufacturing technique field indicates whether the glass was free blown, machine made, mold blown, mouth blown, or of unidentifiable manufacturing technique. These manufacturing techniques are defined clearly in the *Parks Canada Glass Glossary* (Jones et al. 1985:17-24).

Free Blown – Glass vessels that have been formed entirely (body, shoulder, and neck) without the use of molds. The base and finish are usually hand formed as well (Jones et al. 1985:22). Characteristics of free blown glass include: 1) asymmetry in body, shoulder, neck, or base, 2) no mold seams or molded decoration (see description below for attributes of mold blown glass), 3) exterior of glass tends to be smooth with the exception of patinated areas.

Mouth Blown –Jones et al. (1985:17) define "mouth-blown" as a general term that designates fragments shaped with *air pressure applied through a blowpipe by the mouth.* The term is used to describe "the method of manufacture of a fragment that has no mold seams, no distinctive mold-blown texture, no distinctive free-blown traits, and no machine-made indicators." For DAACS, "mouth blown" applies primarily to "Bottle, wine style" glass that is neither clearly machine-made nor clearly totally free-blown. "Mouth Blown" vessels are possibly partly mold blown and partly free blown.

The decision was made to use "Mouth Blown" primarily for wine bottle glass because it was commonly manufactured using a number of techniques to form different parts of a single bottle. For example, many "Bottle, wine style" bottles are partially mold blown and then finished with free blowing. It is often difficult, with small sherds of wine bottle glass, to determine whether the vessel was completely free blown or was partially mold blown, especially if only a small fragment of the bottle is present. Given the prevalence of wine bottle glass on archaeological sites, it seems useful to distinguish between cases where manufacturing technique for wine bottle glass is ambiguous (i.e. free blown, mold blown, or a combination) and those cases in which manufacturing technique is truly unidentified.

Mold Blown – This term is used to describe glass fragments whose shape or decoration is created by forcing hot glass into the outer extremities of the inside of a mold. The hot glass can be forced into the mold using *air pressure either from a mouth or machine*, or by pressure exerted by a plunger (Jones et al. 1985: 22-23). Characteristics of fragments from mold-manufactured objects include: 1) orange-peel texture on exterior surfaces, 2) pock marks on exterior surfaces (from the use of older, worn-out molds), 3) mold seams, 4) rectangular or flat body fragments with or without sharp corners, or 5) lettering. You do not need the mold seam to designate that a vessel is "Mold Blown." However, the secondary mold evidence must be strong and readily apparent.

Jones et al. (1985: 23-35) lists and explains the diagnostic attributes for different mold types (contact, pattern, optical, and press molds). These are described in the Mold Type section.

Machine Made – Machine-made containers *are shaped by air pressure supplied by a machine.* This category encompasses both semi-automatic machines (where the machine is manually supplied with gobs of molten glass by humans) and fully automatic machines (where no manual labor is needed). The diagnostic characteristics of machine-made glass include: 1) the presence of a seam that travels all the way up to the neck and circles the lip of the bottle, 2) presence of ghost seams on the neck and upper part of the shoulder and body, 3) applied color labels, 4) presence of valve marks or Owens suction scar or stippling/knurling on the base, 5) the glass is a color that was introduced after machine-made manufacture (i.e. Sprite™ bottle green and beer bottle brown). Characteristics that should NOT be used to identify fragments as machine made: 1)

glossy finish or greater reflectivity of surfaces, 2) presence or absence of bubbles in the glass.

Machine Made, Likely – Use this term to record fragments of glass that are lacking diagnostic characteristics of machine manufacture but exhibit other attributes that are suggestive of machine-made glass including the uniformity of the vessel thickness, lack of free or mold-blown characteristics, and that exhibit modern glass colors (i.e. Sprite™ green). It is also relevant to consider if the fragments are found contextually with lots of other glass that is diagnostically modern.

Note: This term, "Machine Made, Likely" was added to the database on June 18, 2019 to differentiate fragments that have diagnostic attributes related to machine production from those that are clearly not free blown or mouth blown, exhibit mold blown characteristics and look like modern glass. If glass fragments look modern it is better to use "Machine Made, Likely" rather than "Mold Blown" to capture that the sherds are likely 20th century. We also prefer that catalogers use this term instead of "Unidentifiable" because it helps users of the data differentiate glass where the manufacturing technique is truly "Unidentifiable" from glass is likely modern.

Unidentifiable – If you have a fragment of non-leaded glass that does not exhibit characteristics that suggest it is mold blown, machine made or likely machine made, and is not dark green wine bottle glass the manufacturing technique should simply be recorded as "Unidentifiable."

6.1.7 Mold Types

Controlled Vocabulary

Here are the protocols for relationships between the Manufacturing Technique and Mold Type fields:

Manufacturing Technique	Mold Type
"Mouth Blown"	"Missing Information"
"Free Blown"	"Not Applicable"
"Machine Made"	"Contact Mold"
"Machine Made, Likely"	"Contact Mold"
"Unidentifiable"	"Not Applicable"
"Mold Blown"	*Bottles*: "Contact Mold" *Other vessels*: Identify Mold Type from the following list: "Contact Mold," "Optic Mold," "Pattern Mold," or "Press Mold" (see Jones et al. 1985:31-41 for descriptions), or "Unidentified."

Note: You do not need the mold seam to designate that a vessel is "Mold Blown." Other signs of mold blown vessels include an orange-peel textured exterior surface and

smooth interior surface. In order to use “Mold Blown,” however, the secondary mold evidence must be strong and readily apparent.

6.1.8 MENDED?

Controlled Vocabulary
This field records whether a sherd is mended to another sherd.

The default for this field is “No.” If the mended shard is glued to another shard, enter “Yes, Physically Mended.” If shards mend together, but are not physically glued enter “Yes, Mends But Not Physically” in this field.

Shards that are mended with other sherds must be cataloged individually. Measure individual sherd thickness (if possible), size, and estimate average sherd weight. Remember to fill out Mended Sherd Weight on the Measurements tab, and the Artifact IDs of the shards that mend directly to the shard being cataloged and the Mended Form on the Mends tab.

6.1.9 DECORATION?

Controlled Vocabulary
This field records the presence or absence of decoration.

If a glass shard is decorated, enter “Yes” in this field. Decoration is recorded on all glass vessels that are non-machine-made. Be sure to fill out information about the decoration under the Decoration/Marks tab, and any additional observations in the Notes field.

6.2 MEASUREMENTS

6.2.1 SHERD THICKNESS

Numeric

This field records individual sherd thickness. The measurement is taken in millimeters with a set of digital calipers. It should be recorded to the hundredth place (i.e., 12.31mm, not 12.3 mm).

