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Overview of Process:*

Step 1: File Preparation in Adobe Illustrator

Step 2: Set Media Height of Material on LEF-300
Set Media Height of Material on LEF-200
Set Media Height of Material on LEJ-640FT

Step 3: Loading the ADA File

Step 4: ADA Print Settings
Printer settings: LEF-300
Printer settings: LEF-200
Printer settings: LEJ-640FT

Step 5: **Print Sample Files** – VersaWorks Dual / LEF-300
Print Sample Files – VersaWorks Dual / LEF-200
Print Sample Files – VersaWorks Dual / LEJ-630FT

Braille Regulations†

The included Print Instructions will allow the production of domed, ADA Compliant Braille Signage.

Height: .025" - .038"
Base Diameter: .059" - .063"
Space between Braille dot: .09" - .10"
Space between Cell: .241" - .30"
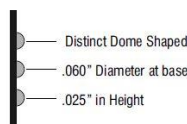Space between Line: .395" - .40"

Braille Dot Sizing and Spacing:
These are the standard dimensions for Braille from ANSI A117.1 and 2010 ADA Standards. All measurements are in inches.

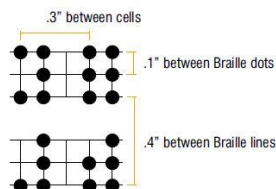| Measurement	
Dot Height	0.025 to 0.037
Dot Diameter	0.059 to 0.063
Spacing between dots	0.090 to 0.100
Vertical Cell Spacing	0.395 to 0.400
Horizontal Cell Spacing	0.241 to 0.300
Dot Shape	Domed or rounded

IMPORTANT:
Check your state laws regarding Braille. Some states, such as California, have their own requirements, which are more strict than these standards.
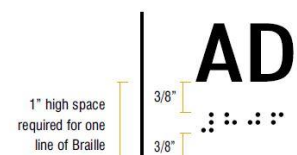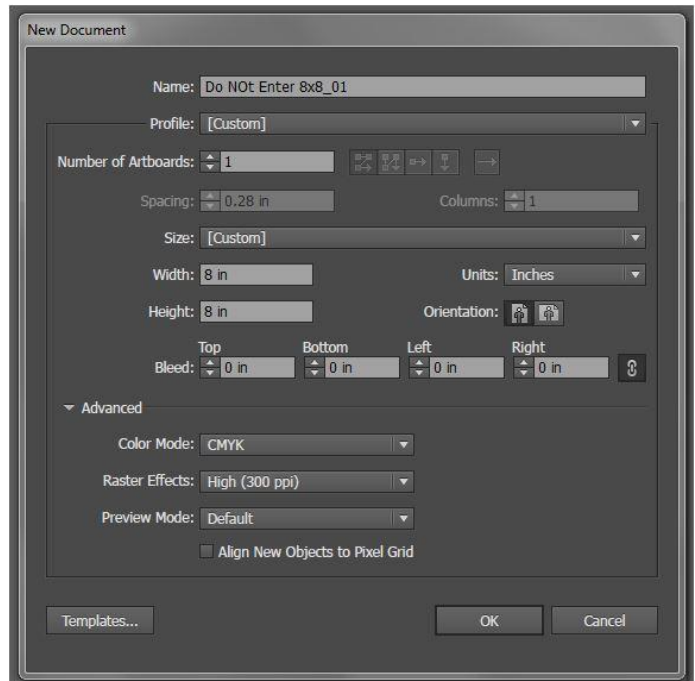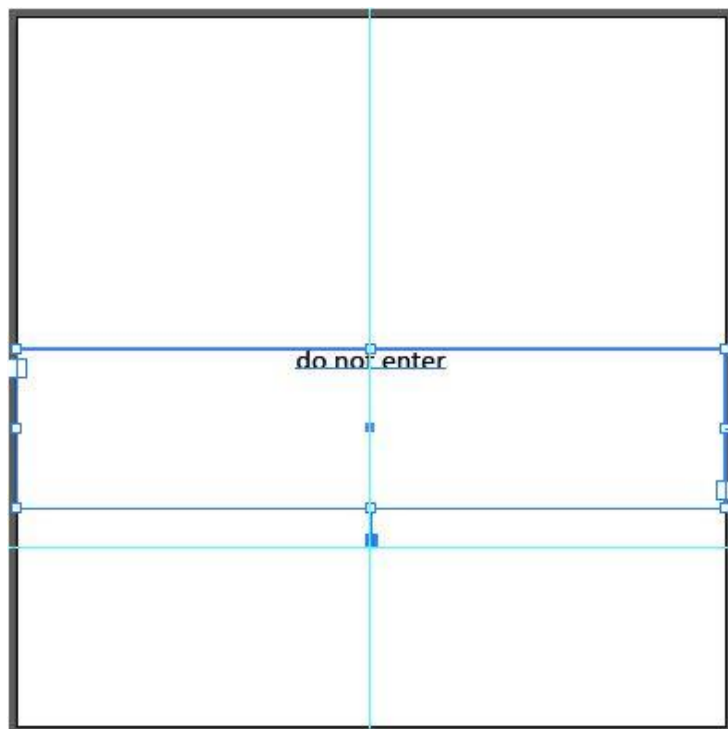
Braille Size	Braille Spacing	Spacing on Sign

Distinct Dome Shaped
.060" Diameter at base
.025" in Height

.3" between cells
.1" between Braille dots
.4" between Braille lines

1" high space required for one line of Braille
AD
3/8"
3/8"

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Step 1: File Preparation in Adobe Illustrator

1.   **Create a new document 8" by 8": File > New**

New Document	
Name:	Do NOt Enter 8x8_01
Profile:	[Custom]
Number of Artboards:	1
Spacing:	0.28 in Columns: 1
Size:	[Custom]
Width:	8 in Units: Inches
Height:	8 in Orientation:
Bleed:	Top 0 in Bottom 0 in Left 0 in Right 0 in
▾ Advanced	
Color Mode:	CMYK
Raster Effects:	High (300 ppi)
Preview Mode:	Default
	☐ Align New Objects to Pixel Grid
Templates...	OK Cancel

2.   **Create a Text box and Type message for sign. Example: do not enter staff only.**

do not enter

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3. **Copy (duplicate) and paste the line of text below the above line.**

do not enter

do not enter

4. **Set the 1st line of Text in the font desired no less than 1" above the bottom of the graphic**

Example:
   Lucida Sans 67pt
   (DO NOT ENTER)

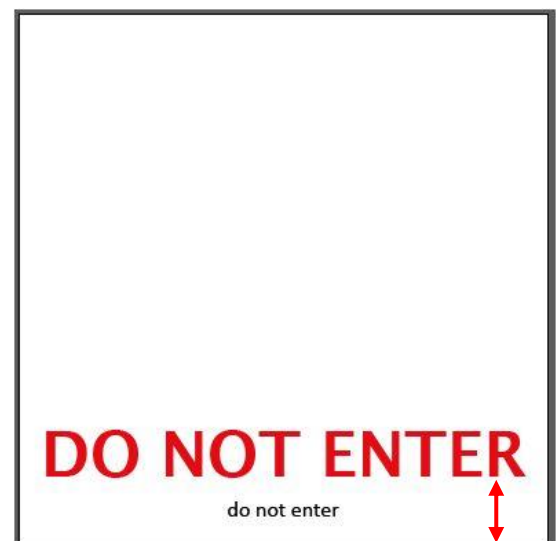**Below is a list of ADA Compliant Fonts**

ADA Compliant

ARIAL MEDIUM

FRUTIGER 55

FUTURA MEDIUM

HELVETICA

LUCIDA SANS

TREBUCHET

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A VISUAL UNDERSTANING OF THE LAWS
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DO NOT ENTER
do not enter

Spaces must be 1" above bottom of graphic

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5. **Move the 2nd line of TEXT to 3/8" to 1/2" below the Set Graphic Line.**

Note: The Braille Text must have a space above and below the to graphic to conform to ADA Regulations. The Tactile Text (DO NOT ENTER) must be placed no less than 1" above the bottom of the document.

