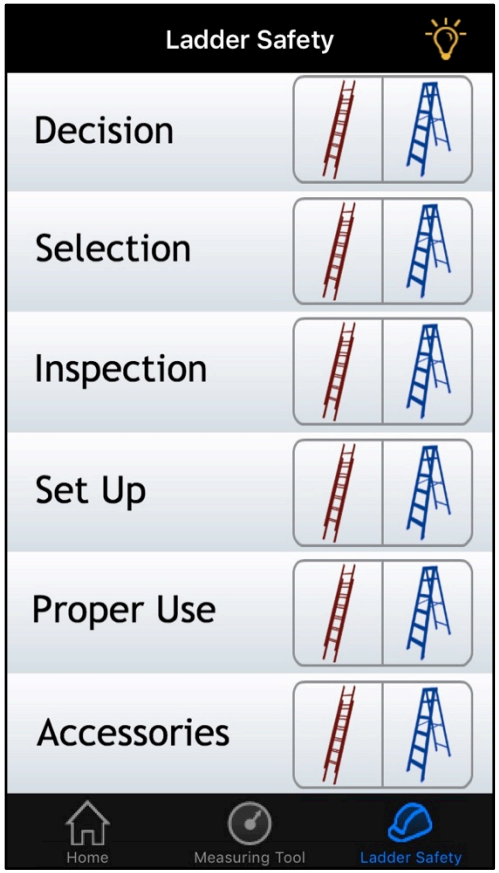
Ladder Safety App User's Manual (iOS)



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iOS App Installation

Instructions for loading the NIOSH Ladder Safety iOS App:*

- &Go to the Apple iTunes Market, <http://www.itunes.com/appstore>, on your iPhone, iPod Touch or iPad
- &Tap the Search icon (magnifying glass)
- Type 'Ladder Safety' in the search field
- &Select the App by tapping the Ladder Safety App icon
- &Select INSTALL to download App to tablet or phone
- &Once completely downloaded and installed, the App is ready to use
- &Launch the Ladder Safety iOS App

**iOS 8.0 or higher is required for using the iOS App.*

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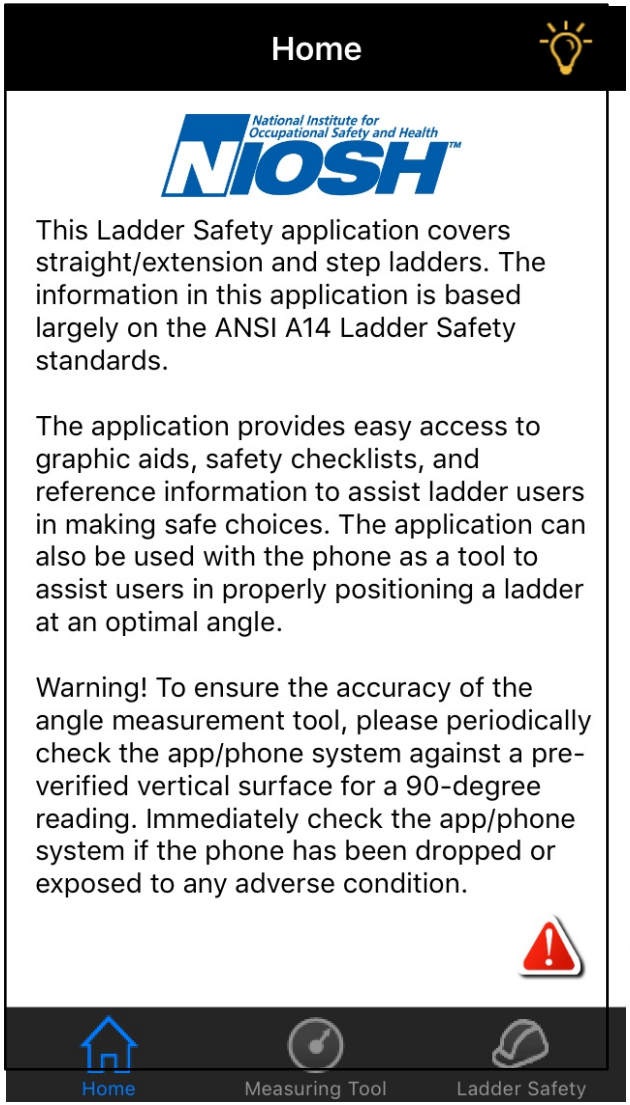
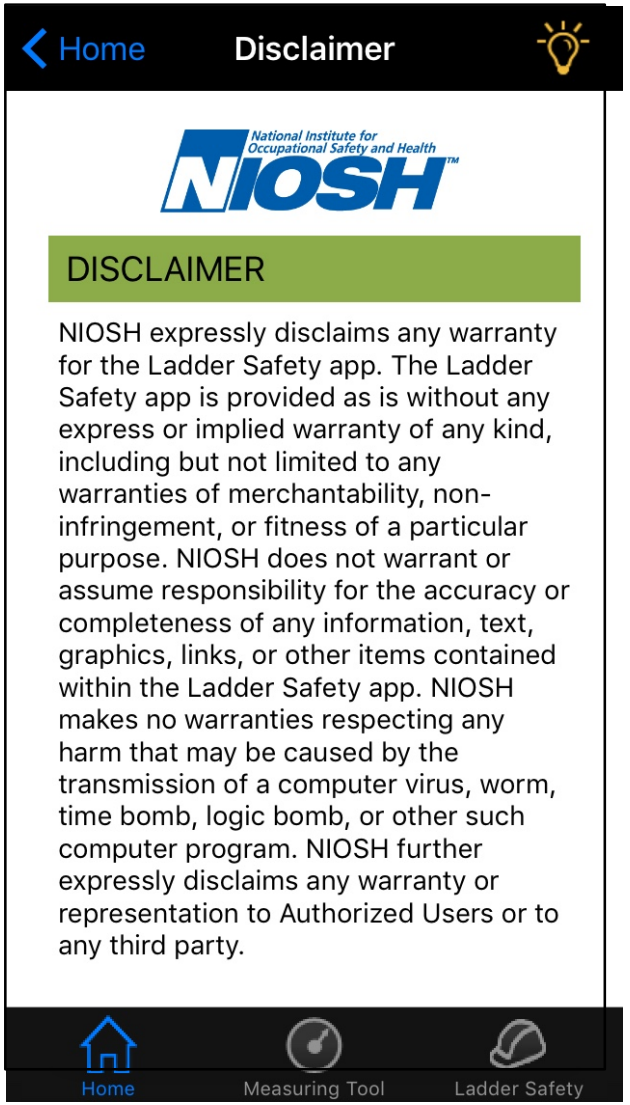
Home Screen: Ladder Application



The light blub toggles between high-contrast mode and normal mode.

Refer to the Accessibility Features section for more information.

This button shows the disclaimer.



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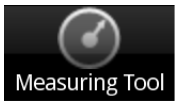

Measuring Tool

The help page will show after tapping this icon.

The home page will show after tapping this icon.

There will be a visual indication on the screen (red arrow) outside the range of ±1 degrees from 75 degrees, indicating the ladder is not yet at the proper angle.

If the user has enabled vibration and sound, there will be an audible, constant tone, a vibration, and a visual indication (green arrow) on the screen in the range of ±1 degrees from 75 degrees indicating a "great" type of notice.

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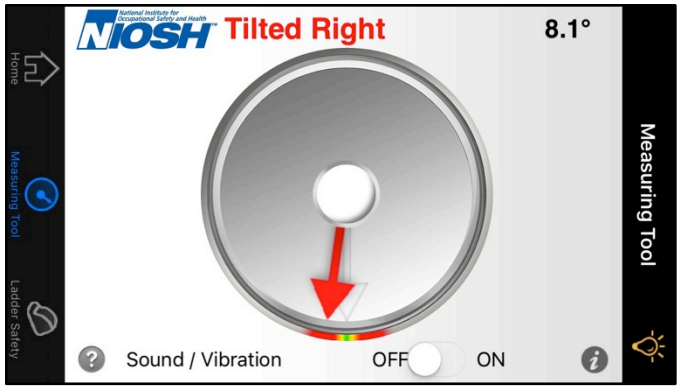
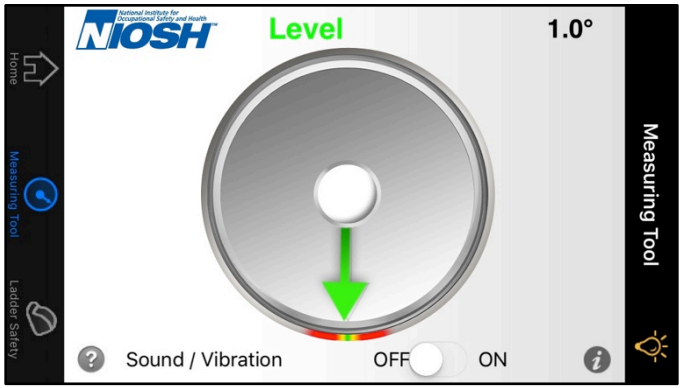
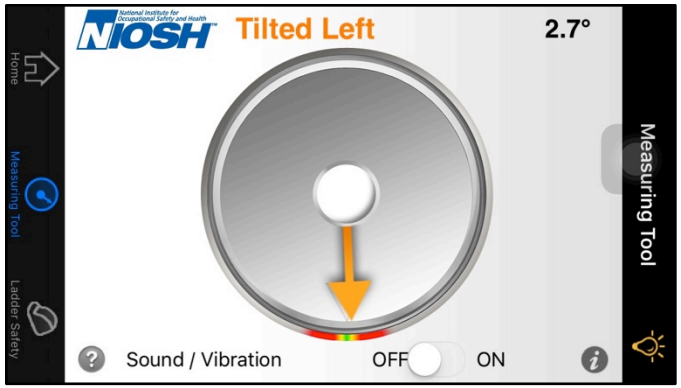
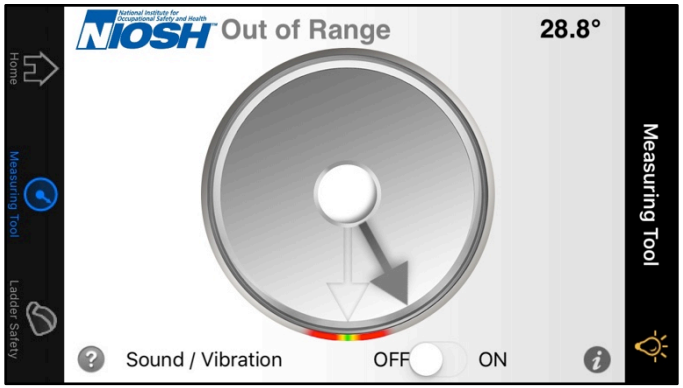
Measuring Tool: Verticality









If the user tilts the device 90 degrees (landscape mode), verticality mode is enabled.