The original surface must be present on both sides of the sherd to measure sherd thickness. If not, this field is left blank. When a rim is present, thickness measurements are always and only taken at the rim. Again, the original surface must remain on both sides of the rim to take this measurement.

Only record sherd thickness for:

- All leaded sherds regardless of form or completeness with a Maximum Sherd Size larger than15mm.

- Sherds cataloged as “Tableware, unid.” or a vessel considered a tableware form ('Bowl', 'Decanter', 'Drinking Glass, unidentifiable', 'Jelly Glass', 'Salver', 'Stemware', 'Tableware, unidentifiable', 'Tumbler') with a Maximum Sherd Size larger than 15mm. Do not take sherd thicknesses for ‘Stoppers.’
- All mended fragments.

Do not record sherd thickness for:

- Bottle forms (wine-style, case bottles, bottle, unid, etc.)
- Sherds cataloged as “Container, unid” forms
- All non-leaded sherds with unidentifiable forms

6.2.2 Maximum Sherd Measurement

Numeric

This field records the maximum sherd measurement, which we define as the smallest diameter circle in which a sherd fits without extending over the circle’s edges.

Maximum sherd size is measured using a DAACS cataloging mat. Each mat has a series of circles used to measure sherds in 5mm increments. The size of the smallest circle into which the sherd fits completely is the sherd size. If the sherd is too large to fit within any of the circles on the mat, a tape measure is used, and the measurement is rounded up to the next number divisible by 5 or 10 depending on whether you are cataloging using Gold or Silver/Bronze protocols.

The maximum sherd measurement should always be taken, even if the sherd has been burned into an unidentifiable form or shape.

6.2.3 Sherd Weight

Numeric

This field records the weight of the artifact or artifacts being cataloged.

Always record weight in grams for any artifact record to the nearest tenth. If the sherd is physically mended to another sherd, see “Mended Sherd Weight” below.

6.2.4 Mended Sherd Weight

Numeric

This field records the weight of multiple artifacts that are mended together but are cataloged in different records.

Record total sherd weight for the mended sherds. Calculate an estimate of the individual sherd weight by dividing the mended sherd weight by the number of sherds that compose the mended object.

6.2.5 Rim Length

Numeric

This field records the length of the rim. Rim Length is measured for all tableware rim sherds (e.g., drinking vessels, stemware, and other tablewares). This measurement should be taken in millimeters, to the nearest hundredth if possible. If a rim has significant curvature, its rim length is measured with a flexible tape measure.

6.2.6 Rim Diameter

Numeric

This field records the diameter of a rim.

Rim Diameter is taken for sherds with rim lengths of greater than 20mm. Any rim diameter measurement under 20 mm is inaccurate. The radius template on the cataloging mat is used to take the measurement –the curvature of the rim is matched to the arc with the best fit. When dealing with thicker sherds, the general rule is to measure along the exterior of the rim (rather than trying to determine the interior diameter of the vessel). Diameter measurements on the mats are in millimeters.

In order to measure the rim diameter for a flat, scalloped-edge vessel using the radius template, the fragment must have three scalloped points.

6.2.7 Mended Rim Diameter

Numeric

This field records the length of a rim that is comprised of multiple mended sherds. The protocols described above for measuring an unmended rim apply here.

6.2.8 Base Length

Numeric

This field records the length of a base sherd.

Base Length is measured for all circular tableware and glass bases that have a measurable base length. Stemware bases are recorded elsewhere. The base length is obtained by using a soft tape to measure around the circumference of the base (Figure

2). In the case of wine bottle glass, this measurement is the outermost protrusion of the base.

Figure 2: Base Length measurement of wine bottle base (DAACS ID: 1231-23.4-DRS—00001)

6.2.9 Base Diameter

Numeric
This field records the diameter of a base sherd.

Base diameter is measured for spherical tableware and bottle bases (excludes stemware). Base diameter is measured with calipers for complete bases. Diameters are taken using the exterior edge of the base (Figure 3).

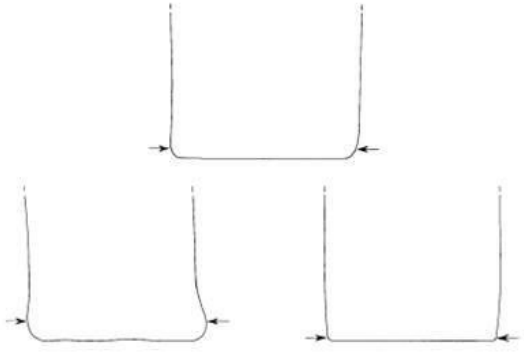

Figure 3: Exterior edges of base diameters (Jones et al. 1985:121)

Base diameters for tablewares and bottles are estimated on sherds that have Base Length measurements greater than 20 mm and that can be confidently matched to a diameter arc on the radius template. The curvature of the base is matched to the curves on the radius template to the nearest "confidently estimated" arc that matches that curvature. By this we mean that the diameter must clearly match a single diameter arc and not have several possible matches.

If you cannot confidently match the sherd to an arc, no Base Diameter measurement should be recorded. In many cases it may be easier to obtain this measurement using the mylar rim chart, in which case the curvature is estimated by placing the mylar over the inverted sherd in order to match it. Diameter measurements on the radius template are in millimeters.

6.3 Bottle Information

Within the vessel glass module, we have embedded a relational table to record in detail specific attributes related to the manufacturing techniques of bottles (e.g., lips, string rims, bases) and vessel morphology for bottles *with free blown or hand tooled elements*. **Do not record any bottle information for solely mold blown or mouth blown sherds *without identifiable* free blown or hand tooled elements.**

*Only use this tab to record clearly diagnostic information about the fragment***.** Identifiable, diagnostic elements include shapes of tooled features such as string rims or lips on wine style bottles. Diagnostic features include the relationship between parts of a bottle finish such as the presence of both a lip and a string rim. For example, when cataloging a molded pharmaceutical vial with a hand-tooled, flanged lip, the finish shape and lip shape are recorded in the Bottle Information table; the molded body is captured in "Manufacturing Technique" on the Main tab. Another example is a mouth blown wine bottle with domed base but unidentifiable body shape; Bottle Shape of the base is recorded as "Domed" but Bottle Shape of the body is not entered since it is unidentifiable. Sherds with completeness of only "Body", "Base, body", or "Base" *with unidentifiable shape* should not be entered.

The vast majority of the bottles included in the Glass Vessel module are "Bottle, wine style," with a number of "Bottle, case" and "Pharmaceutical bottle/vial" included as well. The table was designed primarily for these types of bottles, but other bottles such as pharmaceutical vials that *have hand tooled or free blown elements* should be included in the table as well. It may be necessary to add terms to the database for such bottles, which must be done by the database administrator.