Spacing on Sign

1" high space required for one line of Braille

3/8"

AD

3/8"

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DO NOT ENTER

do not enter

Spaces must be between 3/8" and 1/2"

Spaces must be 1" above bottom of graphic
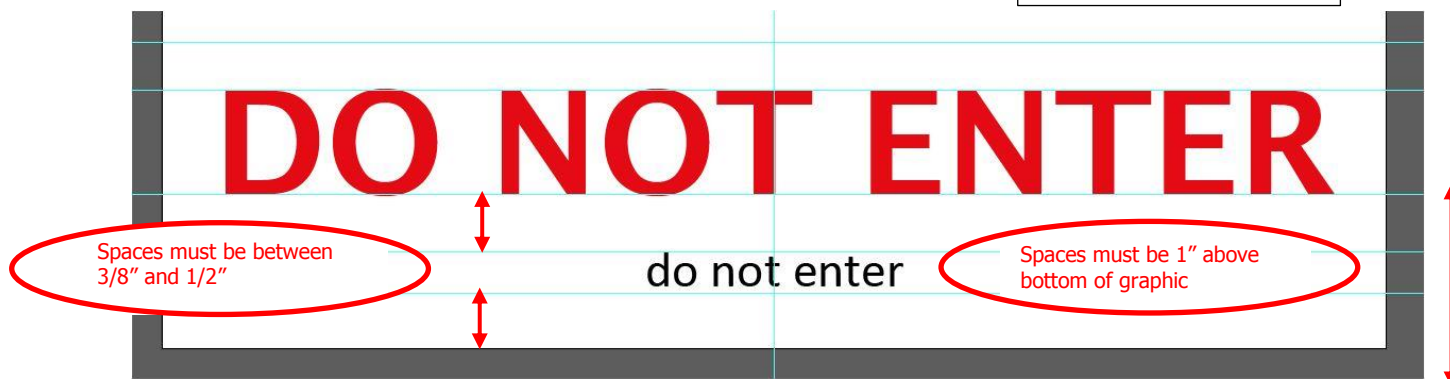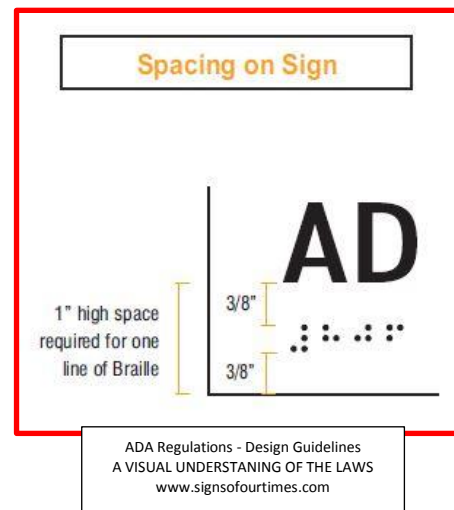
6. **Highlight the 2nd line of text and change the Font to Braille Normal.**
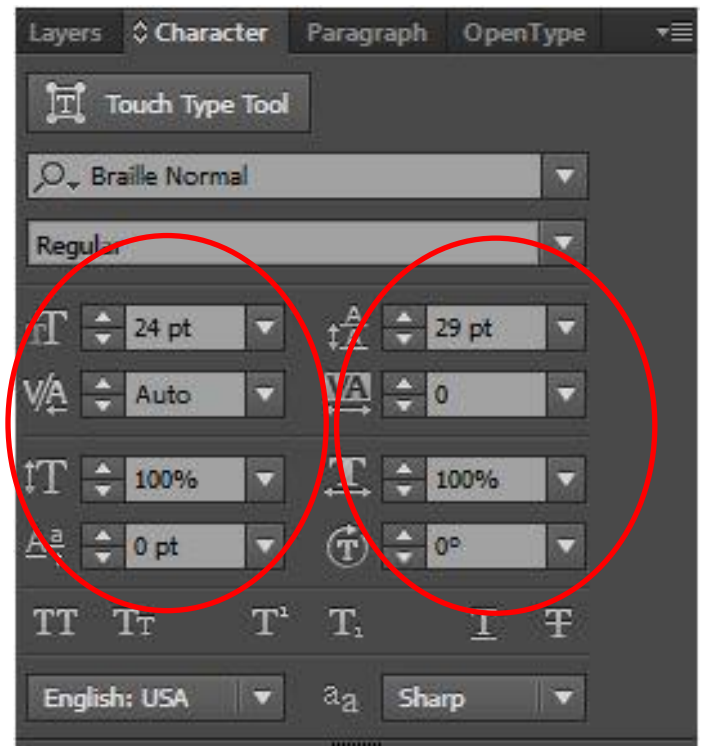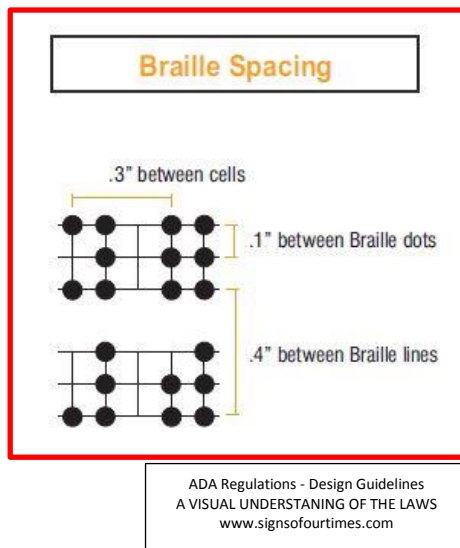
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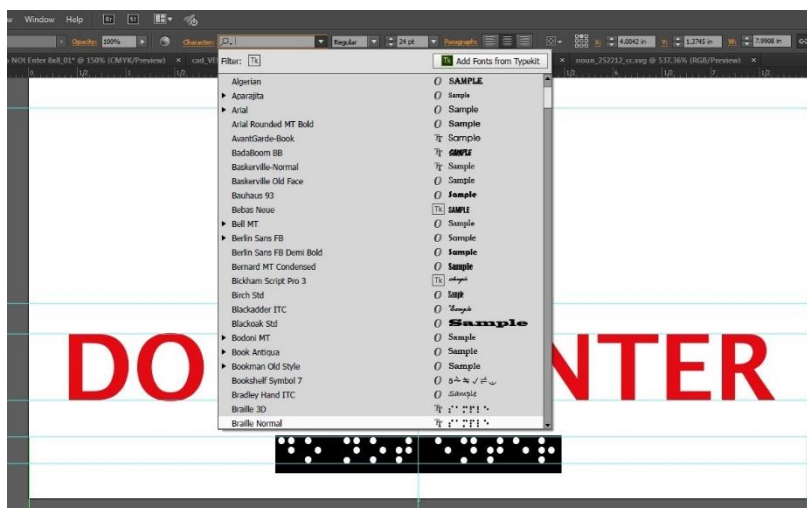
7. **Highlight the text, change the font to Braille Normal and Set the Font Size to 24pt.**
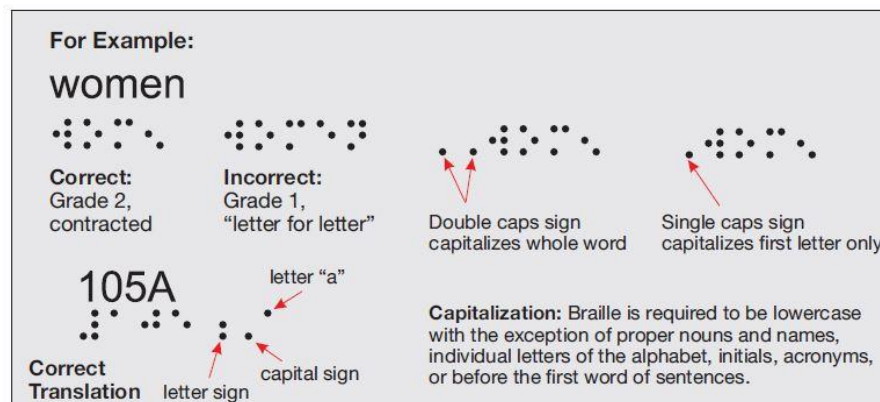**Note: Braille must be in lowercase, except for proper names, acronyms and letters as part of a number.**

8. **After changing the Font Size to 24pt,**
change the Font Leading to 29pt.

   Note: Using 24pt size for the Braille Normal
   will keep the Braille Dot Size and the spacing
   between the Dots correct.

Braille Spacing

.3" between cells
.1" between Braille dots
.4" between Braille lines

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Note: Text on tactile signs must be accompanied by Grade 2 Braille. Grade 2 is not a "letter for letter" translation of the text; it contains 265 contractions, single characters used to represent whole words or groups of letters. Accurate translation software is a must.

All Braille should be lowercase, except proper names ("Fred Jones"), letters which are part of a room number ("105A"), initials, acronyms or before the first word of sentences. Most translation software is case-sensitive so if you type your text as lowercase the Braille will be lowercase, and vice versa.

For Example:

women

Correct: Grade 2, contracted

Incorrect: Grade 1, "letter for letter"

Double caps sign capitalizes whole word

Single caps sign capitalizes first letter only

105A

Correct Translation   letter sign   capital sign   letter "a"

Capitalization: Braille is required to be lowercase with the exception of proper nouns and names, individual letters of the alphabet, initials, acronyms, or before the first word of sentences.

