

	<b>IMP-PM 1.0 Introduction and Patterned Impressions Guidance</b>	
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## 1.0 Introduction - Impression Analysis

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### 1.1 Introduction to Impression Analysis

Impression evidence examined by the Trace Evidence Unit can be varied in nature. Most commonly examined would be footwear and tire impressions (See 2.0 through 8.0), however other items making impressions can also be examined by this unit, including those originating from fabrics. See Fiber Analysis Procedure 3.2 for reference to fabric impressions.

Impressions involving ridge structure (latent finger, palm or barefoot) are examined by the Latent Print Unit.

#### Training requirements

Non-footwear/tire impressions (patterned or shaped) excluding fabric impressions: Analysts who have training and experience in footwear/tire examinations, or those who meet the qualifications to conduct fabric impression examinations, are qualified to conduct these examinations.

#### Impression Evidence

Impression evidence encompasses many different transfers. Any time two objects come into contact; there is the potential for impression evidence. In theory, any contact between the source of an impression and a surface results in a transfer of material between the two objects. Successful detection of that transfer to reveal a sufficient impression requires that the surface is receptive for a deposit, that is, relatively smooth for two-dimensional impressions. And in the case of three-dimensional impressions, the receiving material must be capable of being impressed by the contacting object. Regardless of the object which makes the impression, or the objects which receive the impression, the case is usually worked by comparison of a questioned and known.

Residue once deposited is immediately subjected to environmental conditions. Heat, humidity, air movements, airborne contaminants, chemical reactions and interactions, light, time, and moisture may alter the condition and dictate the chances for detection of any impression. While any precise determination as to the effects surface condition, transfer medium, and subsequent environment may have on the successful visualization of impression residue is impossible, most factors concerning the survival of the impression are negative and when of sufficient degree or combined in various arrangements will diminish or destroy the likelihood of detection. Human involvement is another factor in the successful detection of impressions, in that the impressions must be sought after by the crime scene technician. However, many impressions may be destroyed by victims or personnel responding to the scene; by driving over tire tracks and by walking on footwear impressions.

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Impression evidence is normally submitted to the laboratory having been preserved at the crime scene, usually in the form of photography, lifted impressions, castings or may be visible on the evidence itself. While general procedures for evidence examination are usually divided into two categories, two-dimensional and three-dimensional impressions, each of the categories contain variations.

Visual examination of evidence is the first step in the processing procedure. Visual inspection for impressions on evidence submitted to the laboratory is usually preserved photographically. In addition, visual inspection is the mechanism by which processing procedures are selected from observation of the residue, its condition, and composition, if determined.

## 1.2 General Guidelines for Patterned and Shaped Impression Evidence Analysis

Techniques utilized for fabric and footwear/tire impressions are applicable to other patterned or shaped impressions. Refer to other procedure manual pages for reference to those techniques, such as Trace Analysis-Fibers 3.2 (Fabric Impressions) and Impression Analysis 2.0 through 8.0.

## 1.3 Conclusions and Opinions - Report Content (non-footwear/tire impressions or shapes)

Report Conclusion Requirements:

- If a comparison is made, the association scale below shall be placed into the body of the laboratory report sent to the submitting agency.
- Inclusion of reasoning, specific to each comparison made, as to why a conclusion was drawn.
- When an association is made, **proper qualifying statements shall be included.**

### Association Scale for Patterned or Shaped Impressions

*The following descriptions are meant to provide context to the levels of opinions reached in patterned or shaped impression comparisons. Each level may not include every variable in every case.*

**Lacks sufficient detail** – No comparison was conducted: the examiner determined there were no discernible questioned patterned or shaped impressions or features present.

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Or – A comparison was conducted: the examiner determined that there was insufficient detail in the questioned impression for a meaningful conclusion. This opinion only applies to the known item that was examined and does not necessarily preclude future examinations with other items.

**Exclusion** – This is the highest degree of non-association expressed in patterned or shaped impression examinations. Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between the questioned impression and the known item.

**Indications of non-association** – The questioned impression exhibits dissimilarities when compared to the known item; however, the details or features were not sufficiently clear to permit an exclusion.

**Limited association of class characteristics** – Some similar class characteristics were present; however, there were significant limiting factors in the questioned impression that did not permit a stronger association between the questioned impression and the known item. These factors may include but were not limited to: insufficient detail, lack of scale, improper position of scale, improper photographic techniques, distortion or significant lengths of time between the date of the occurrence and when the item was recovered that could account for a different degree of condition. No confirmable differences were observed that could exclude the item.

**Association of class characteristics** – The class characteristics of both design and physical size must correspond between the questioned impression and the known item. Correspondence of general condition may also be present.

**High degree of association** – The questioned impression and known item must correspond in the class characteristics of design and physical size. For this degree of association there must also exist: (1) condition that, by virtue of its specific location, degree and orientation make it unusual and/or (2) one or more randomly acquired characteristics.

**Identification** – This is the highest degree of association expressed by a patterned or shaped impression examiner. The questioned impression and the known item share agreement of class and randomly acquired characteristics of sufficient quality and quantity.