In Sections 6.3.3 through 6.3.6, each field in the Bottle Specifics Table on the Bottle Information Tab is described. Since not all values for the fields in the Glass Table apply to all bottle elements, the following tables present summaries of which shapes, manufacturing techniques, and treatments apply to the respective elements.

6.3.1 Pontil Mark

Controlled Vocabulary

A pontil scar is a mark left by the long iron rod (pontil) used to hold the glass object during the finishing process (Jones 1971:68). It is also the result of creating the pushup or kick on the base of the bottle, if present (Jones 1971:63). The following include the possible pontil mark types (Jones 1971; Jones et al. 1985). *Note*: pontil scars are recorded for non-bottle glass as well (e.g. tableware).

"Empontilled, improved and ground": If the mark has been ground down to a relatively smooth surface, obscuring any evidence of different pontil types.

"Empontilled, type unid": The particular type cannot be determined, but the pontil mark has not been ground.

"Not Applicable": This is the default. Also used for machine made bottles.

Specific Pontil Types (if the mark was not "Empontilled, improved and ground"):

"Bare Iron": Distinct circular mark, tends to distort the shape of the pushup. May have iron residue.

"Blowpipe": Pipe was used as a pontil. Ring-shaped mark with fairly clean (no glass fragments) in the center of the ringed mark

"Glass-Tipped": Usually small (< 30 mm), often excess glass left or bits of glass.

"Sand Glass-Tipped": "Thin line of glass chips encircling the pushup and enclosing a pebbled surface" (Jones et al. 1985:69).

"Quatrefoil": Created from rod with end split into quadrants; pushup top may look square and profile may be distorted.

"Mamelon": Small circular protrusion at the tip of the pushup (Jones et al. 1985:87).

6.3.2 Total Container Height

Numeric

Measure the total height of the bottle, if possible, in mm. An accurate way to measure this height can be found in Jones et al. 1985 (p. 116).

6.3.3 Element

Controlled Vocabulary

Element records specific information about manufacturing techniques of bottle elements (e.g., lips, string rims, bases) and vessel morphology for bottles *with free blown or hand tooled elements. Only record information on this tab if what is being recorded is identifiable or diagnostic.* Identifiable elements include shapes of tooled features such as string rims or lips on wine style bottles. Diagnostic features include the relationship between parts of a bottle finish such as the presence of both a lip and a string rim. For example, a molded pharmaceutical vial with a hand-tooled, flanged lip, the finish shape and lip shape are recorded in the bottle information table; the molded body is captured in "Manufacturing Technique" on the Main tab. Another example is a mouth blown wine bottle with domed base but unidentifiable body shape; Bottle Shape of the base is recorded as "Domed", but Bottle Shape of the body is not entered since it is unidentifiable. Do not record any bottle information for solely mold blown or mouth blown shards *without identifiable* free blown or hand tooled elements. Fragments with completeness of only "Body", "Base, body", or "Base" *with unidentifiable shape* should not be entered.

The Bottle Element field provides a place to record which part of the bottle the ensuing information about shape, manufacturing technique, and treatment refers. Not all possible bottle elements are offered as choices in the "Glass Bottle Element" field. Only those elements for which other specific information is recorded are listed in the "Element" field. The choices in this field are:

"Base": Bottom of the bottle; extends up to the heel, which is the curved edge where the base turns up to form the body.

"Body Horizontal": horizontal cross-section of the body; located somewhere between base and shoulders (i.e. not the cross-section of the neck).

"Finish": The top of the bottleneck, contains elements such as the lip and the string rim that allow for the closure of the bottle (Jones et al.1985:78).

"Lip": The area, on the exterior and top of the bottle, around the opening of the bore.

"Neck": The area from the bottom of the finish to the shoulder.

"String Rim": not present on all bottles; it is "the ledge or ring that protrudes from the neck just under the lip" (Jones et al. 1985:81).

Other elements that are present, but for which no additional information is added to the bottle table, are not listed in the Bottle Information table.

6.3.4 SHAPE

Controlled Vocabulary

The shapes of certain elements are diagnostic to particular time periods or locales of manufacture. For that reason, a shape system was created for DAACS. The system is a simplified version of that presented in Jones et al. (1985). Catalogers in DAACS must be careful to consult the following list whenever they are cataloging glass bottle shapes because each shape applies only to certain elements.

For Base, Body and Neck sherds: Only enter information into the Bottle Information tab if the shape of the sherd is identifiable. Do not enter a record for a Base, Body, or Neck sherd than then has the shape as "Unidentifiable."

For Finish, Lip and String Rim: Select "Unidentifiable" if you cannot determine the shape (Sections 6.3.4.1 – 6.3.4.___).

6.3.4.1 BASE

Refers to the basal profile. Options for base shapes are:

"Conical": straight sided pushup, comes to a relatively sharp vertex

"Convex": rounded, protruding base—found on bottles used for shipping that were packed in crates with a packing material

"Domed": any sort of curved, arched basal profile

"Flat": no pushup; base extends straight across from resting point to resting point

"Four Point": Found on case bottles. "The four corners of the bottle are the only

points on which the bottle stands. The heel arches slightly between these four points" (Jones et al. 1985:86).

"Rocker": irregularly shaped base that causes the bottle to wobble

6.3.4.2 Body Horizontal

Shape of the horizontal cross-section of the body. Options for body shapes are:

"Circular": most common; the body is very nearly round in cross-section

"Ovoid": common with free-blown bodies; body is elongated in one horizontal dimension (i.e. is not quite circular in cross-section)

"Rectangular": has flat sides and corners at nearly ninety degrees; case bottles

6.3.4.3 Finish

Indicates how many components comprise the finish. Options for finish shapes are:

"1-Part Finish": comprised simply of a lip

"2-Part Finish": comprised of a lip and a string rim

"3-Part Finish": comprised of a lip, a string rim, and any kind of third element

"Champagne": technically a special case of a two-part finish; a finishing tool is used to create "a wide, flat string rim a few millimeters below a flat-topped or a downward-sloping lip" (Jones et al. 1985:79)

"Unidentifiable": select this option if you cannot determine whether a finish was a 1-, 2-, or 3-part

6.3.4.4 Lip

Shape refers to the profile of the lip. Options for lip shapes are:

"Down-Sloped": when the lip slopes outward and downward (Jones et al. 1985:81). Usually this was formed using a finishing tool. Descriptions for "down-sloped" and "sloped top" sound very similar, but note the difference between the two types depicted (Figure 7). With down-sloped lips, the entire lip slopes (Figure 4). With sloped-top lips, only the top of the lip slopes down and out—in essence the top of the lip is beveled—and the rest is straight-sided.