5

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9. Add desired graphic above 1st Line and box around graphic. Graphics can occupy only the top 6"
    of the graphic, but does not have to fill the entire area.
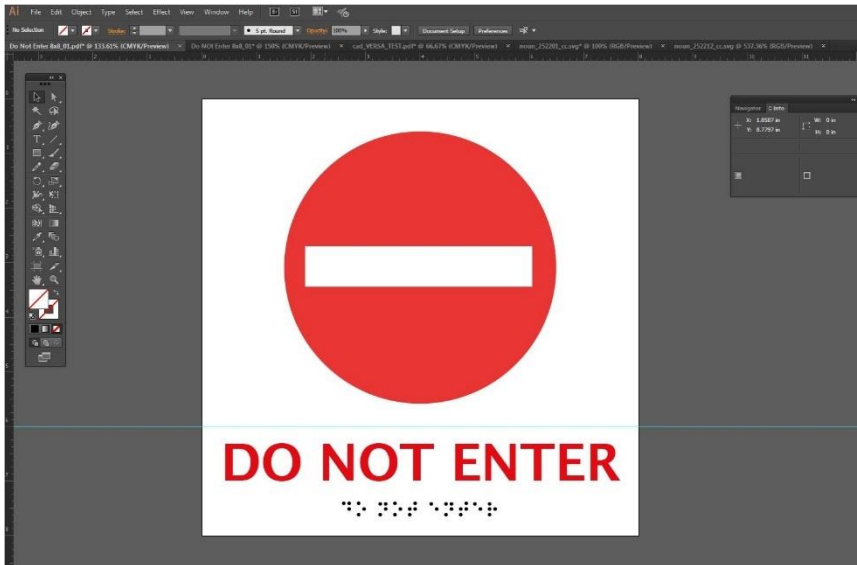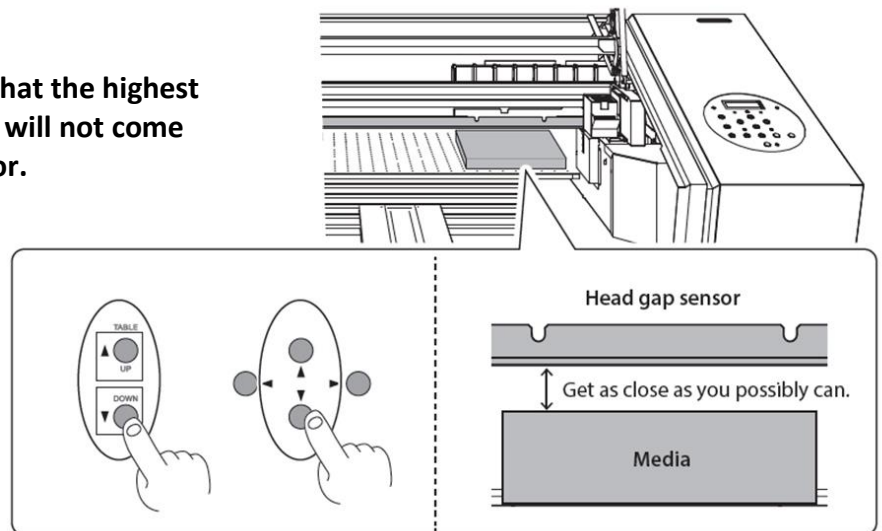

10. Save File as High Quality PDF.

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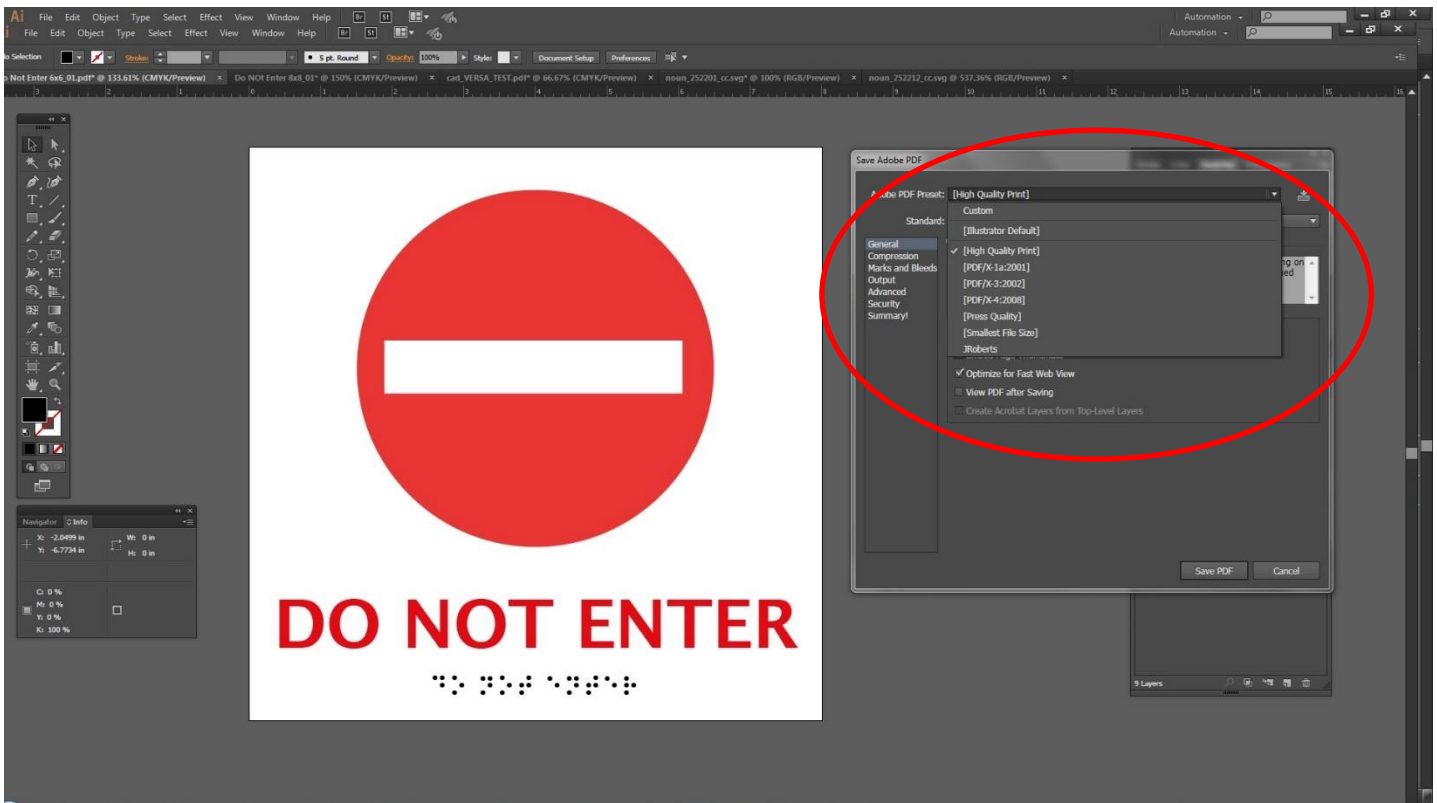
Step 2: Setting the Height of the Media Manually on the LEF-300/LEF-200

SETUP MEDIA
1. Secure the media in place on the flat table.
2. Press [PAUSE/VACUUM].
3. Close the front cover.
4. Press [SETUP].
5. [SETUP] starts to flash.
6. Press [UP Arrow], or [DOWN Arrow] to move the flat table up or down.
7. Move the head gap to the sensor so it just touches and the sensor alarm sounds. At this point, lower the head down .06" to allow for clearance of the gloss ink build-up.
   *This step can be performed with the front cover open.

NOTE:

   Set the height of the table in a way that the highest position of the media (print surface) will not come into contact with the head gap sensor.

IMPORTANT:

   Remember to lower the table 0.060" once the bed height is established.
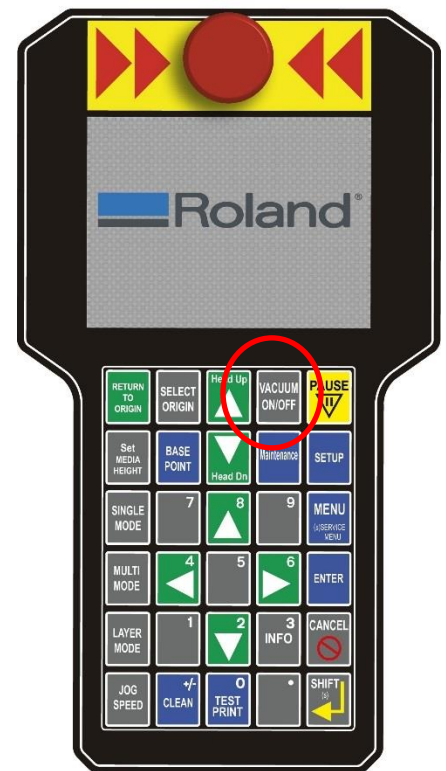   In-order to account for the Layering of ADA/Braille, the height above the current un-printed material must have gap otherwise during the process the printer will Cancel Due to Bed Height.