There will be a visual indication on the screen (red arrow) outside the range of ±1.5 degrees from 0 degrees, indicating the ladder is not yet at the proper angle.

If the user has enabled vibration and sound, there will be an audible, constant tone, a vibration, and a visual indication (green arrow) on the screen in the range of ±1.5 degrees from 0 degrees indicating a "level" type of notice.

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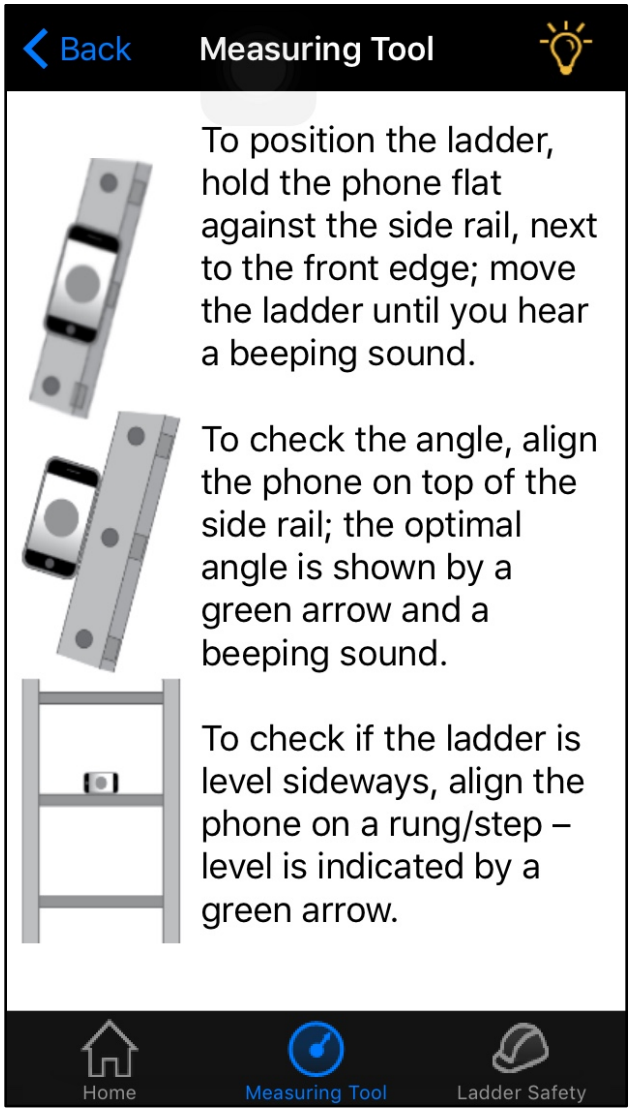
Measuring Tool

Help



The Measuring Tool **Help** button opens Setup Ladder Angle – Measuring Tool page.

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Ladder Safety

When the user taps the **Ladder Safety** button, a window will appear with options to go to the following screens:

- 1: Decision
- 2: Selection
- 3: Inspection
- 4: Set Up
- 5: Proper Use
- 6: Accessories

With the new unified menu, the user can select either the extension ladder or step ladder screens by touching the respective button.

Touch the extension ladder icon to go to the extension ladder version of the screen.
Ex) Touching the extension ladder on the Proper use row will lead to the Proper use for extension ladders.

Touch the step ladder icon to go to the step ladder version of the screen.
Ex) Touching the step ladder on the Accessories row will lead to the Accessories for step ladders

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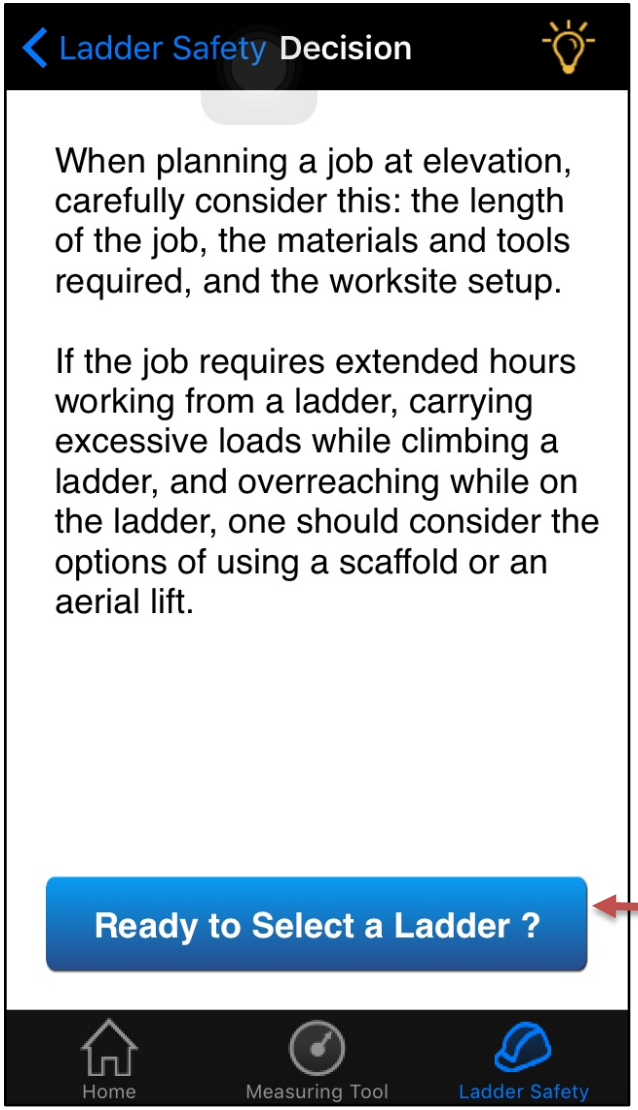
1: Extension Ladder-Decision



Decision:

A series of suggestions will be presented:

- When planning a job at elevation, carefully consider:
  - The length of the job
  - The materials and tools required
  - The worksite setup
- Consider using a scaffold or an aerial lift if the job requires:
  - Extended hours working from a ladder
  - Carrying excessive loads while climbing a ladder
  - Overreaching while on the ladder

The Selection screen appears after tapping this button.

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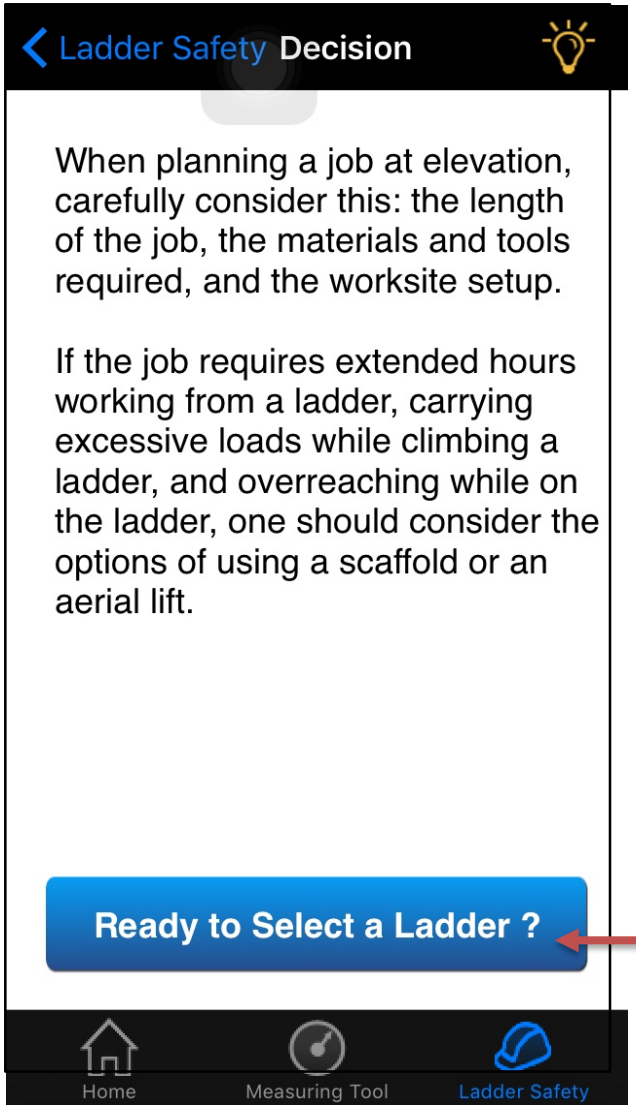
1: Step Ladder-Decision



Decision:

***This screen is identical to the Decision screen for the extension ladder, as the decisions are relevant to both extension and step ladders.**

A series of suggestions will be presented:

- When planning a job at elevation, carefully consider:
  - The length of the job
  - The materials and tools required
  - The worksite setup
- Consider using a scaffold or an aerial lift if the job requires:
  - Extended hours working from a ladder
  - Carrying excessive loads while climbing a ladder
  - Overreaching while on the ladder

The Selection screen appears after tapping this button.