Figure 4: Down-Sloped lip (DAACS ID: 1003-953H-NOS--00001)

"**Flat Top"**: the lip has a horizontal top (Jones et al. 1985:80). This applies to lips that were cracked off/burst off and not manipulated further, as well as lips that were made flat by manipulating the top to make it smooth.

Figure 5: Flat Top lip (DAACS ID: 1410-97-02-16-DRS—00193)

"Flanged": the lip is flared using a finishing tool, creating a 90-degree angle between the lip and neck. Use of finishing tool creates a relatively thin lip.

Figure 6: Flanged lip (SHA Glass Historic Bottle)

"Irregular": when the lip is either tooled or untooled and of non-uniform shape. If the shape of the lip is questionable because it is inconsistent around the circumference of the bottle, it should be cataloged as irregular.

"Rounded": the side of the lip is rounded in profile (Jones et al. 1985:81)

"Sloped top": "the lip is flat but slopes downward and outward"—essentially, the top of the lip is beveled and the rest is straight (Jones et al. 1985:80). Note how the top of the lip is beveled, and the sides are straight.

Figure 7: Sloped Top lip (DAACS ID: 1002-830B1-NOS--00059)

"Tapered Out/Down": lip is flared and wide at the opening and it tapers down to a narrow neck.

Figure 8: Tapered Out/Down lip
(DAACS ID: 1013-062-1/3BC-NOS-000017)

"V-Shaped": lip slants down and out from the top, and up and out from the bottom to give a V-shaped profile. Most often created with a finishing tool. The top and bottom of the v should be almost equal in the amount of downslope and upslope, respectively, therefore resembling a true sideways "V."

"Unidentifiable": select this option if you cannot determine lip shape

6.3.4.5 Neck

Shape refers to the profile of the neck. Options for neck shape are:

"Bulged": neck bulges outward at the center of the neck or down toward the shoulder (Jones et al. 1985:82).

"Cylindrical": "neck maintains a constant diameter from its base to the finish" (Jones et al. 1985:82).

"Non-Existent": "no connecting constriction between the finish and shoulder or between the finish and body" (Jones et al. 1985:82).

"Tapered": neck decreased in diameter from the base of the neck to the finish (Jones et al. 1985:82).

"Tapered Out/Down": neck expands in diameter from the base of the neck to the finish (Jones et al. 1985:82).

"Rudimentary": neck is so short as to be almost non-existent. A small

constriction between the shoulder and the finish. Found most frequently on snuff bottle and on some case bottles (Jones et al. 1985:82).

6.3.4.6 String Rim

Not present on all bottles. It is "the ledge or ring that protrudes from the neck just under the lip" (Jones et al. 1985:81).

"Down-Sloped": string rim has been modified to slope down and out (Jones et al. 1985:81).

"Flat side": the side of the string rim is vertical.

Figure 9: Flat sided string rim, with Flat Top lip (SHA Glass Historic Bottle)

"Irregular": when the string rim is either tooled or untooled and of non-uniform shape. If the shape of the string rim is questionable because it is inconsistent around the circumference of the bottle, it should be cataloged as irregular.

"Rounded": a string rim that has been tooled to give it a rounded profile (Jones et al. 1985:82).

"Up-Sloped": when the lower surface of the string rim slopes upward and outward. Has a flat or rounded top. This is usually done with a finishing tool.

"V-Shaped": a string rim that has a V-shaped profile (Jones et al. 1985:81). The top and bottom of the v should be almost equal in the amount of downslope and upslope, respectively, therefore resembling a true sideways "V." Usually, this shape is formed using a finishing tool.

"Unidentifiable": select this option if you cannot determine string rim shape

6.3.5 Manufacturing Technique

Controlled Vocabulary

Just like Shape, Manufacturing Technique is recorded only for certain elements. A very limited number of manufacturing techniques is available in the glass Bottle Information table, and each applies only to specific elements:

6.3.5.1 Base

"Dip Mold": a mold in which the body—and sometimes the base-- of a bottle is blown. The bottle is then removed from the mold and the shoulder and neck free blown. Therefore, on dip-molded bottles the mold evidence terminates at the shoulder (Jones et al. 1985:26).

"Free Blown": Entirely free-formed vessel elements. Generally asymmetrical, with no evidence of molding (no mold seams, no "orange peel" on the exterior), no sharp corners or lines in the element shape (Jones et al. 1985:22).

"Molded, unid mold type": a base with clear evidence of molding (such as mold seams), but for which the mold type cannot be determined.

"Mouth Blown": for bases that may be partially molded and partially free blown. See Section 6.1.6 for a full explanation.

"Turn/Paste": a late nineteenth century technique in which glass was blown into a mold while the parison is being turned in the mold. Often characterized by horizontal striations on the bottle, and by a shiny surface appearance (unlike the "orange peel" effect common to most molded bottles) (Jones et al. 1985:30-31).

6.3.5.2 Body Horizontal

"Dip Mold": a mold in which the body—and sometimes the base—of a bottle is blown. The bottle is then removed from the mold and the shoulder and neck free blown. Therefore, on dip-molded bottles the mold evidence terminates at the shoulder (Jones et al. 1985:26).

"Free Blown": An entirely free-formed vessel. Generally asymmetrical, with no evidence of molding (no mold seams, no "orange peel" on the exterior), no sharp corners or lines in the element shape (Jones et al. 1985:22).

"Molded, unid mold type": a body with clear evidence of molding (such as mold seams), but for which the mold type cannot be determined

"Mouth Blown": for bodies that may be partially molded and partially free blown. See Section 6.1.6 for a full explanation.

"Turn/Paste": a late nineteenth century technique in which glass was blown into a mold while the parison is being turned in the mold. Often characterized by horizontal striations on the bottle, and by a shiny surface appearance (unlike the "orange peel" effect common to most molded bottles) (Jones et al. 1985:30-31).

6.3.5.3 *Finish*

"Not Recorded": information about manufacturing technique for components of the finish is recorded separately under "Lip" and "String Rim."

6.3.5.4 *Lip*

"Crack-Off/Burst-Off": characterized by a jagged top where the blowpipe was detached from the bottle (Jones et al. 1985:40). Technically, cracked-off lips are found on mouth blown bottles and burst-off lips on mold blown bottles, but the two are difficult to distinguish and are thus collapsed in DAACS. Generally, crack-off/burst-off bottles have flat or irregular tops. Crack-off/burst-off bottles with fire polished or ground-down lips are still cataloged under this manufacturing technique.