8. When the location is set and the additional 0.060" is subtracted to set the media height, **press [ENTER].**

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Step 2: Setting the Height of the Media Manually on the LEJ-640FT

SETUP MEDIA

1. Secure the media in place on the flat table.

2. Press VACUUM ON/OFF to activate the table vacuum on the handheld Keypad.

3. Press [Shift + SET Media Height].
SETUP – Automatic Media Height Detection will enable.

4. Manually [UP Arrow] raise the Head Height to .040" and press Set Media Height.


5. Select "Use Current Position" and press Enter to enable NEW head height.

NOTE:
   Set the height of the table in a way that the highest position of the media (print surface) will not come into contact with the head gap sensor.

IMPORTANT:

6. **Add 0.040**" to the height ABOVE the set height.
In-order to account for the Layering of ADA/Braille, the height above the current un-printed material must have gap otherwise during the process the printer will Cancel Due to Bed Height.

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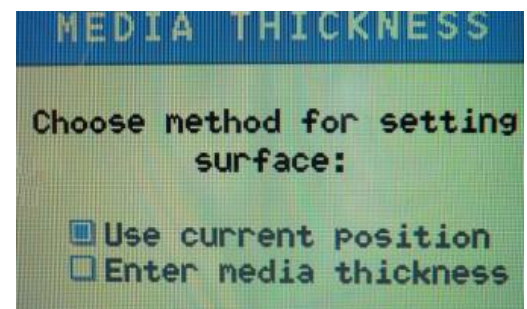
Step 3: Load ADA Sample Files (3 times)
<u>Note</u>: Sample file does NOT contain Matte/Gloss.
Only CMYK file information but VersaWorks Dual can add those automatically.

In VersaWorks Dual: load the sample file 3 times
1.   File -> Open: ADA Sample File (Do Not Enter 8x8_01.pdf)
2.   File -> Open: ADA Sample File (Do Not Enter 8x8_01.pdf)
3.   File -> Open: ADA Sample File (Do Not Enter 8x8_01.pdf)

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Step 4: Print Settings – LEF-300

ADA Printing Pass 1- LEF-300 to achieve .025"- 038" braille dome height

3 prints to be printed
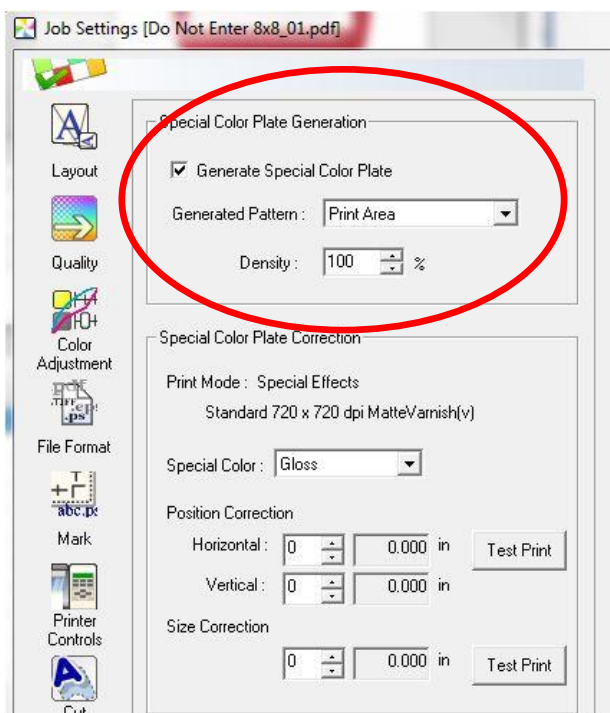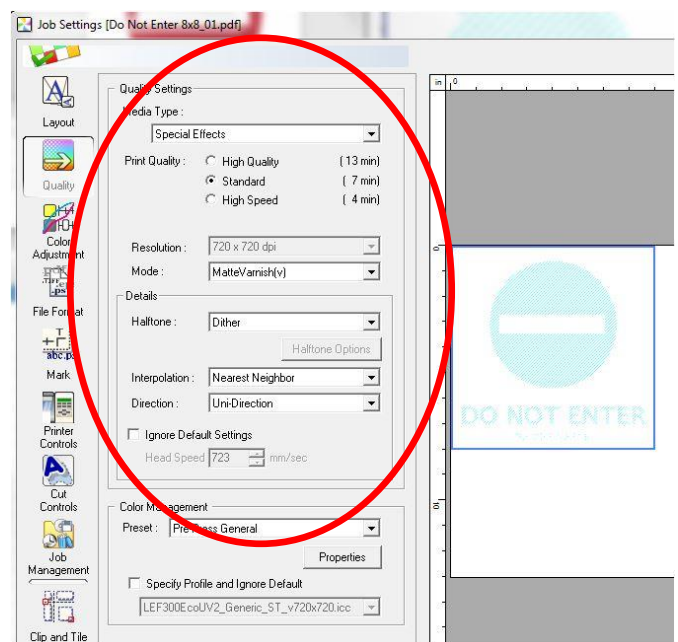1. **Matte Varnish**
2. **Embossing – 15 overprints**
3. **CMYK**

Print 1 Setup: The first printing Layer is Matte Varnish(v). This will allow good adhesion to media.

1. **Quality Settings**
   a. Media Type: Pull Down menu to Special Effects.
   b. Select Print Quality: Standard
   c. Select Mode: **MatteVarnish(v).**
   d. Select Halftone: Dither
   e. Select Interpolation: Nearest Neighbor
   f. Select Direction: Uni-Directional

2. **Special Color Settings**
   a. Click on Special Color and CHECK Generate Special Color

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Print 2 Setup: The second printing Layer is Embossing(v) with 15 overprints. This will create most of the needed height for compliant ADA printing to the media.
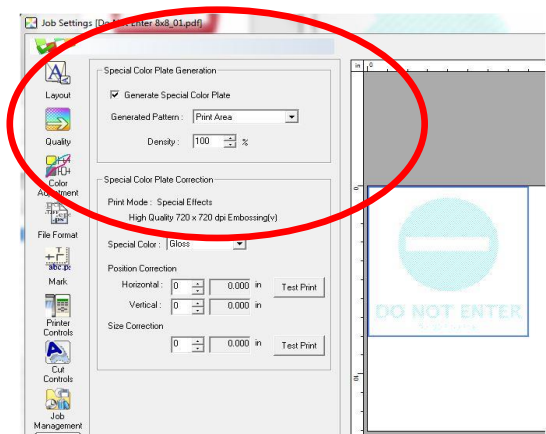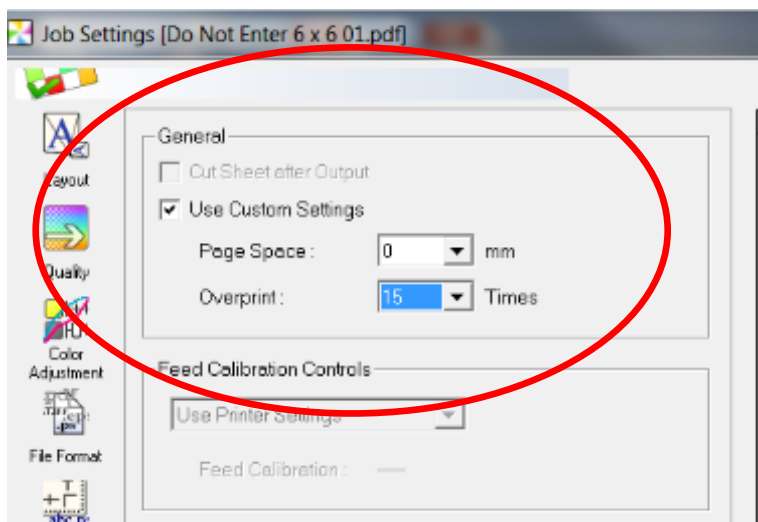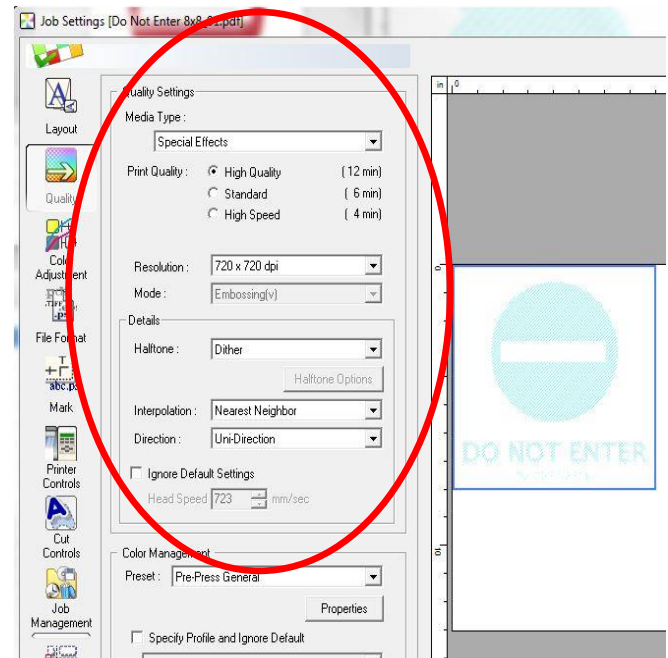
3. **Quality Settings**
    a. Media Type: Pull Down menu to Special Effects.
    b. Select Mode: High Quality 720 x 720 dpi
    c. Select Mode: **Embossing(v).**
    d. Select Halftone: Dither
    e. Select Interpolation: Nearest Neighbor
    f. Select Direction: Uni-Directional

4. **Special Color Settings**
   a. Click on Special Color and CHECK Generate Special Color

5. **Printer Controls**
    a. **Check** Use Custom Settings
    b. **Pull Down Overprint to 15**

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Print 3 Setup: The third printing Layer is CMYK. This will create the color needed and finish the height for compliant ADA printing to the media.