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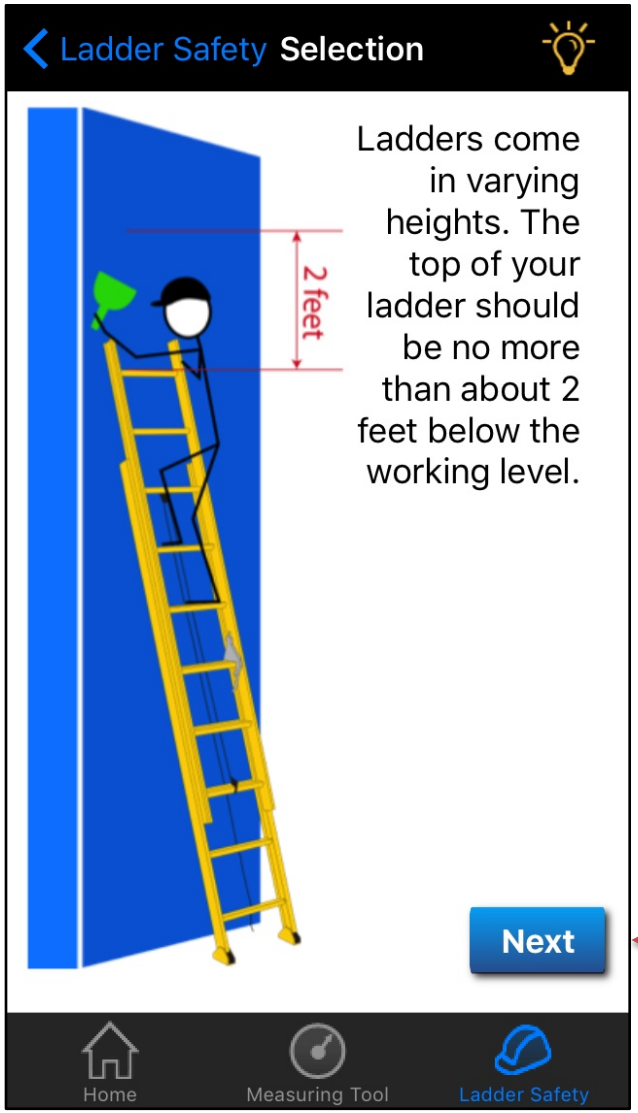
2: Extension Ladder-Selection Home Screen



This home screen helps the user learn that the top of the extension ladder should be no more than 2 feet below the working level.

Pressing the Next button will lead to duty rating screen.

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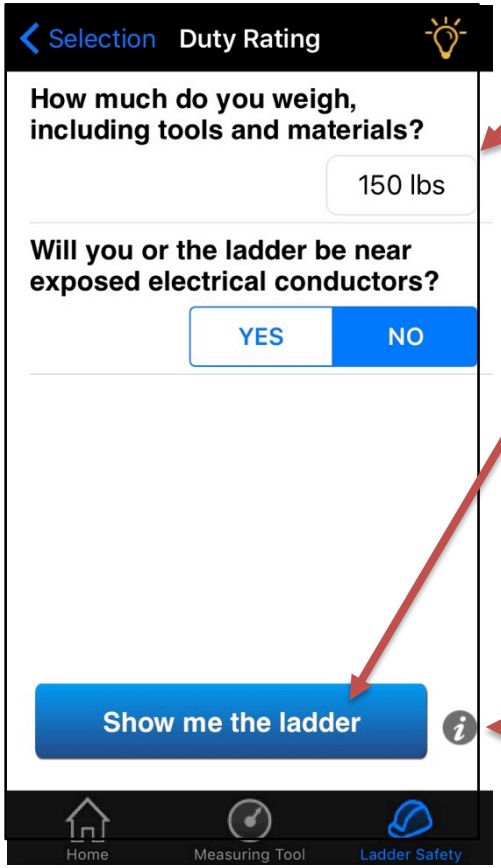
2: Extension Ladder-Selection Duty Rating



Questions

This button will open up a rolling graphics (like a slot machine) allowing the user to scroll through and select values for the weigh question

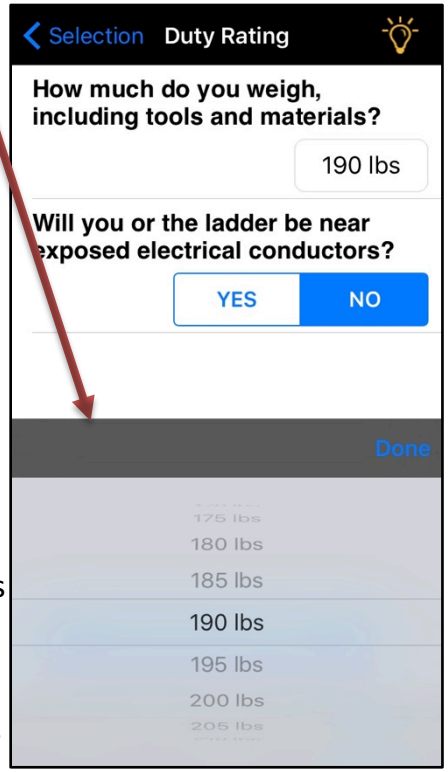
Response

Depending on the data entered, a ladder will be recommended when the user taps the **Show me the ladder** button.

- Light Duty Type III ≤ 200 lbs
- Medium Duty Type II ≤ 225 lbs
- Heavy Duty Industrial Type I ≤ 250 lbs
- Extra Heavy Duty Industrial Type IA ≤ 300 lbs
- Special Duty Rugged Professional Type IAA ≤ 375 lbs

Info

This button will open up a rolling window that shows the sample rating stickers.



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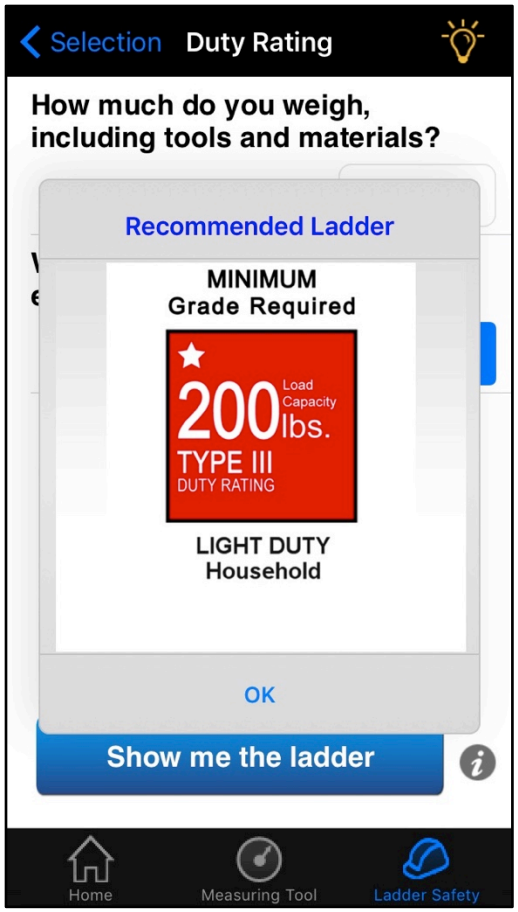
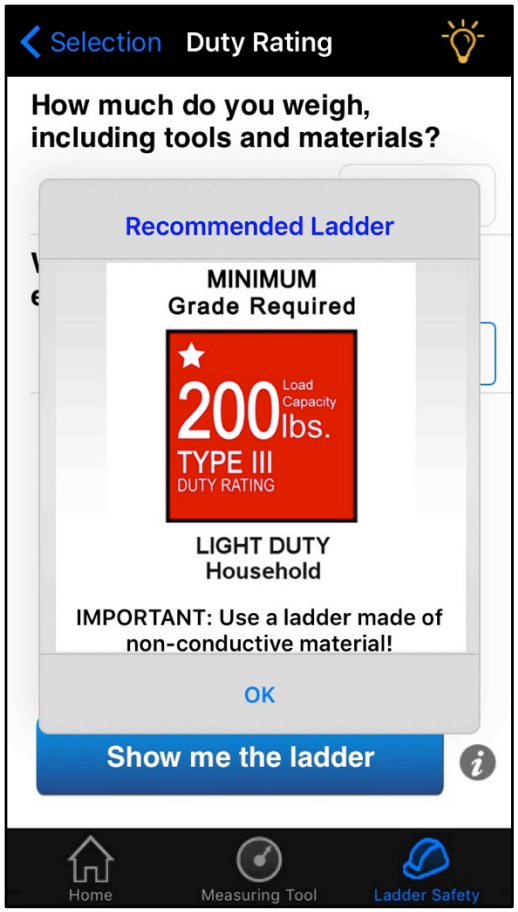
2: Extension Ladder-Selection

Show Me The Ladder





After tapping the **Show me the ladder** button, a pop up window with a written description of the ladder appears.

If an electrical hazard is present, the user will be advised to use a ladder made of non-conductive material.

The user may select new values and recalculate by tapping “Show me the ladder" again.