"Tooled": characterized by a regular and distinguishable shape that often has a matte finish. Tooled includes all lips that have been shaped by a hand-held tool, whether simply manipulated by a tool to form the lip or formed by patented finishing tools common in the 19th century. *Note:* this includes lips that may have initially been formed by added glass but are distinguished from those by additional manipulation with some sort of tool.

6.3.5.5 *Neck*

"Free blown"
"Molded, unid mold type"
"Mouth blown"

6.3.5.6 *String Rim*

"Added Glass/Untooled": characterized by a visible string of glass that has been added to the bottle to create a protruding string rim. Added glass/untooled string rims are irregular shape in both plan and profile. There should be no evidence for tool use.

"Tooled": characterized by a regular and distinguishable shape (though not as regular as molding) that often has a matte finish. Tooled includes all string rims that have been shaped by a hand-held tool. This includes bottles with added glass string rims that have been manipulated with simple tools as well as string rims that have been shaped from patented finishing tools common in the 19th century.

6.4 Stemware Information

The three main parts of a glass stemware vessel are the bowl, the stem, and the foot. In DAACS, the bowl is not called a bowl, but is instead a "body." This designation keeps glass terminology more consistent with the "Completeness" options for other vessel types, such as ceramics.

6.4.1 Stemware Body Shape

Controlled Vocabulary

Stemware body shape refers to the overall shape of the body (or bowl) of the vessel. Jones et al. (1985:139) have developed a body shape classification system, which is used for DAACS with some additions. See Appendix 2 for a glossary of body shapes.

6.4.2 Stemware Foot Shape

Controlled Vocabulary

Stemware foot shapes for DAACS are taken directly from Jones et al. (1985:140) with additions when needed. See Appendix 2.

6.4.3 Stem Shape

Controlled Vocabulary

Stem shapes are also borrowed directly from Jones et al. (1985:139) with additions when needed. See Appendix 2.

6.4.4 Stem Length

Numeric

Stem length should only be measured (in millimeters) if the entire stem is present.

6.5 Decoration/Marks

Decoration is recorded on all glass vessels that are non-machine-made.

6.5.1 Decoration Technique

Controlled Vocabulary

Choose one of the following techniques:

"Acid Etched": The vessel is covered in a waxy compound, and the design is drawn on the object by cutting away the compound in those areas to be etched. Acid is applied and dissolves or frosts the glass. Generally late nineteenth century and later (McKearin and McKearin 1948:33).

"Air Bubbles:" Bubbles of air intentionally trapped within the glass. Common on stemwares (Jones et al. 1985:50).

"Air Twist": Air bubbles are trapped in the glass and drawn out to create helixes

or swirls. Usually in stemwares (Jones et al. 1985:50).

"Casing": Different layers of glass, usually of different color, are fused together. Outer layers are often cut to reveal inner layers more clearly (Jones et al. 1985:52).

"Copper Wheel Engraving": Technique invented in Germany in seventeenth century). Employed a copper wheel with an abrasive agent dripped onto it as it engraved. This created a frosted appearance on the engraved surface (McKearin and McKearin 1948:32). This is a mechanical etching technique, contrasted with diamond point engraving which was, until the late nineteenth century, a freehand etching technique.

"Cut": Practiced in Germany in the seventeenth century, spread to other parts of Europe and then to America in late eighteenth century. Glass used for cutting tends to be thicker, stronger, and softer than other glass because it had to withstand three processing steps: roughing out, smoothing, and polishing (McKearin and McKearin 1948:31). Cuts are generally deep into the glass surface compared to marks made by techniques such as etching and engraving.

"Diamond Point Engraving": Not practiced in the Unites States—on import glass only (McKearin and McKearin 1948:32). A diamond-pointed tool was carefully hammered along the glass surface, creating a fine, stippled line.

"Enamel Twist": Colored enamels are encased in glass and manipulated to form twists.

"Enameled": Application of enamel to the glass surface. This enamel usually contained lead, tin, and a metallic oxide that provided color (McKearin and McKearin 1948:33).

"Engraved": A general term to be used when it is not clear whether copper wheel engraving, diamond point engraving, or some other type of engraving is present.

"Gilded": Gold oxide painted onto the glass surface, fired, and then burnished (McKearin and McKearin 1948:33).

"Mixed Twist": A combination of air twist and opaque twist; opaque twists are created by encasing opaque glass in colorless glass and manipulating it to form twists (Jones et al. 1985:50).

"Molded": Glass is blown, either by mouth or machine, into some type of mold.

"Painted"*:* When glass is simply painted using non-enamel paints. Paint tends to wear off easily, and can sometimes be distinguished from enameling because paint appears "more transparent and smoother" (Jones et al. 1985:57).

"Sand Blasted": "Invented in ca. 1870 in the United States (Newman 1977: 270), this treatment was only recently adapted to decorative uses. Grains of sand are directed by high air pressure from a portable "gun" across the glass surface. The result is a frosted, finely pitted finish, with a degree of depth. The technique has been used on large panels of glass and is not very common on Parks Canada sites" (Jones et al. 1985:57).

"Silveria": When a thin layer of metal foil is placed between two layers of glass (Jones et al. 1985:50).

"**Tooled"**: Decoration is worked using pincers, shears or other tools. This is often how cordoning is formed.

6.5.2 Applied Color

Controlled Vocabulary

Applied colors refer to colors that are painted, enameled, or otherwise applied to the vessel. Munsell each color using the **Basic Colors** section of the DAACS Color Book and enter that information into the Applied Color field. Keep in mind that these represent ranges of color, not exact matches. In addition, the colors "Copper," "Silver/Tin," "Bronze," and "Gold" may be used to identify Glass decoration color.

Note: If the decorative technique has no applied color, enter "No Applied Color" in this field. Do not use "Not Applicable."

6.5.3 Stylistic Elements

Controlled Vocabulary

See Appendix 1 for the Glass Stylistic Elements glossary.

6.5.4 Marks

Open Text Field

Record any marks observed on the artifact, even if individual letters or numbers are not discernible. Enter marks as they appear on the object. Please follow the case (e.g., upper, lower, capitalization) and spacing of the mark on the object. It is not necessary to use quotation marks within the mark description.

If you have more than one horizontal line of text on a bottle, enter separate marks entries for each line. Given that this is an open text field, please denote which line of text is first or second in vertical order by adding "1st line:" before the transcribed text. If you know that part of the lettering is within a word, then use ellipses to identify its relative location. For example, Figure 10 shows a fragment of a Turlington's "Balsam of Life" bottle.