6. **Quality Settings**
    a. Media Type: Pull Down menu to Generic.
    b. Select Mode: Standard 720 x 720 dpi
    c. Select Mode: **CMYK(v).**
    d. Select Halftone: Dither
    e. Select Interpolation: Nearest Neighbor
    f. Select Direction: Uni-Directional
    g. Select PrePress General in the Color Management Tab
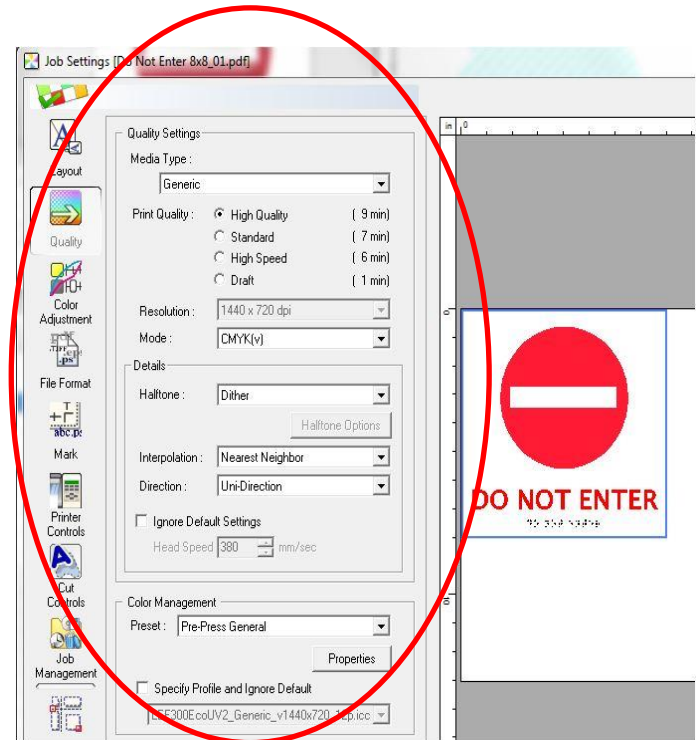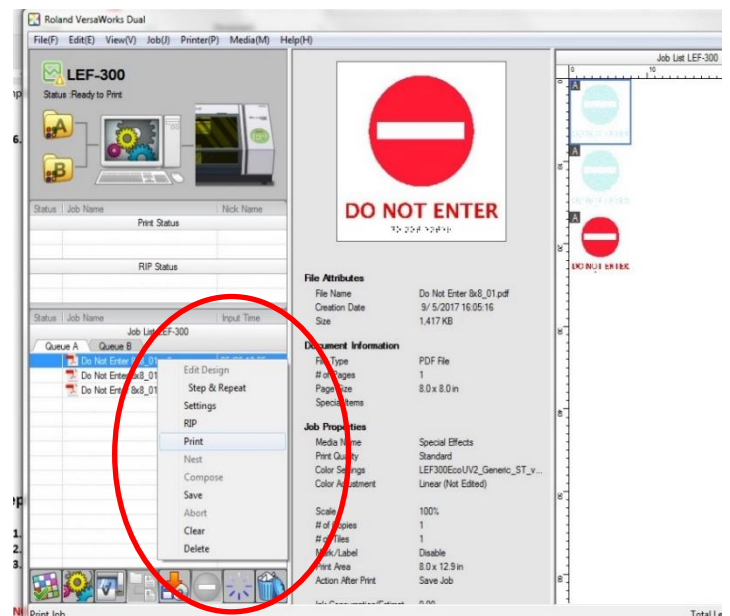

Step 5: Print Sample Files
(Do Not Enter 8x8_01.pdf 1-3)

1. **Print <u>File 1 Setup</u>**   (Matte Varnish(v) Layer)
2. **Print <u>File 2 Setup</u>**   (Embossing(v) Layer)
3. **Print <u>File 3 Setup</u>**   (CMYK(v) Layer)

<u>NOTE</u>: **Print (or move) each file into Print Queue one file at a time. Each file will RIP, then Print and can be unattended as the 0.060" allowance was given at the initial media Set-Up.**

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Step 4: Print Settings – LEF-200
ADA Printing Pass 1- LEF-200 to achieve .025"- 038" braille dome height

> **4 prints to be printed**
> 1. **Matte Varnish**
> 2. **Embossing – 10 overprints**
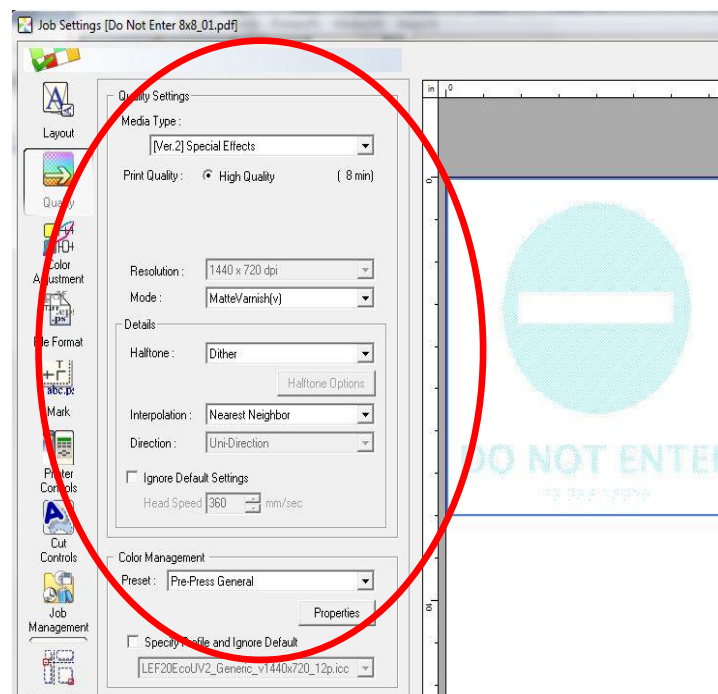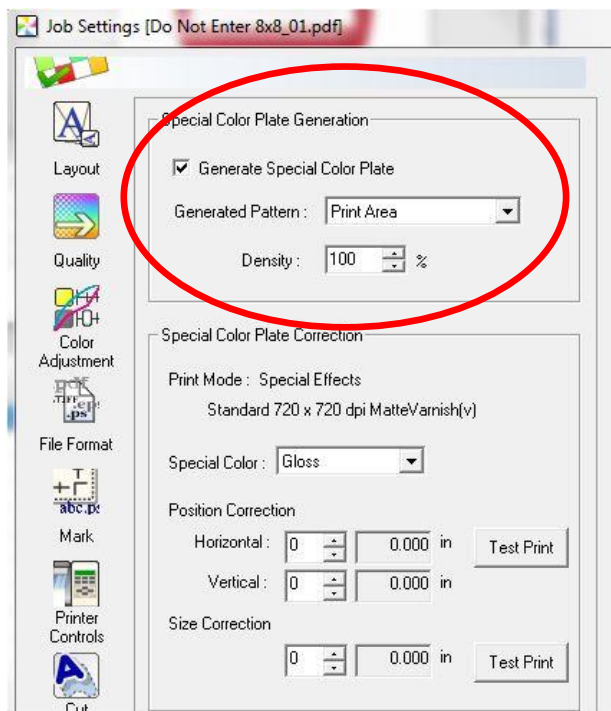> 3. **Embossing – 5 overprints**
> 4. **CMYK**

Print 1 Setup: The first printing Layer is Matte Varnish(v). This will allow good adhesion to media.

1. **Quality Settings**
   - **h.** Media Type: Pull Down menu to Special Effects.
   - **i.** Select Print Quality: High Quality
   - **j.** Select Mode: **MatteVarnish(v).**
   - **k.** Select Halftone: Dither
   - **l.** Select Interpolation: Nearest Neighbor
   - **m.** Select Direction: Uni-Directional

2. **Special Color Settings**
   - **a.** Click on Special Color and CHECK Generate Special Color

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Print 2 Setup: The second printing Layer is Embossing(v) with **10 overprints**. This will create most of the needed height for compliant ADA printing to the media.