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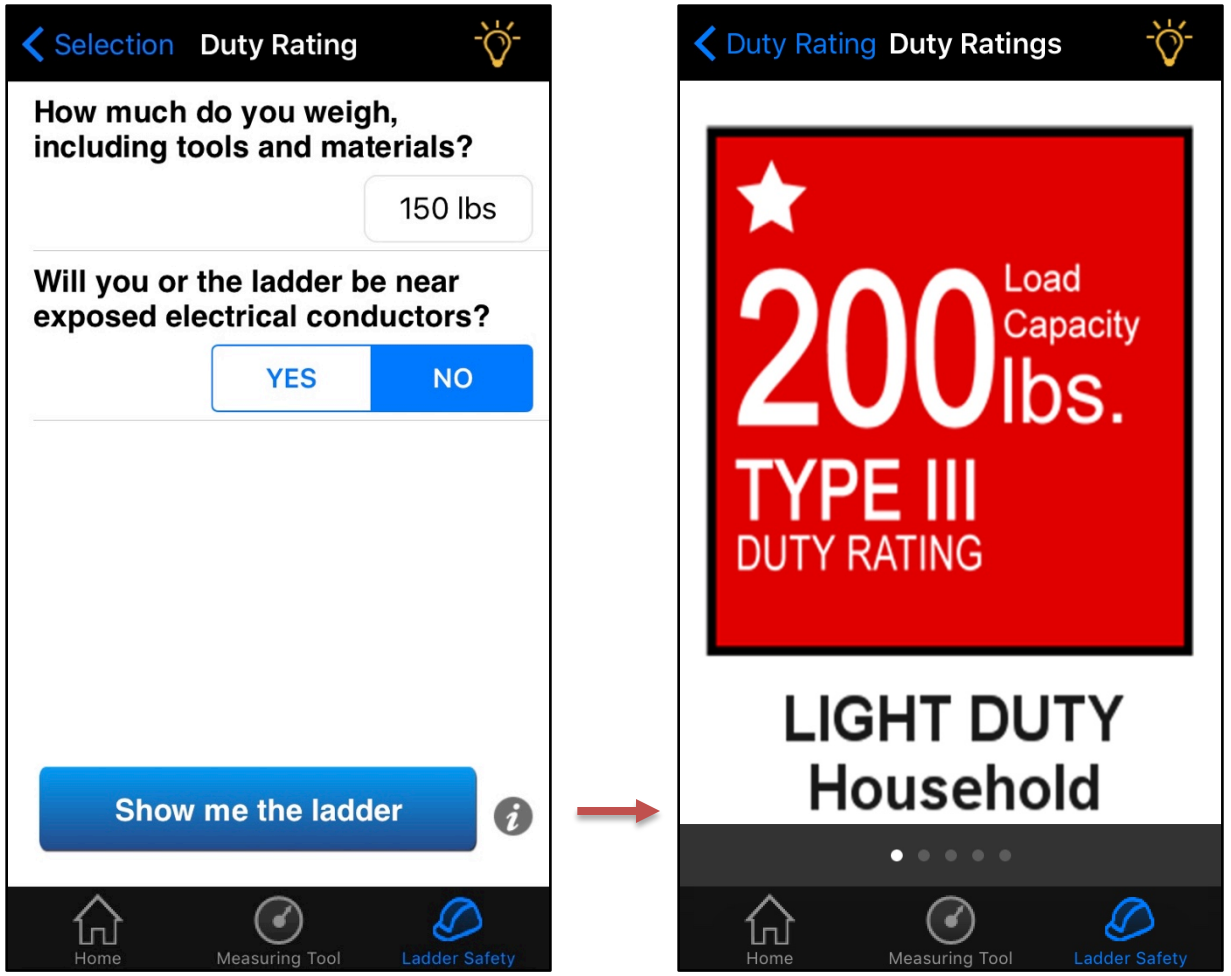
2: Extension Ladder-Selection

Sample Rating Stickers



The **Info** button opens a rolling window that shows sample rating stickers.

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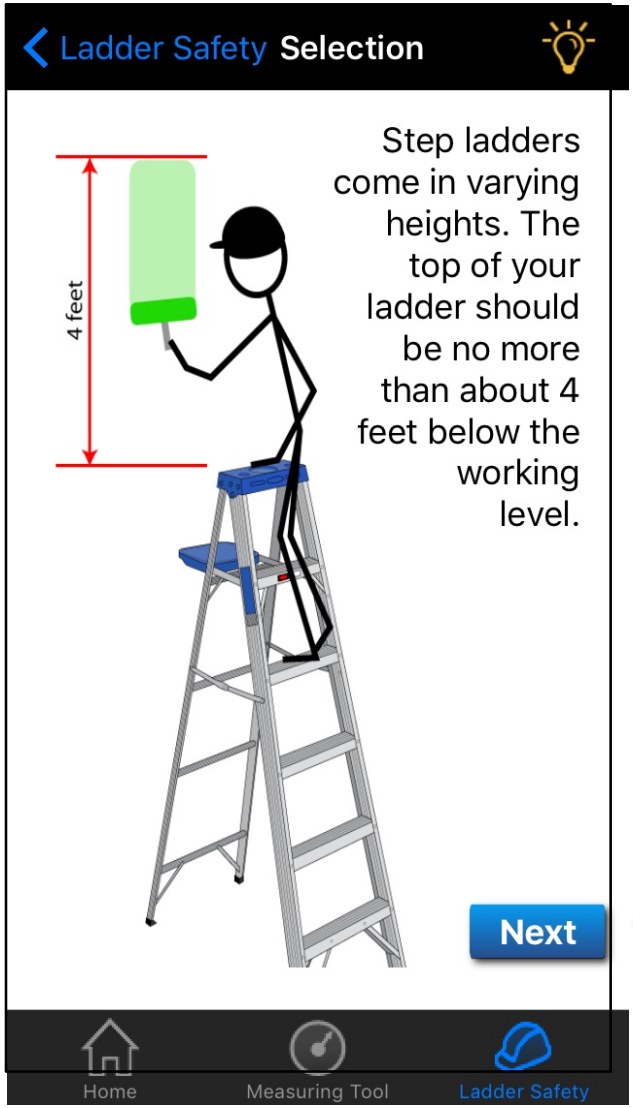
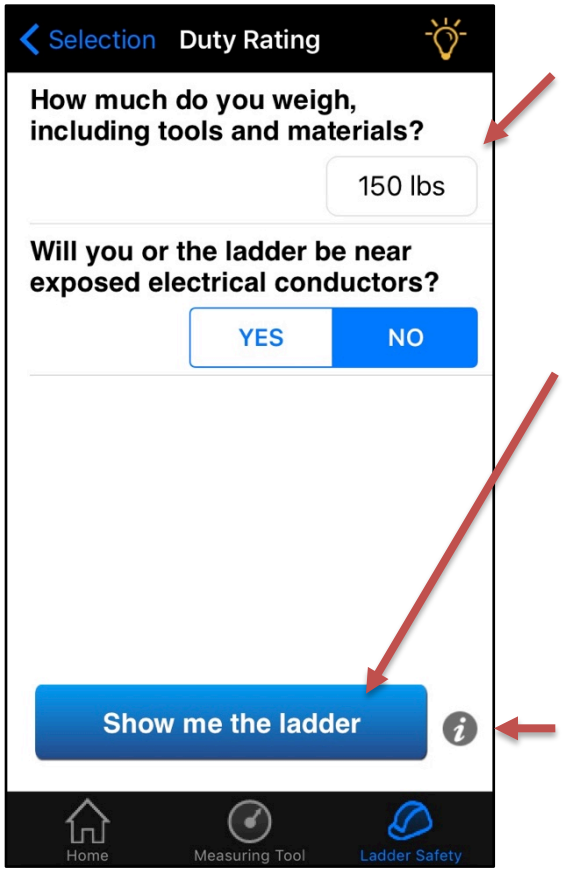
2: Step Ladder-Selection Home Screen



- This home screen helps the user learn that the top of the step ladder should be no more than 4 feet below the working level.

Pressing the Next button will lead to duty rating screen.

2: Step Ladder-Selection Duty Rating



Questions

This button will open up a rolling graphics (like a slot machine) allowing the user to scroll through and select values for the weigh question

Response

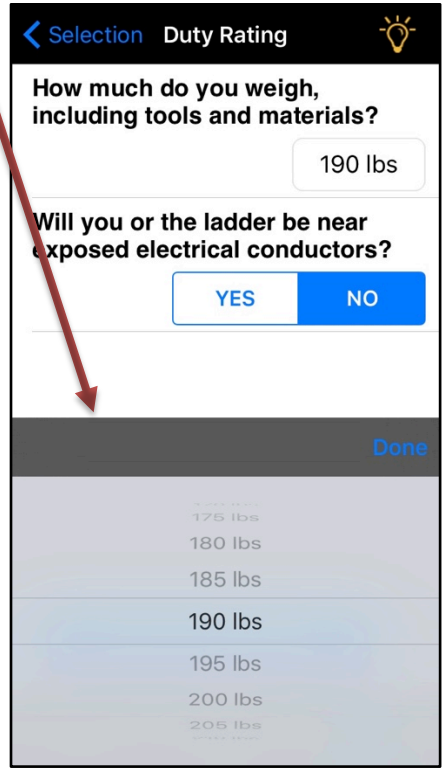
Depending on the data entered, a ladder will be recommended when the user taps the **Show me the ladder** button.

- Light Duty Type III ≤ 200 lbs
- Medium Duty Type II ≤ 225 lbs
- Heavy Duty Industrial Type I ≤ 250 lbs
- Extra Heavy Duty Industrial Type IA ≤ 300 lbs
- Special Duty Rugged Professional Type IAA ≤ 375 lbs

Info

This button will open up a rolling window that shows the sample rating stickers.

*This screen is identical to the Selection Duty Rating for extension ladders, as extension ladders and step ladders share the same duty ratings.



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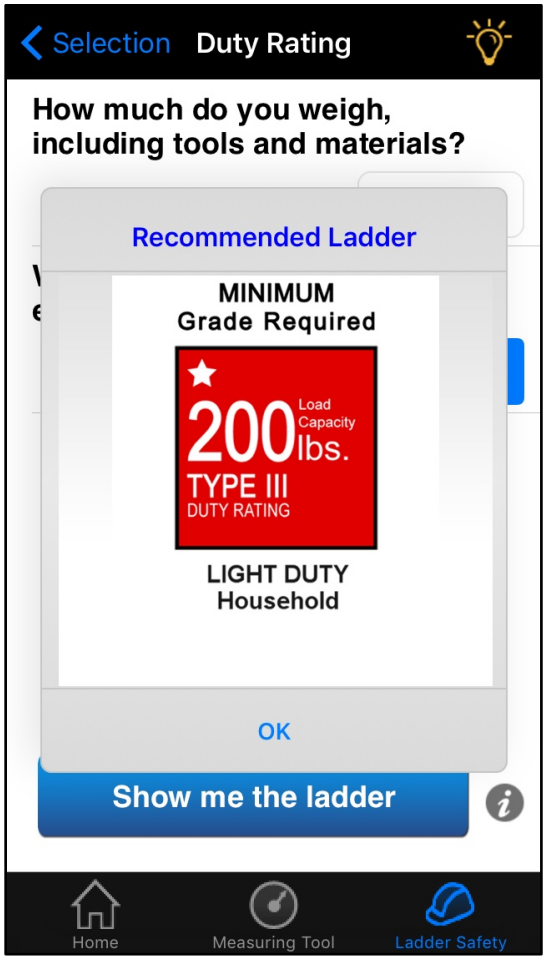
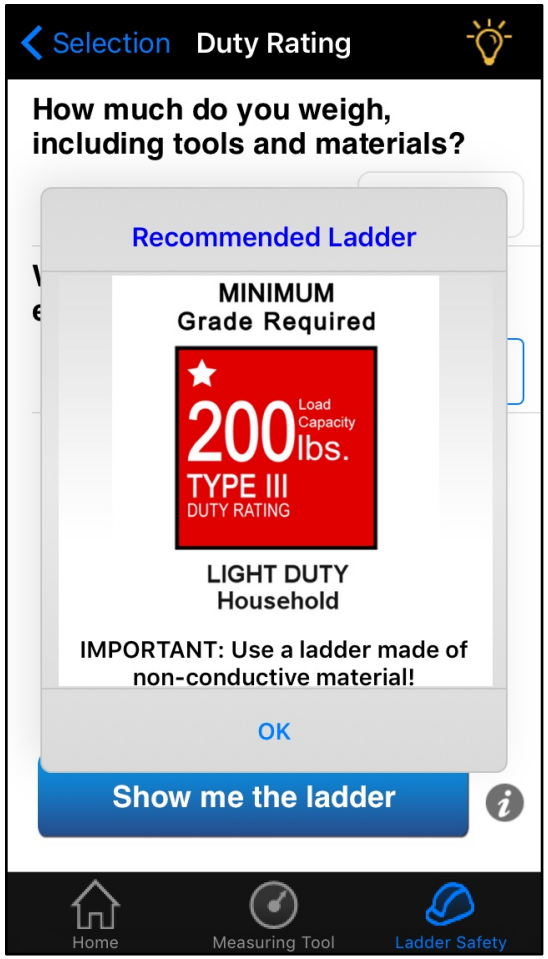
2: Step Ladder-Selection

Show Me The Ladder





After tapping the **Show me the ladder** button, a pop up window with a written description of the ladder appears.