Figure 10: Mold Blown "Balsam of Life" pharmaceutical bottle (DAACS ID: 1227-1-1-007-DRS—00017)

The second line reads LSAM, and the corresponding marks entry would be "2nd line: …LSAM"

If any word or letter is only partially discernible, use a question mark in brackets [?] to denote the uncertainty about its identification. Also use this protocol to represent letters or words that are not discernible at all. In the case of the Turlington's bottle above, the first line of the marks entry would be "1st line: [?]"

For this object, the complete Marks entry would be as follows.

1st line: [?]
2nd line: …LSAM
3rd line: OF
4th line: LIFE

If you have additional information on the complete mark, or on the manufacturer, enter this into the Notes field on the Material tab.

6.6 Condition

The default for each of the following fields is "No." Simply choose "Yes" if any are applicable. When batching sherds according condition *other than burning*, enter as "Not Recorded" when the batch contains sherds with and without evidence of condition.

6.6.1 Burned?

Controlled Vocabulary

Glass often becomes globular in shape when melted. Also, olive green "Bottle, wine style" glass tends to turn an opaque light blue when burned. If these or any other signs of burning are present, mark "Yes" in this field. As a reminder, most batching protocols divide glass that is burned versus glass that is unburned. If you cannot determine the form, completeness, and/or manufacture of a burned fragment, enter "Unidentified" in the applicable fields.

6.6.2 Patination?

Controlled Vocabulary

As glass naturally decomposes in the ground, in water, or as exposed to air, the weathering process creates an iridescent, flaky surface referred to as "patina." The presence or absence of patination does not indicate a glass vessel's age but is dependent on the chemical composition of the glass and its reaction with outside elements. Vessels with a higher soda content will decompose more rapidly.

If there are signs of patination, mark "Yes" in this field. If you are batching glass fragments with various presence/absence of patination, use "N/R."

6.6.3 Solarized?

Controlled Vocabulary

Glass is colorless when produced. However, it contains manganese which will turn the glass a purplish tint when the glass has been exposed to sun for a long time (UV light). This type of glass was mostly produced during the last quarter of the nineteenth century. Solarized glass typically appears shiny or oily with a slight purple hue.

6.6.4 Post-Manufacturing Modification?

Controlled Vocabulary

Post-Manufacturing Modification is a field present in all the different artifact entry modules. Use this field when an artifact appears to have been physically modified to change its original function. Examples include grinding down a piece of ceramic to form a gaming piece, working a broken glass sherd into a usable point, drilling a hole in a coin to make a pendant, etc.

6.7 Image

Please see the Image Manual for details on how to link an artifact record to an image record.

6.8 Objects

Please see Object Manual for details on how to link an artifact record to an Object record.

6.9 Mends

This field allows you to link the record to other artifacts that mend to it. It can functionally create multiple relationships among artifact records.

If your sherd is mended, fill out the appropriate information in the Mends tab. Be sure to complete the "Mended?" field on the Main tab.(Mended? "Yes").

6.9.1 Mends to artifact

Enter only the artifact IDs for sherds that are directly mended to the sherd being cataloged.

6.9.2 Mended Form

Controlled Vocabulary

The default for this field is "Not Mended." Form should always be identified on an individual sherd level. Mending often allows catalogers to identify forms otherwise unidentifiable from these individual sherds. In the Mended Form field, enter in the form of the vessel as seen from its mended sherds.

7. References

Daniel, Dorothy

1971 Cut & Engraved Glass, 1771-1905: The Collector's Guide to American Wares. M. Barrows and Company: New York

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1985 *The Parks Canada Glass Glossary for the description of containers, tableware, flat glass, and closures*. National Historic Parks and Sites, Canadian Parks Service, Environment Canada: Ottawa.

Lindsey, Bill
2003 SHA Historic Glass Bottle Identification & Information Website.
https://sha.org/bottle/index.htm

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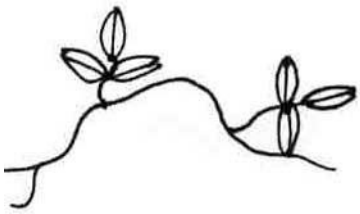
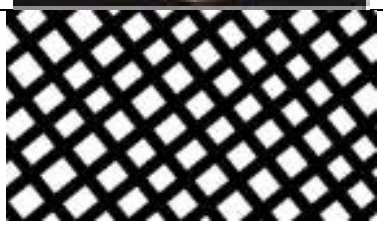
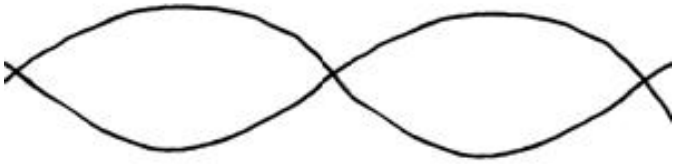
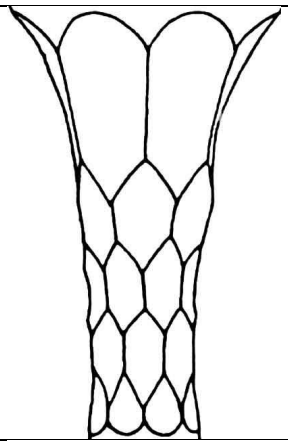
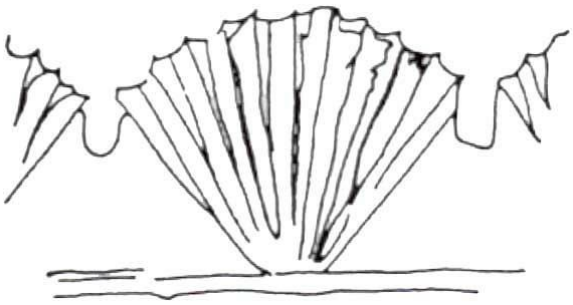
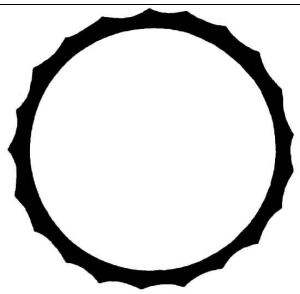
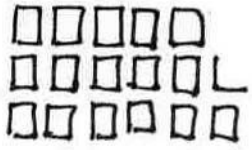
1948 *American Glass.* Crown Publishers, Inc.: New York.