3. **Quality Settings**
    a. Media Type: Pull Down menu to Special Effects.
    b. Select Mode: High Quality 720 x 720 dpi
    c. Select Mode: **Embossing(v).**
    d. Select Halftone: Dither
    e. Select Interpolation: Nearest Neighbor
    f. Select Direction: Uni-Directional

4. **Special Color Settings**
    a. Click on Special Color and CHECK Generate Special Color

5. **Printer Controls**
    a. **Check** Use Custom Settings
    b. **Pull Down Overprint to 10**

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Print 3 Setup: The second printing Layer is Embossing(v) with **5 overprints**. This will create most of the needed height for compliant ADA printing to the media.
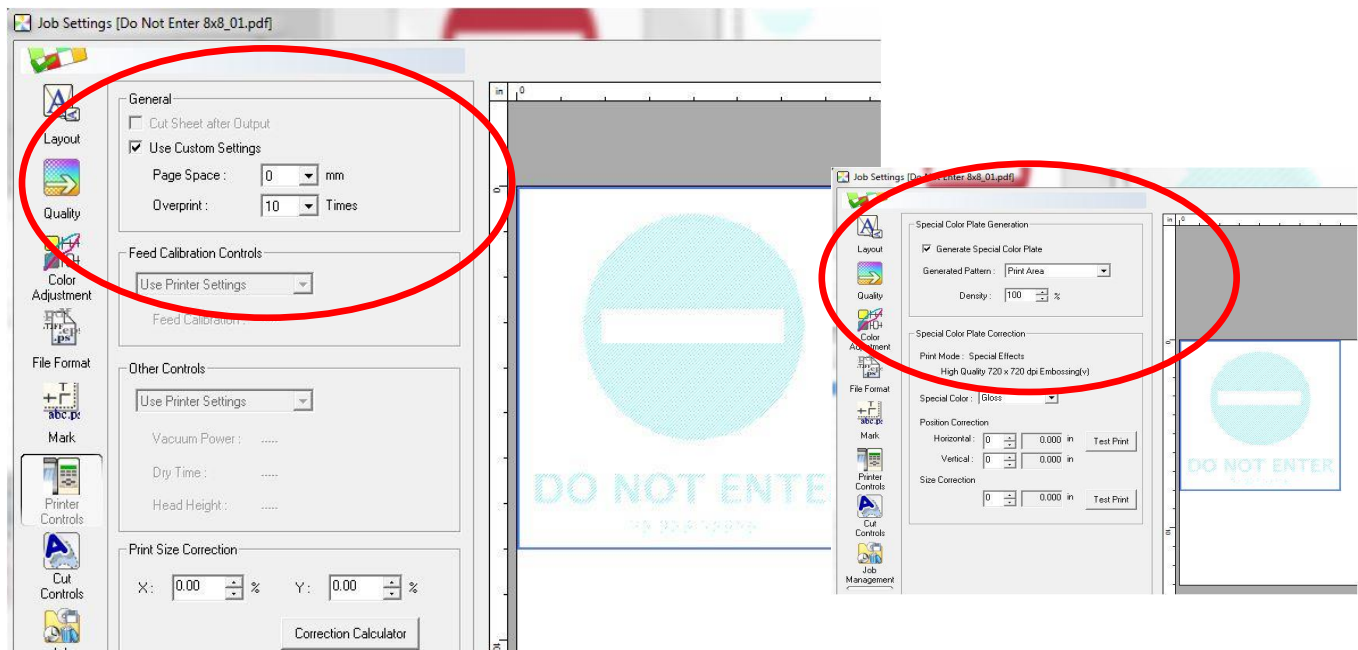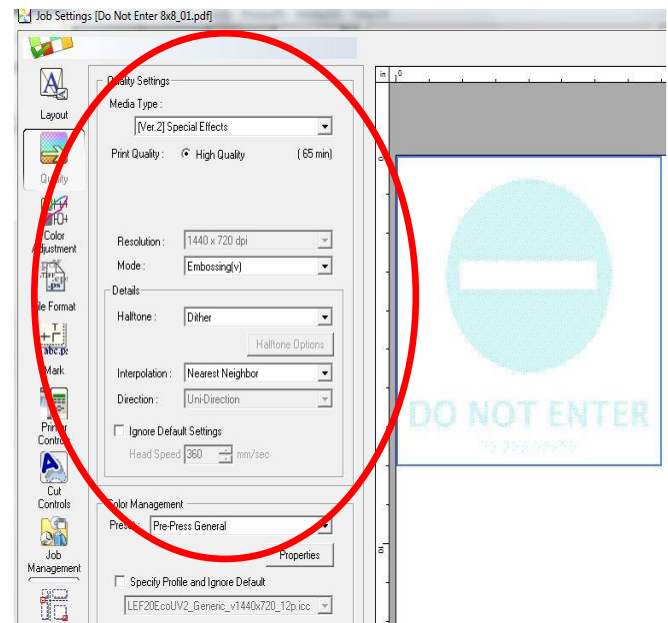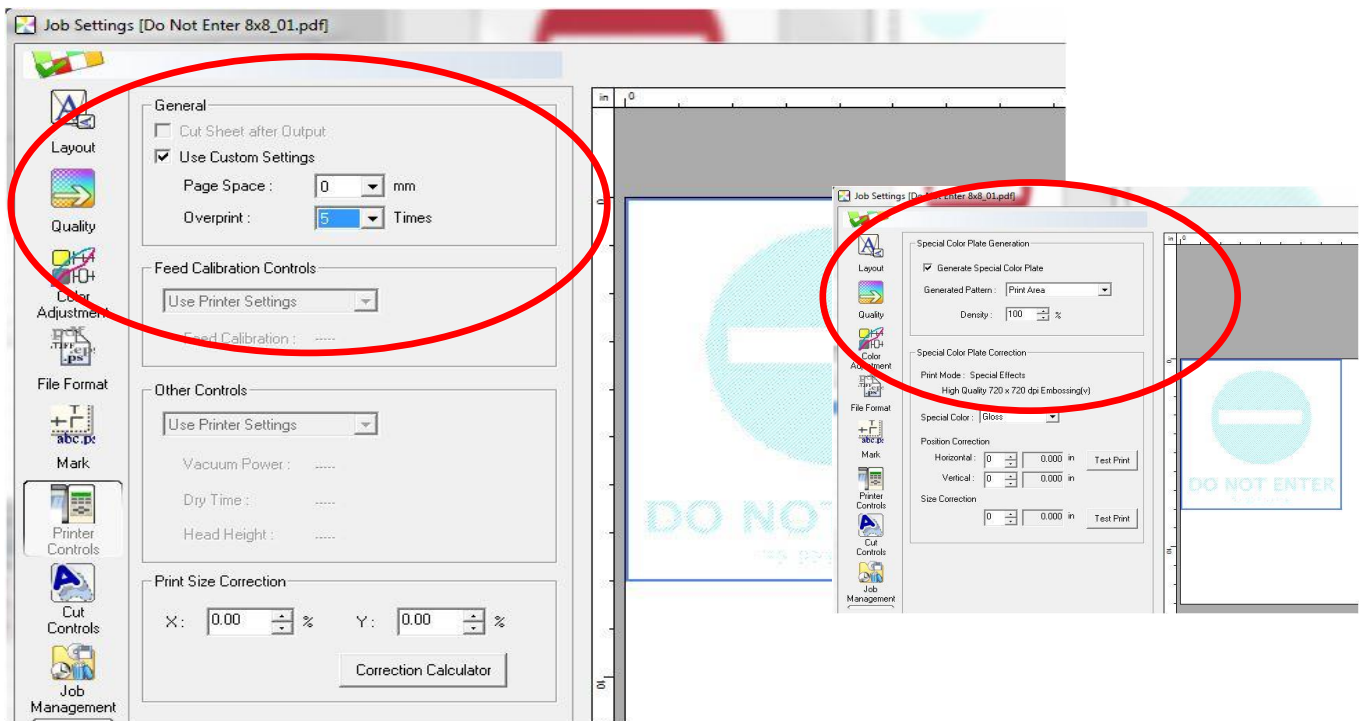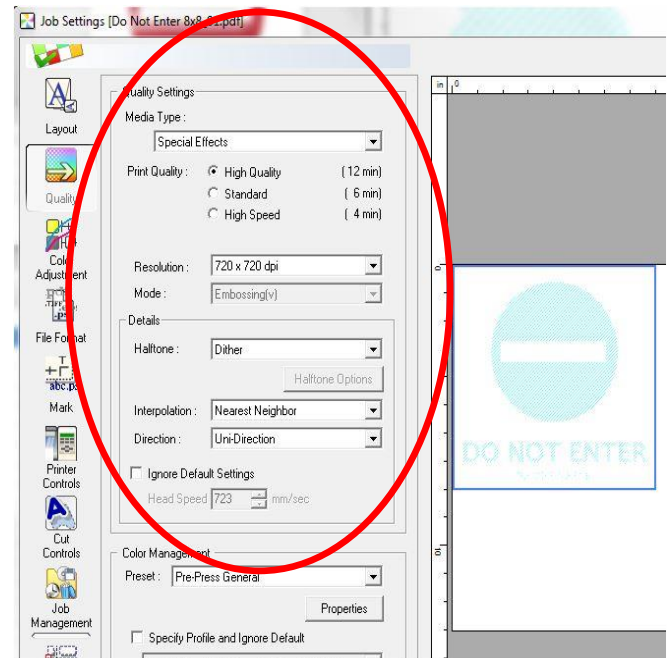
6. **Quality Settings**
   a. Media Type: Pull Down menu to Special Effects.
   b. Select Mode: High Quality 720 x 720 dpi
   c. Select Mode: **Embossing(v).**
   d. Select Halftone: Dither
   e. Select Interpolation: Nearest Neighbor
   f. Select Direction: Uni-Directional

7. **Special Color Settings**
   a. Click on Special Color and CHECK Generate Special Color

8. **Printer Controls**
   a. **Check** Use Custom Settings
   b. **Pull Down Overprint to 5**

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Print 4 Setup: The third printing Layer is CMYK. This will create the color needed and finish the height for compliant ADA printing to the media.