If an electrical hazard is present, the user will be advised to use a ladder made of non-conductive material.

The user may select new values and recalculate by tapping “Show me the ladder" again.

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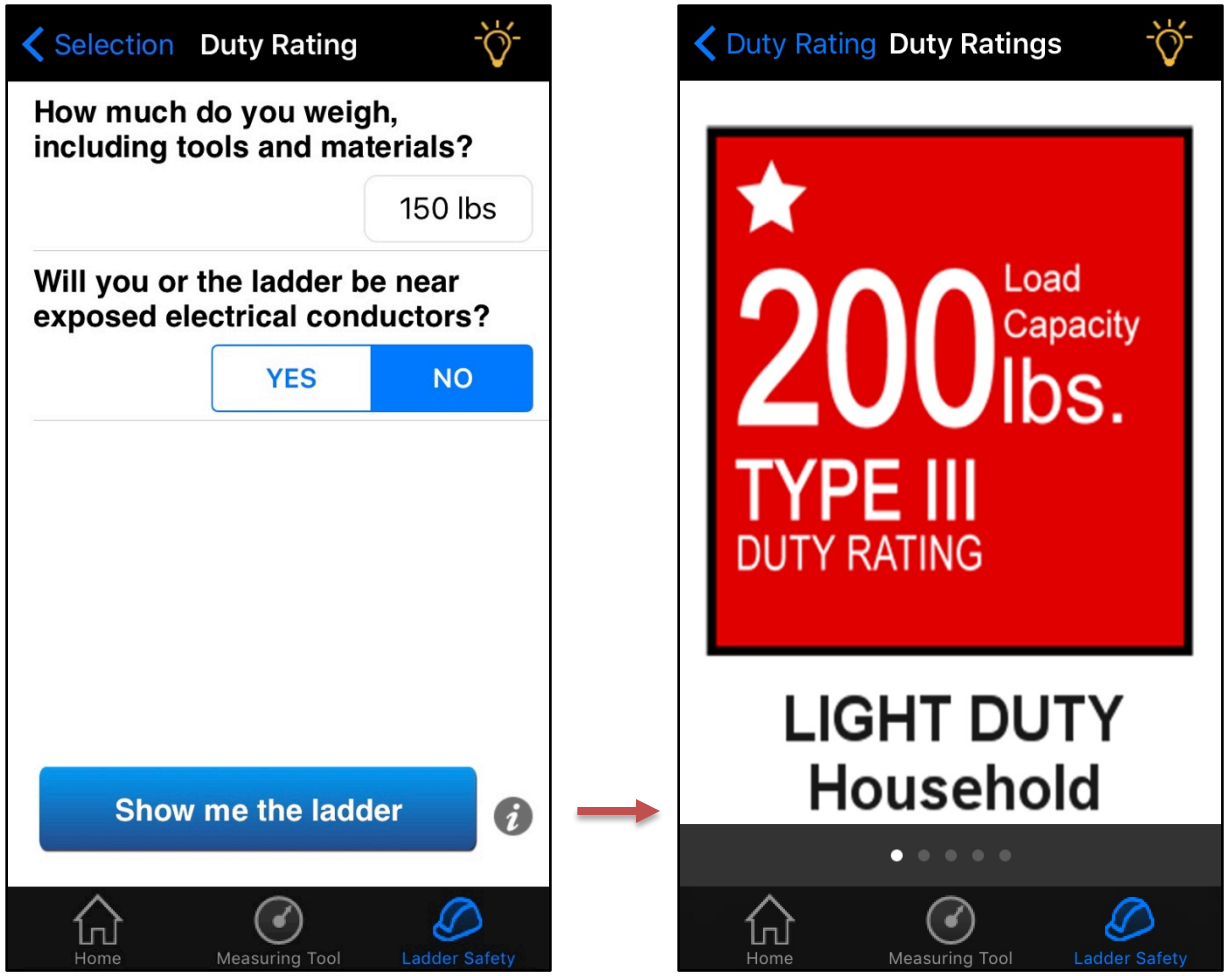
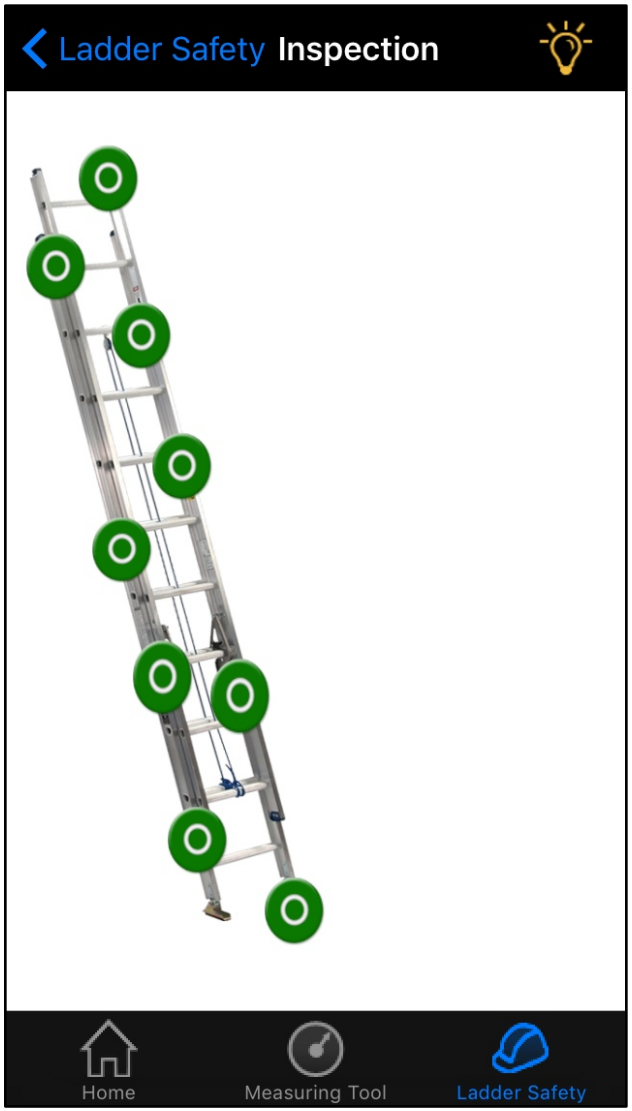
2: Step Ladder-Selection

Sample Rating Stickers



The **Info** button opens a rolling window that shows sample rating stickers.

3: Extension Ladder-Inspection



Buttons

As the user presses each button, an enlarged image and a brief description of the types of damage to look for appears.

- End caps: missing or damaged
- Rungs and step connections: bends, breaks, loose rungs, or missing rungs
- Rope and Pulley: frayed or tangled
- Labels: missing or not readable
- Hardware: loose
- Rung Locks: broken and operates smoothly
- Surfaces: oily, greasy, rusty, or corroded
- Rails: cracks, bends, splits, or corroded
- Feet: missing, worn, or damaged shoes, missing slip-resistant pads, and operates smoothly

After each button is viewed, the color of the button will change.

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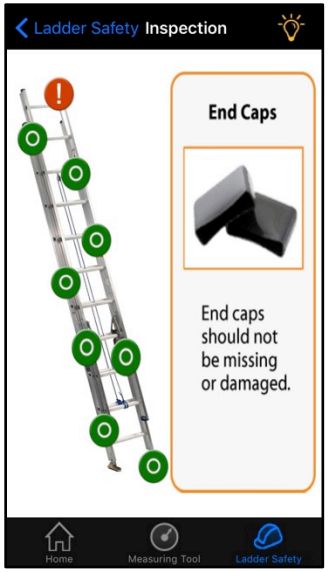
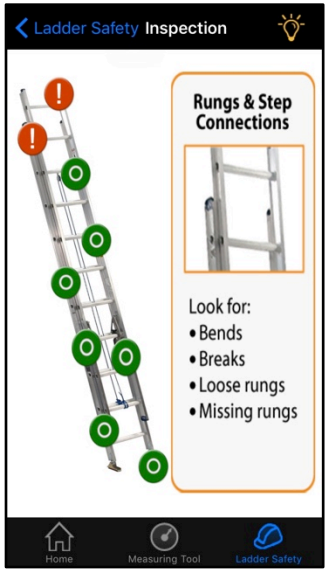
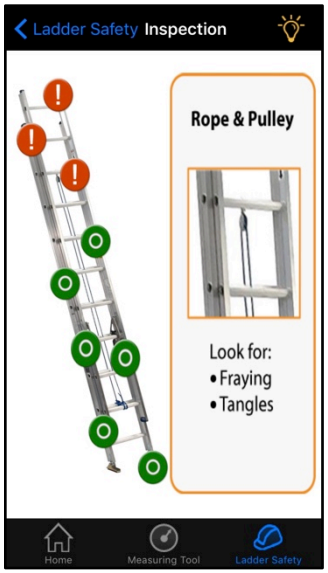
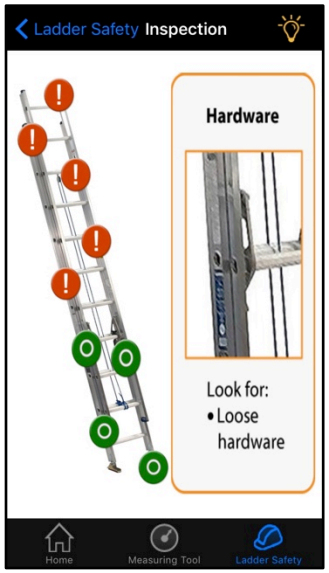
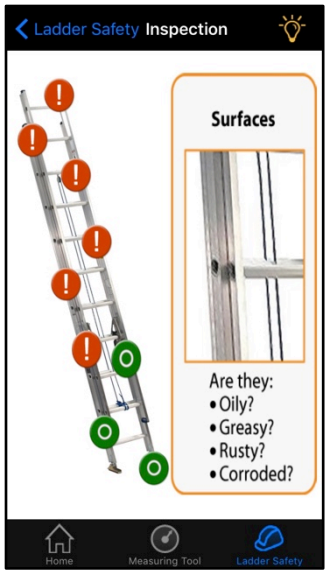
3: Extension Ladder-Inspection (cont'd)