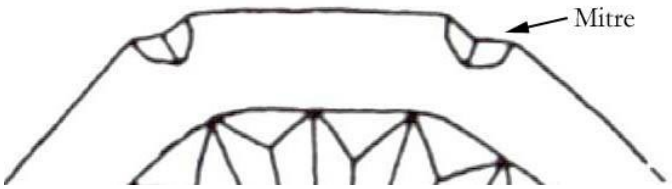
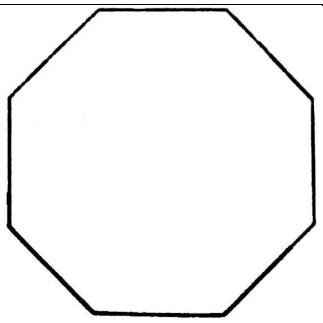
Newman, Harold
1977 *An Illustrated Dictionary of Glass*. Thames and Hudson: London.

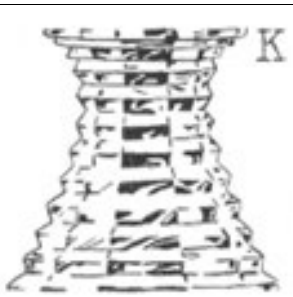
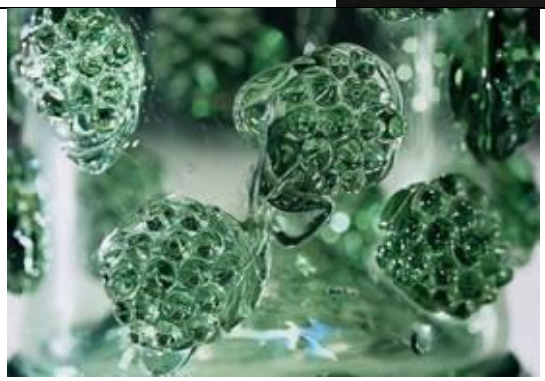
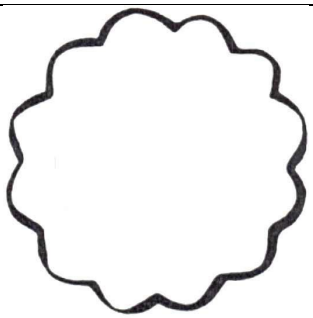
APPENDIX 1: GLASS STYLISTIC ELEMENT GLOSSARY

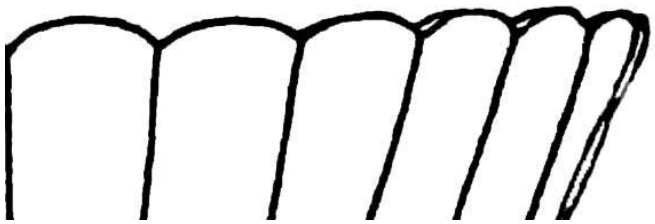
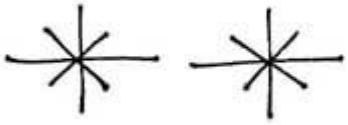
Stylistic Element	Description	Image
Band	A straight band that encircles a vessel.	
Botanical	Any botanical or floral-type element, be it a realistic or abstract rendering.	 
Cartouche	Thick lines, normally curved, enclosing letters or symbols. The cartouche pictured includes thick, curved lines and areas of cross-hatching.	

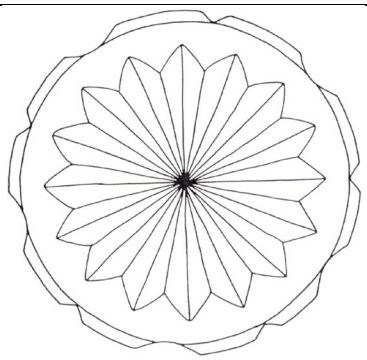
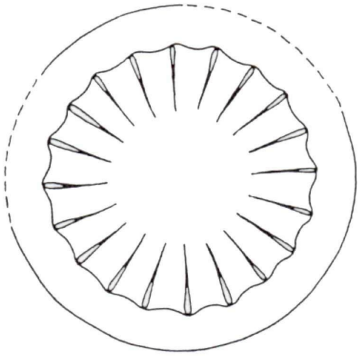
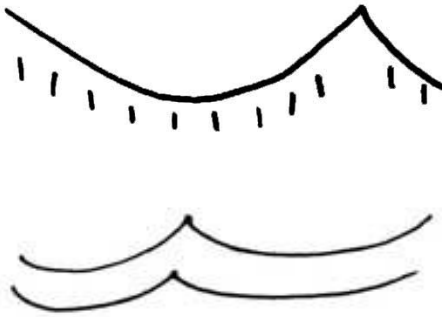
Cordoned	Stacked parallel lines encircling a vessel. Most often formed by molding tooling (see Dec Tech section 6.1). Unlike ribbing, which is most often oriented vertically on a vessel, cordoning is horizontal.	
Cross-Hatching	"A series of lines crossing over each other. In glass, these are most commonly created by engraving." (Jones et al. 1985:58)	
Double Wavy Band (currently in the database as "Dble Wavy Band" due to space constraints)	Two interlocking wavy bands that create the appearance of connected ovals or ellipses.	
Diamonds	One or more diamond shapes engraved or etched into the glass.	
Dogtooth Band	A regular, sharply jagged band.	
Dots	Small circular point or points painted or etched into the glass	

Facets	One or more small, distinct elements of various shapes cut or molded into the glass.	
Fan	One or more fan shapes.	
Flutes	"Repeating pattern of distinct, concave units parallel to each other, either adjacent to each other or at short intervals." (Jones et al. 1985:58). Fluting is a common architectural embellishment, perhaps best represented in classical columns that is used heavily in neo-Classical and Federal design on houses, furniture, cabinetry, ceramics, etc.	 Plan view of fluted vessel
Hobnails	A regular pattern of raised knops or bumps formed by blowing or pressing glass into a mold.	

Honeycomb	A regular pattern of connected polygons (can be either hexagons or octagons; hexagons are pictured).	
Lettering	Record the presence of any lettering on non-machine-made objects. The specific words, letters, or numbers should also be recorded in the "Marks" field (see Section 5.4). Be sure to record the manufacturing technique and any applied color.	
Mitre	A V-shaped groove or incision cut into the glass.	
Notches	A regular pattern of small, shallow incisions or nicks cut, engraved, or etched into the glass.	
Other, see notes	Used when none of the other authority terms apply. The decoration should be imaged and thoroughly detailed in the Notes field.	
Panels	A (generally) flat section of a multi-sided vessel. "The panels or sides are generally of consistent or repeating sizes" (Jones et al. 1985:58). Panels are either molded or cut. They can extend the entire height of the vessel or take	 Plan view of paneled vessel.

	the shape of an arch, ending below the rim.	
Prism	Used to describe two or more cut sides that form a horizontal ridge or bar; element often consists of multiple "tiered" or stepped ridges or bars. (Daniel 1971: 373-74, 418)	 
Prunt, raspberry (currently in the database as "Prunt, raspberr" due to space constraints)	A type of flat circular prunt [a blob of glass applied to a glass object as a decoration] on which there is a relief design, impressed with a tool, that has the appearance of a raspberry (Newman 1977:256).	
Ribs	"Repeating pattern of convex units parallel to each other." (Jones et al. 1985:58).	