9. **Quality Settings**
   a. Media Type: Pull Down menu to Generic.
   b. Select Mode: High Quality 1440 x 720 dpi
   c. Select Mode: **CMYK(v).**
   d. Select Halftone: Dither
   e. Select Interpolation: Nearest Neighbor
   f. Select Direction: Uni-Directional
   g. Select PrePress General in the Color Management Tab
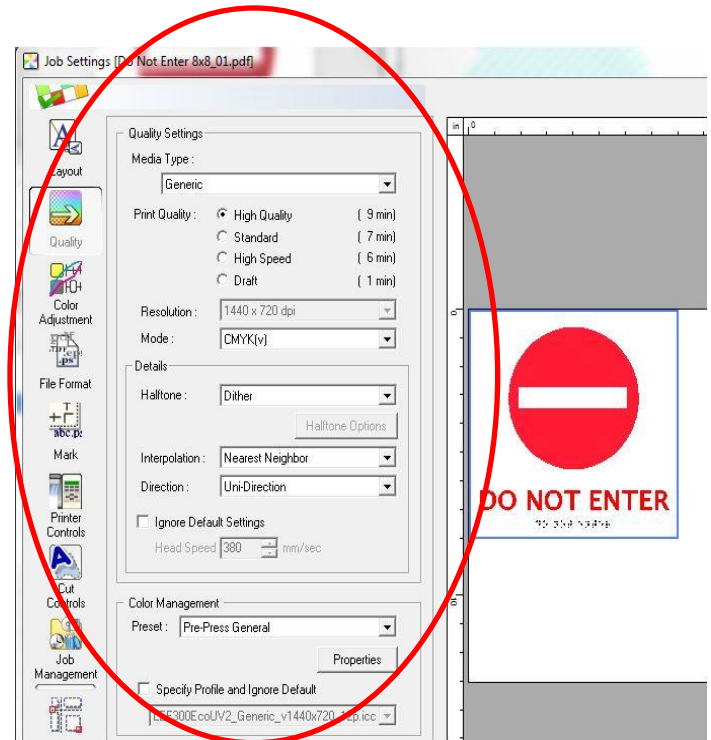
Step 5: Print Sample Files
(Do Not Enter 8x8_01.pdf 1-3)

1. **Print File 1 Setup**   (Matte Varnish(v) Layer)
2. **Print File 2 Setup**   (Embossing(v) Layer - 10)
3. **Print File 2 Setup**   (Embossing(v) Layer - 5)
4. **Print File 3 Setup**   (CMYK(v) Layer)

   NOTE: Print (or move) each file into Print Queue one file at a time. Each file will RIP, then Print and can be unattended as the 0.040" allowance was given at the initial media Set-Up.

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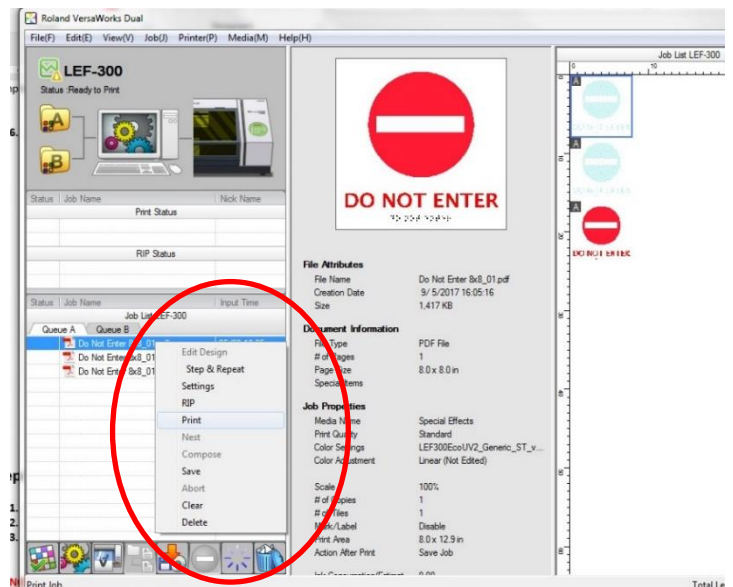
Step 4: Setting Print Settings – LEJ-640FT

ADA Printing Pass 1- LEJ-640FT to achieve .025"- 038" braille dome height

4 prints to be printed
1. **Matte Varnish**
2. **Embossing – 7 overprints**
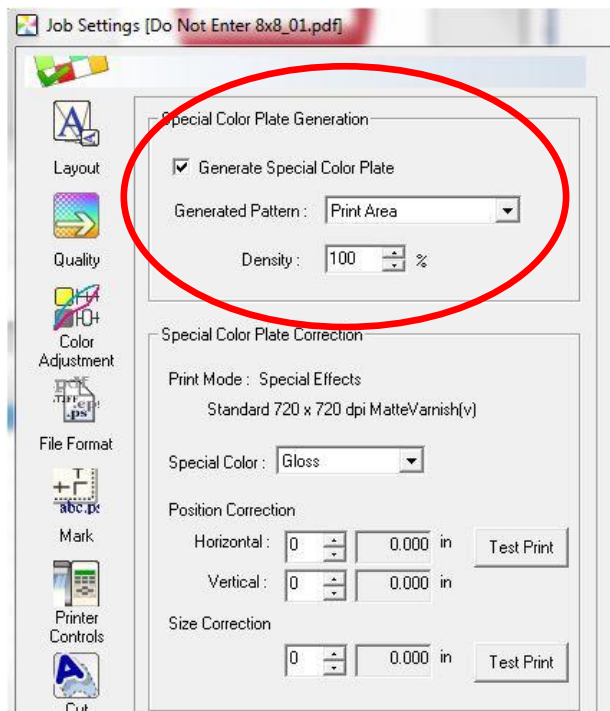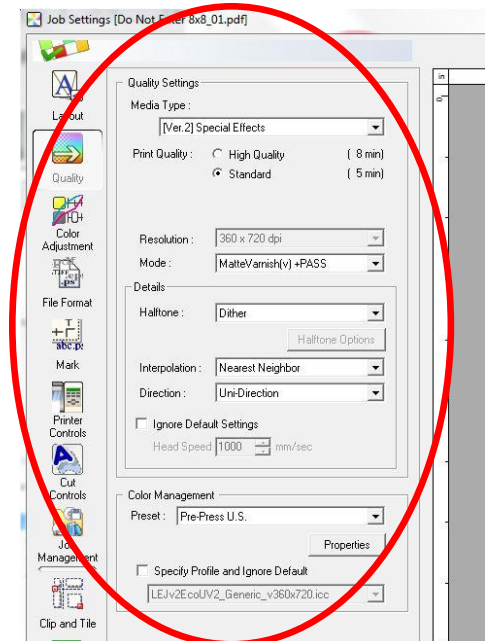3. **Embossing – 7 overprints**
4. **CMYK**

File 1 Setup: The first printing Layer is Matte Varnish(v). This will allow good adhesion to media.