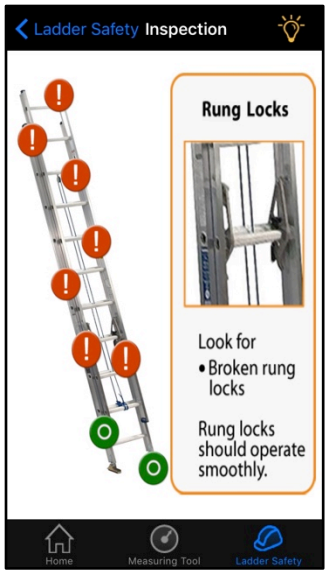












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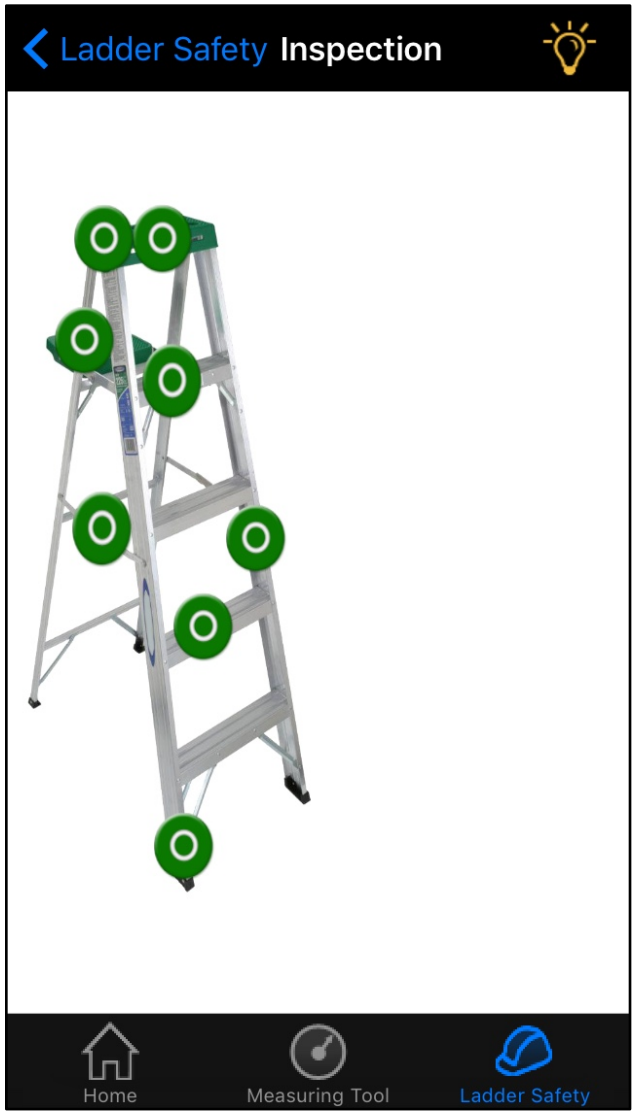
3: Step Ladder-Inspection



Buttons

As the user presses each button, an enlarged image and a brief description of the types of damage to look for appears.

- Surfaces: Are they oily, greasy, slippery, or corroded?
- Moveable Parts: Do they operate freely?
- Steps: Are they cracked, bent, loose, or missing?
- Rails: Are they broken, cracked, bent? Are rail shields split or damaged?
- Spreaders: Are they loose or bent? Also look for broken stops, loose hinges, sharp edges
- Labels: Are they missing? Not readable?
- Pail Shelf: Is it loose, bent, missing, or broken?
- Shoes: Are they damaged or worn?

After each button is viewed, the color of the button will change.

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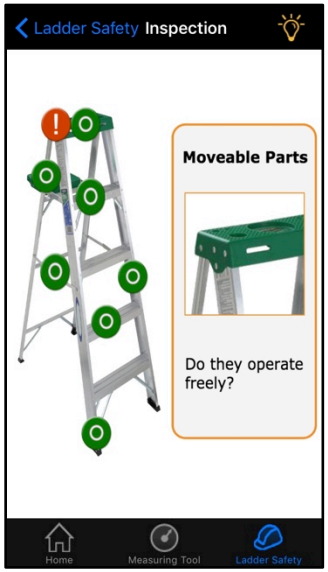
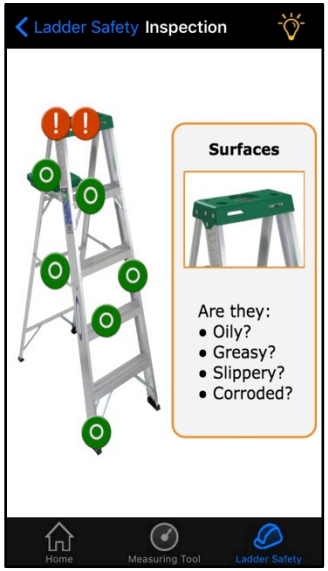
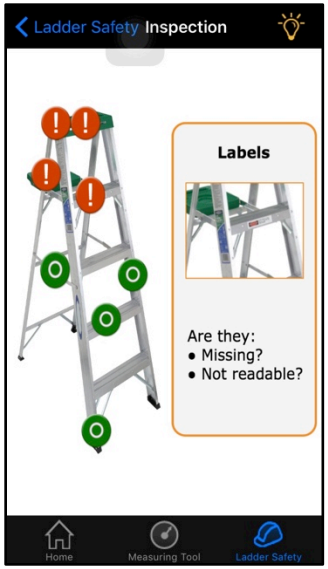
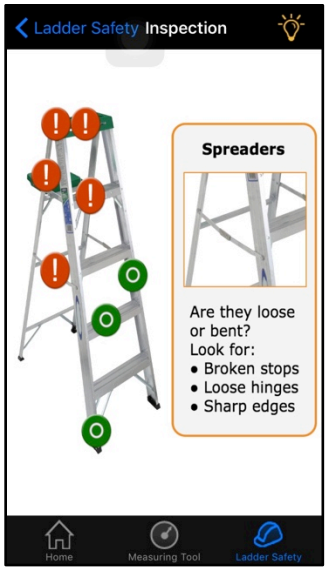
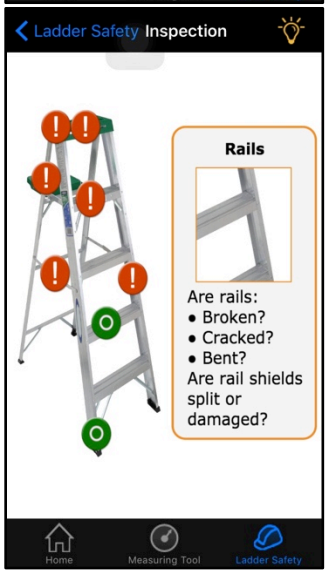
3: Step Ladder-Inspection (cont'd)