		Plan view of ribbed vessel.
Scallop Band	Band consisting of a series of rounded teeth or half-circles.	
Scallop/Sawtooth Edge (currently in the database as "Sclpd/Sawt Edge" due to space constraints)	A repeating pattern, located on the rim of a vessel, consisting of rounded or pointed projections.	 
Solid	Used when one or more surfaces of the glass sherd is covered by paint, enamel, or gilt.	
Star	Any star or asterisk-shaped design cut, engraved, or etched into the glass.	
Stippled	A series of small, close-set dots, whose decorative technique is usually molded, but can be diamond point engraved or acid etched.	

Sun/Starburst	Most commonly found on the base of vessel, starbursts and sunbursts consist of molded or cut rays radiating outward from a center point.	  Sun/Starburst
Swag	Any element depicting a garland or drapery that is fastened at both ends and hangs down in the middle.	
Teardrop		
Twisted	Used to describe the elements seen in enamel and air twisted stems.	
Unidentifiable	Used when a decoration is present, but no specific details can be determined or the decoration is so small	

	that an image or detailed notes are of little to no use.	
Wavy Band	One or more undulating lines.	
Wrythen	Simple decoration where external parallel grooves or ribs (applied either by hand or by blowing the parison into a dip-mold) are given a twist during blowing to create a spiral pattern.	

APPENDIX 2: SPECIAL CASES

1. WINE BOTTLE GLASS

Fluoresence:	"No"
Glass Color:	"Green"
Vessel Category:	"Hollow"
Form:	"Bottle, Wine style" (green glass with squared horizontal cross-section should be recorded "Bottle, Case")
Manu Tech:	"Free blown," "Mold blown," "Mouth blown," "Unidentified"
Mold Type:	Dependent on Manufacturing Technique

A note on "Bottle, wine style" manufacturing technique and mold type:
To determine the manufacturing technique of a sherd of "Bottle, wine style" glass, the first step is to examine whether the glass was molded in some way. Characteristic molding signs are: presence of a mold seam, regular body shape, and smooth surface without an "orange peel" effect. If no clear signs of molding are present and the bottle is not clearly free blown, catalog as follows:

Manufacturing Technique: "Mouth Blown"
Mold Type: "Missing Information"

Burned "Bottle, wine style" glass:
This type of bottle glass often melts into amorphous lumps when heavily burned. Because of the color, however, one can still identify these lumps of glass as hollow wine-style bottles. Do not take a sherd thickness measurement unless both original sides remain unmelted.

Green, wine-style bottle glass also often turns an opaque blue when heavily burned. Catalog as described above, but list the color as Unidentified. Describe in the notes that heavy burning has turned the sherd blue or otherwise obscured the color.

2. GASTROLITHS

A piece of small, heavily eroded glass artifacts is a gastrolith, also called stomach stones or gizzard stone. These are cataloged in the Glass Vessel Module with the form as "Gastrolith." Record Color and Fluorescence as you would any other glass vessel fragment. Category, Completeness, and Manufacturing Technique should be entered as Unidentifiable.

All measurements should be taken and a brief description should be noted.

Note: Stone gastroliths should be cataloged in the General Artifact Module and Ceramic gastroliths should be cataloged in the Ceramic Module.

3. Melted Glass

This applies to burned sherds that have been completely warped by exposure to heat and for which there are no diagnostic characteristics that allow form, completeness, and category to be determined**:**

Batch melted sherds by the following attributes:

Color
Fluorescence
Burning (recorded on Condition tab)
Maximum Sherd Size (Measurements tab)

For example, five melted, non-leaded sherds with a max. sherd size of 35 mm would have a record like the following:

Count: 5
Fluoresces Blue: "No"
Glass Color: "Aqua/Light Green"
Vessel Category: "Unidentifiable"
Form: "Unidentifiable"
Completeness: "Unidentifiable"

4. Modern Glass

Although modern glass is recorded in DAACS, modern machine-made bottles and completely molded bottles are not included in the Glass Bottle Information Tab. This decision was made because the classification systems for molded and machine-made bottles are enormously complex given the vast range of bottle shapes possible with molding**.** See Sections 3.5, 4.4, and 5.2.2 for batching protocols for machine-made glass.

Dark brown bottle glass (cataloged as "brown" in DAACS) is almost always modern and machine made. Usually, this glass is from beer and soda bottles. Such glass should be cataloged as "Bottle, unidentifiable" unless there is some specific indication that the bottle is "Bottle, Beer" (for example, embossed lettering or label with a beer company's name). Manufacturing Technique is "Machine Made." Mold Type is: "Contact Mold". There is no need to make notes about pontil marks.

5. Colorless Glass with Ambiguous Attributes

It is not uncommon to come across colorless glass fragments that exhibit curvature suggesting they are from a hollow object but lack diagnostic characteristics that indicate

whether they are from a lamp or other lighting element or a container/vessel. Fragments with these characteristics should be cataloged as form "Unidentifiable" and the cataloger should describe in the notes why they believe these fragments could be from a lighting object.

6. Opaque White Glass with Ambiguous Attributes

It is not uncommon to come across opaque white glass fragments that exhibit curvature suggesting they are from a hollow object but lack diagnostic characteristics that indicate whether they are from a lamp or other lighting element or a container/vessel. Fragments with these characteristics should be cataloged as form "Unidentifiable" and the cataloger should describe in the notes why they believe these fragments could be from a lighting object.

7. Lid Liners

Occasionally, one finds white "milk glass" jar lid liners used to line Mason jars. These jar lid liners should be cataloged in the glass vessel table because they are part of a vessel even though they, themselves, are not vessels. They should be cataloged as follows:

Glass Color: "White"
Material: "Non-lead"
Vessel Category: "Hollow"
Form: "Jar"
Completeness: "Lid liner"
Manu Tech: "Machine made"
Mold Type: "Contact mold"

8. Bottle Seals

Seals adhered to bottles are often found as separate objects. For these artifacts, Completeness should be "Seal," with other information recorded as appropriate. If any decoration or marks are present on the seal, record these in the Decoration/Marks tab (see Section 5). They should be cataloged as follows:

Glass Color: "Green/Olive green"
Material: "Non-lead"
Vessel Category: "Hollow"
Form: "Bottle, wine style"
Completeness: "Seal"
Manu Tech: "Mouth blown"
Mold Type: "Missing information"