5. **Quality Settings**
   a. Media Type: Pull Down menu to Special Effects.
   b. Select Print Quality: Standard
   c. Select Mode: **MatteVarnish(v).**
   d. Select Halftone: Dither
   e. Select Interpolation: Nearest Neighbor
   f. Select Direction: Uni-Directional

6. **Special Color Settings**
   a. Click on Special Color and CHECK Generate Special Color

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File 2 Setup: The second printing Layer is Embossing(v) with 15 overprints. This will create most of the needed height for compliant ADA printing to the media.
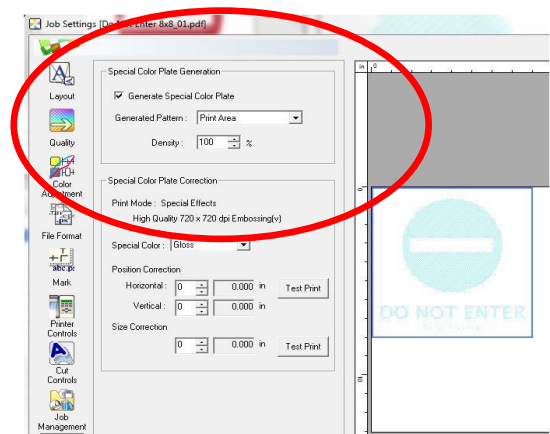
7. **Quality Settings**
    a. Media Type: Pull Down menu to Special Effects.
    b. Select Mode: High Quality 720 x 1440 dpi
    c. Select Mode: **Embossing(v).**
    d. Select Halftone: Dither
    e. Select Interpolation: Nearest Neighbor
    f. Select Direction: Uni-Directional

8. **Special Color Settings**
    a. Click on Special Color and CHECK Generate Special Color

9. **Printer Controls**
    a. **Check** Use Custom Settings
    b. **Pull Down Overprint to 7**

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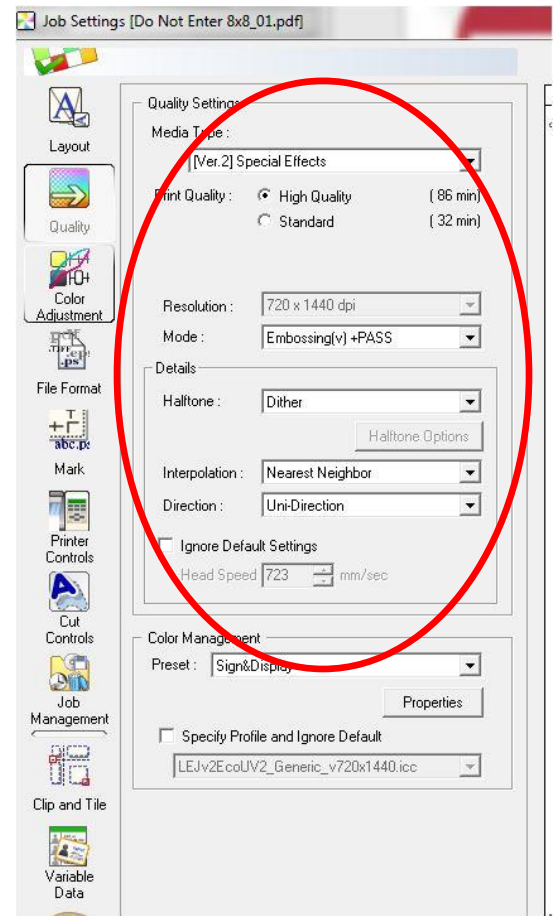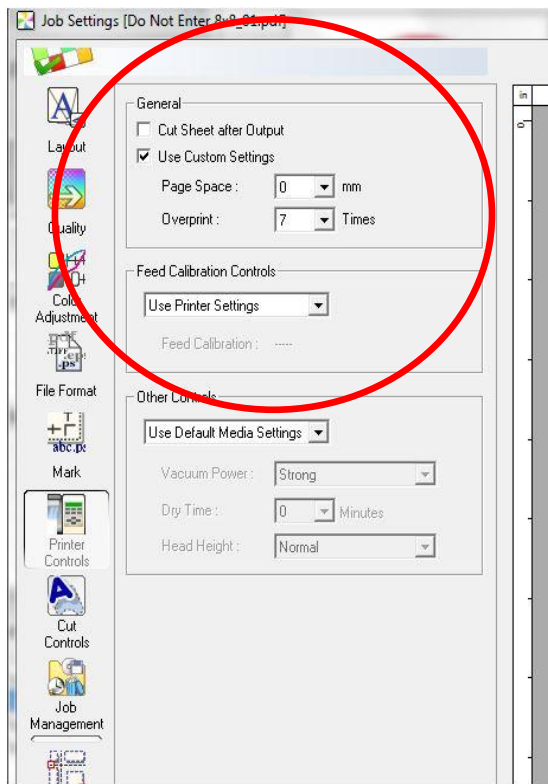
File 3 Setup: The third printing Layer is CMYK. This will create the color needed and finish the height for compliant ADA printing to the media.

10. Quality Settings
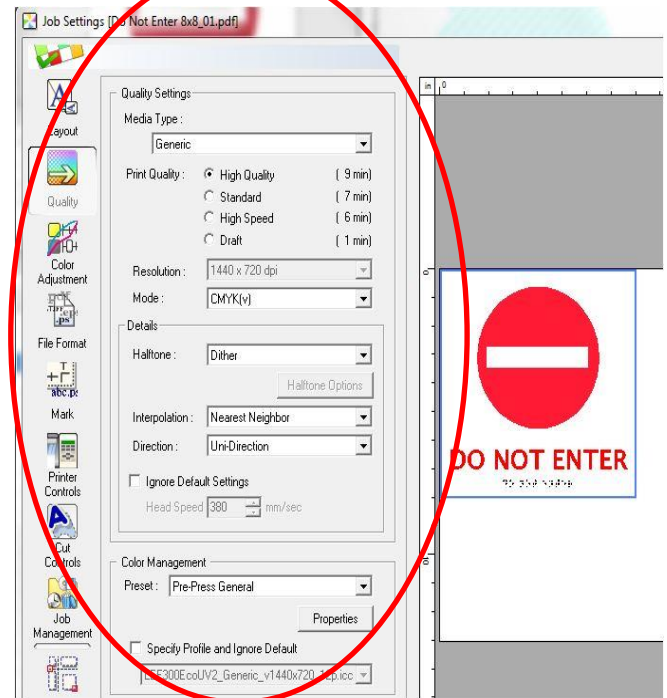
     a. Media Type: Pull Down menu to Generic.

     b. Select Mode: High Quality 1440 x 720 dpi

     c. Select Mode: **CMYK(v).**

     d. Select Halftone: Dither

     e. Select Interpolation: Nearest Neighbor

     f. Select Direction: Uni-Directional

     g. Select PrePress General in the Color Management Tab

Step 5: Print Sample Files

(Do Not Enter 8x8_01.pdf 1-3)

    11. Print <u>File 1 Setup</u>   (Matte Varnish(v) Layer)

    12. Print <u>File 2 Setup</u>   (Embossing(v) Layer)

    13. Print <u>File 2 Setup</u>   (Embossing(v) Layer)

    14. Print <u>File 3 Setup</u>   (CMYK(v) Layer)

<u>NOTE</u>: Print (or move) each file into Print Queue one file at a time. Each file will RIP, then Print and can be unattended as the 0.060" allowance was given at the initial media Set-Up.

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Summary

Graphic Qualities - ADA Sign Summary Rules
- Signs that identify a room, space or area shall have raised characters and Braille.
- Signs shall have a non-glare finish with contrasting colors
- Pictograms shall be in their own 6" high field.
- Characters shall be Sans Serif and all Uppercase.
- Characters must be between 5/8" and 2" with a minimum 1/8' Spacing
- Font must be ADA compliant. Not too bold, condensed, italic etc.
- 3/8" minimum margin is required around all raised elements including Braille.
- 1" high space is required for one line of Braille.
- Braille shall be all together and 3/8" to 1/2" below last line of text.
- ADA signs are required for both public access areas and all employee areas.

Print Qualities
The included Print Instructions will allow the production of domed, ADA Compliant Braille Signage.

Height: .025" - .038"
Base Diameter: .059" - .063"
Space between Braille dot: .09" - .10"
Space between Cell: .241" - .30"
Space between Line: .395" - .40"

Braille Dot Sizing and Spacing:
These are the standard dimensions for Braille from ANSI A117.1 and 2010 ADA Standards. All measurements are in inches.

Measurement	
Dot Height	0.025 to 0.037
Dot Diameter	0.059 to 0.063
Spacing between dots	0.090 to 0.100
Vertical Cell Spacing	0.395 to 0.400
Horizontal Cell Spacing	0.241 to 0.300
Dot Shape	Domed or rounded

IMPORTANT:
Check your state laws regarding Braille. Some states, such as California, have their own requirements, which are more strict than these standards.

ADA Regulations - Design Guidelines
A VISUAL UNDERSTANING OF THE LAWS
www.signsofourtimes.com

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[*] Roland DGA Corporation provides no recommendation, warranty or representation regarding the printing of ADA complaint Braille in any other method or process that does not follow the prescribed workflow in this white paper. Should a customer undertake the printing of ADA compliant Braille using any other method or process, such undertaking should only be made in the sole discretion of the customer, at the customer's sole risk, and Roland DGA Corporation disclaims any liability for such undertaking. Any such undertaking by the customer that does not follow the prescribed workflow in this white paper should be made in such a way as to avoid infringement of US patent No. 9,498,977.
[†] All references to ADA compliant Braille requirements are based upon information available as of the date of this white paper. Please be sure to consult applicable state and federal resources for the most current information on legally compliant Braille.

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