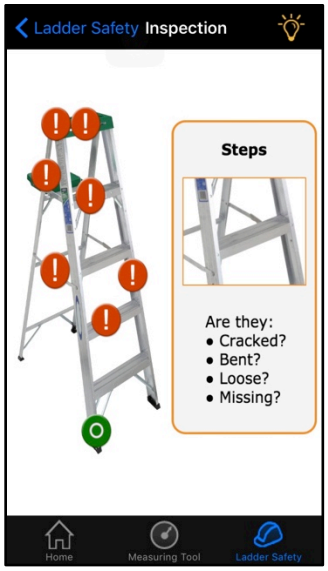


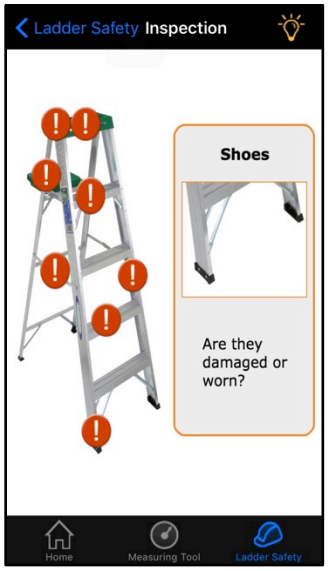












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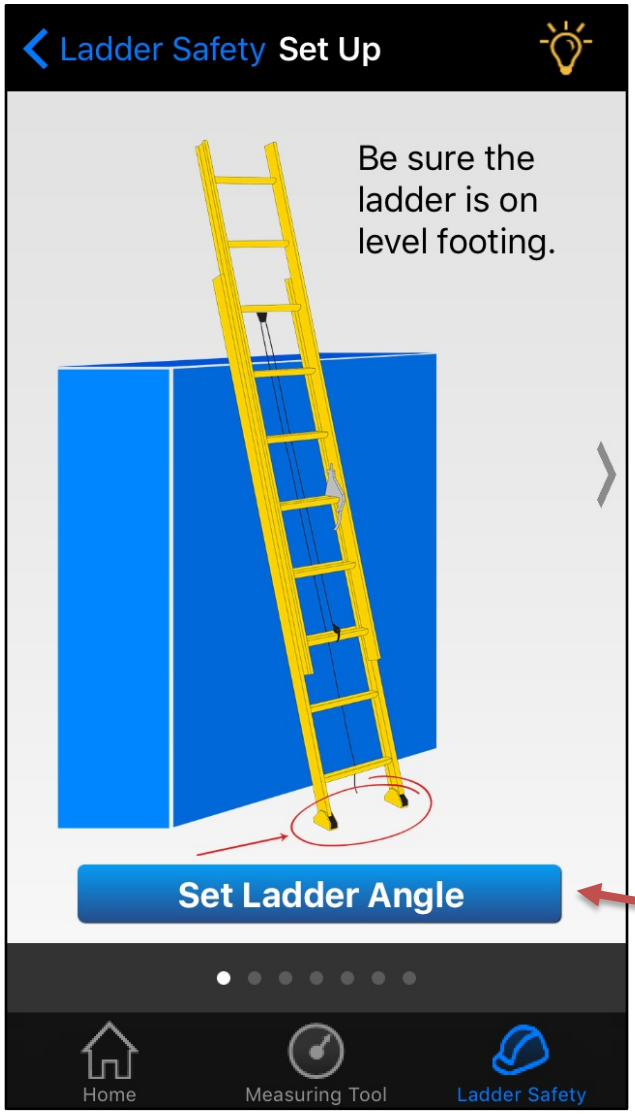
4: Extension Ladder-Set up



To view all of the images, swipe the page.

- Be sure the ladder is on level footing
- Be sure both upper contact points rest firmly against the structure
- Be sure the ladder extends 3 feet above the structure if climbing to an upper level
- Visually check that both rung locking mechanism are fully engaged
- On slippery or non-level surfaces the ladder base should be restrained

To find out how to setup the ladder properly, tap the **Set Ladder Angle** button.

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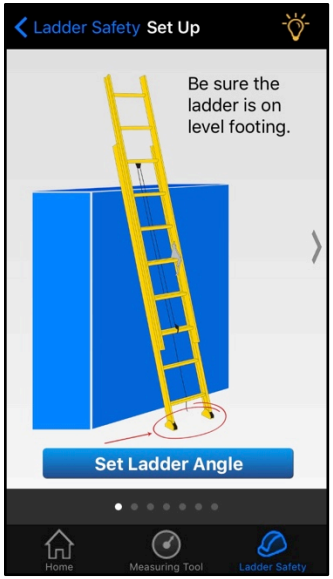
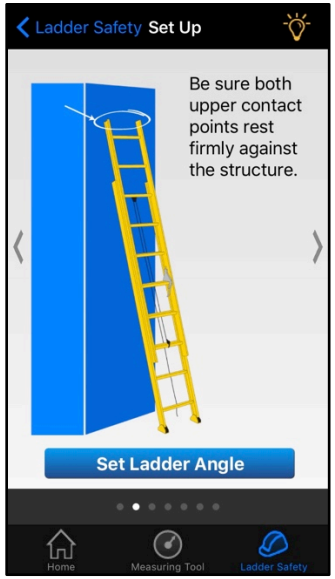
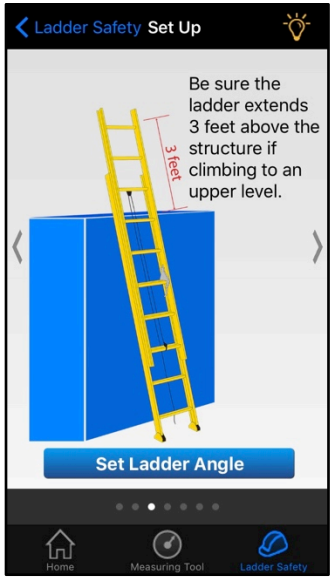
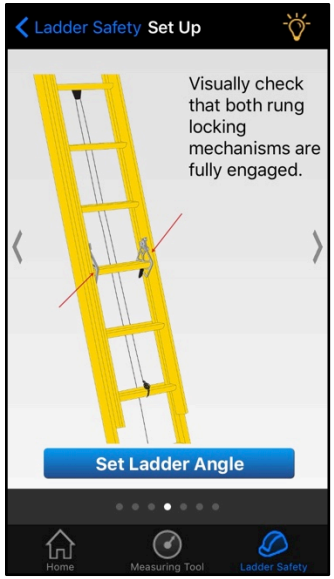
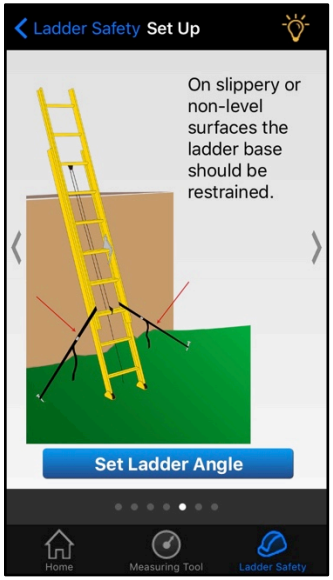
4: Extension Ladder-Set Up (cont'd)

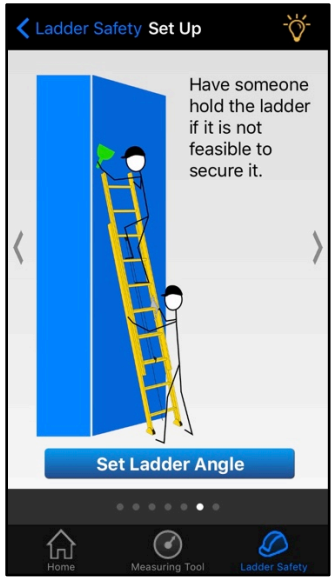


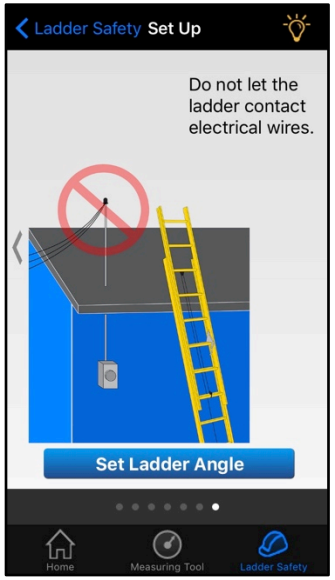












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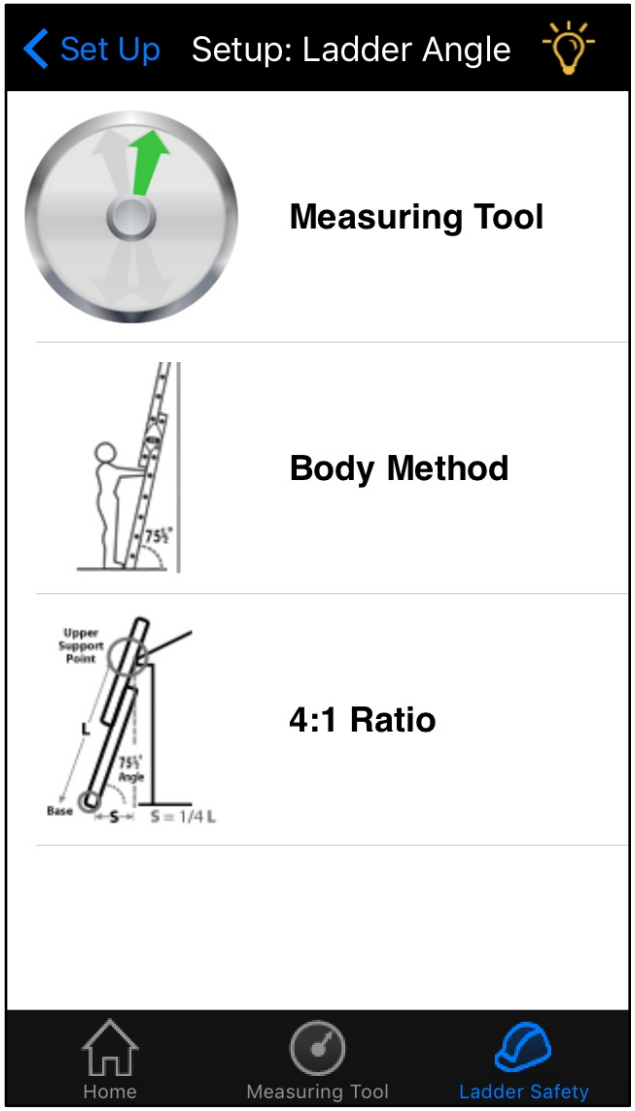
4: Extension Ladder-Set Up (cont'd)



This screen provides three methods for proper ladder setup. To find out more, tap the following buttons:

- Measuring Tool
- Body Method
- 4:1 ratio

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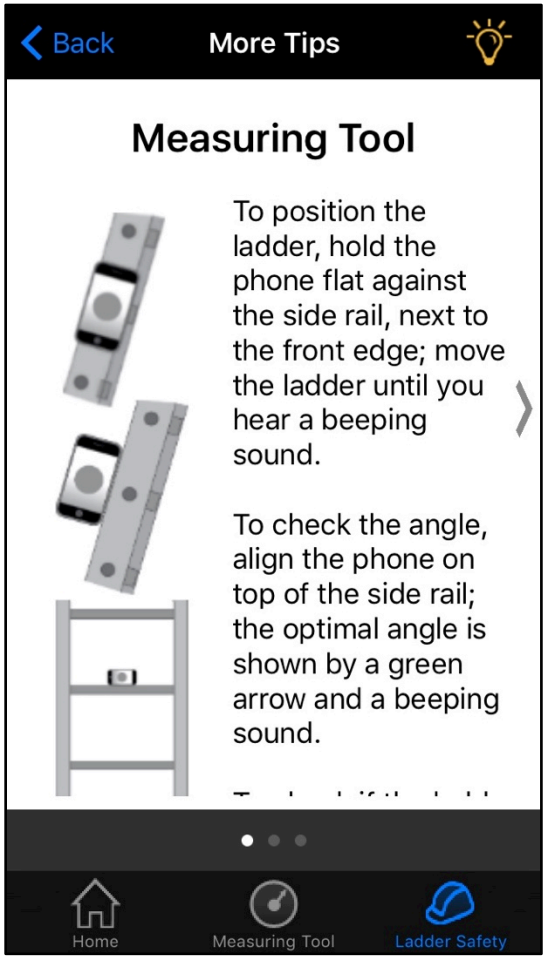
4: Extension Ladder-Set Up (cont'd)



Measuring Tool

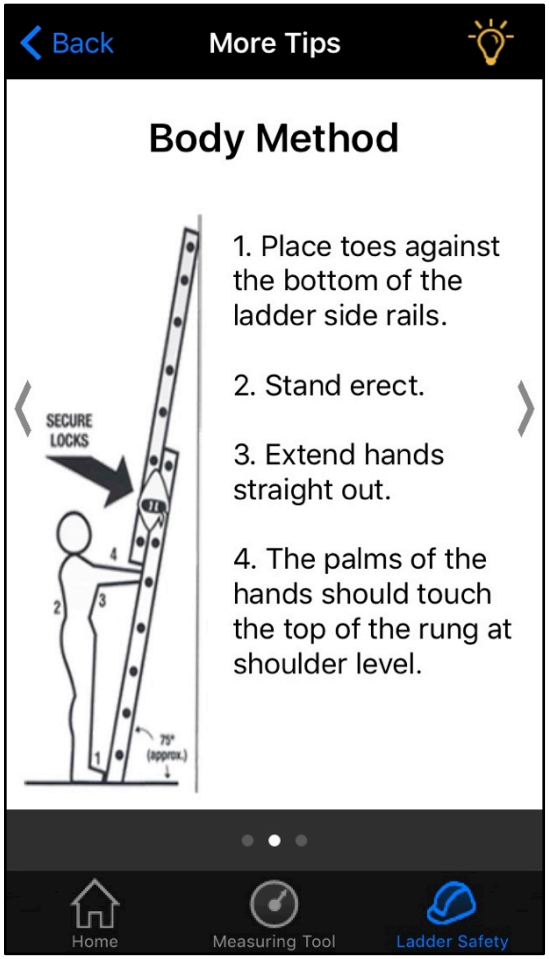
After touching the Measuring Tool icon, a large image appears with the instructions displayed on the right.

Instructions:

To position the ladder: hold the phone flat against the side rail, next to the front edge; move the ladder until you hear a beeping sound.

To check the angle: align the phone on top of the side rail; the optimal angle is shown by a green arrow and a beeping sound.

To check if the ladder is level sideways, align the phone on a rung/step – level is indicated by a green arrow.



Body Method

After touching the Body Method icon, a large image appears with the instructions displayed on the right.

Instructions:

1. Place toes against the bottom of the ladder side rails.

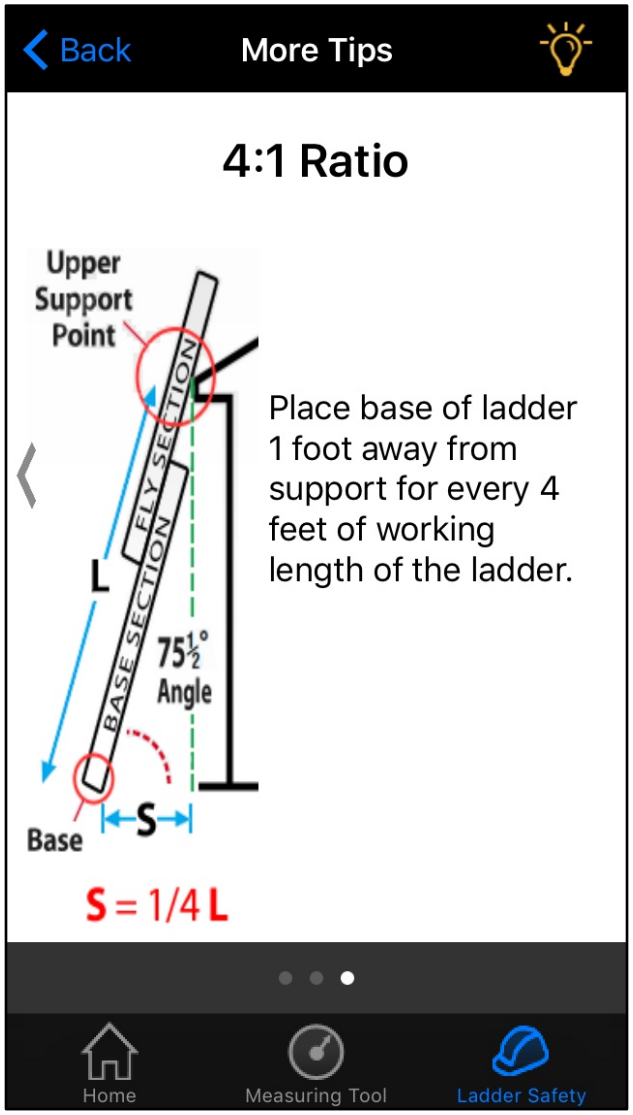
2. Stand erect.

3. Extend hands straight out.

4. The palms of the hands should touch the top of the rung at shoulder level.

The user can also swipe through each method.

4: Extension Ladder-Set Up (cont'd)



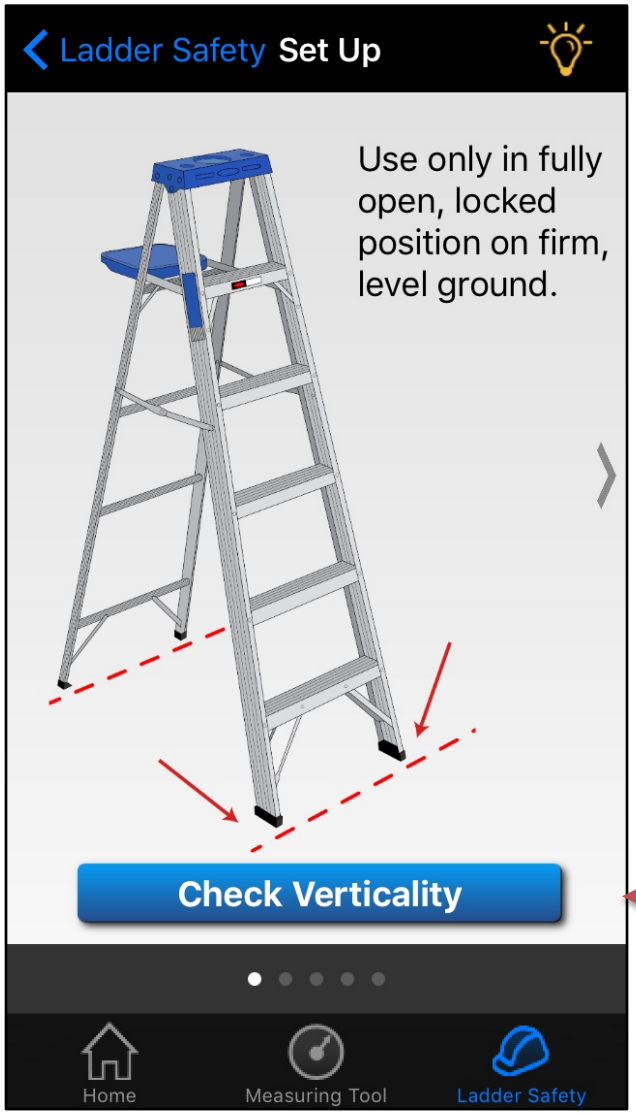
4:1 Ratio

After touching the 4:1 Ratio icon, a large image appears with the instructions displayed on the right.

Instructions: *Place base of ladder 1 foot away from support for every 4 feet of working length of the ladder.*

The user can swipe through each method.

4: Step Ladder-Set Up

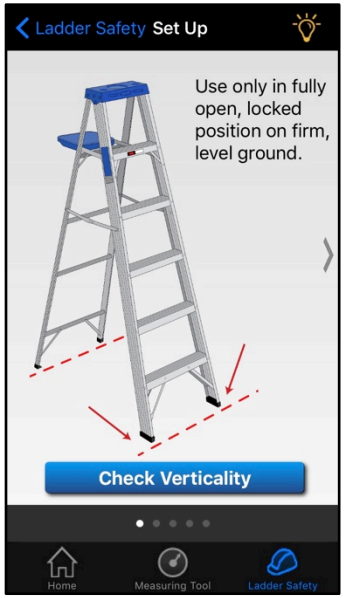


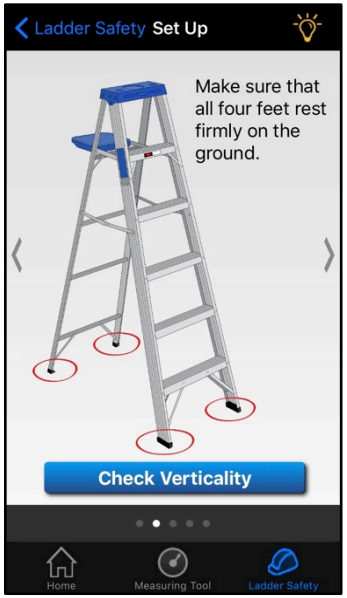
To view all of the images, swipe the page.

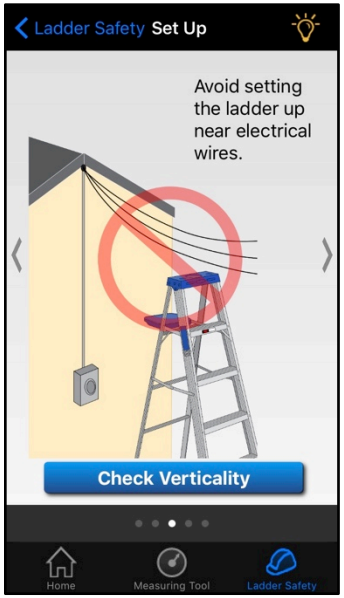
- Use only in fully open, locked position on firm, level ground.
- Make sure that all four feet rest firmly on the ground.
- Avoid setting the ladder up near electrical wires.
- When possible, position the ladder so you can face both the ladder and the task.
- Never set a ladder on a scaffold or other object—only on the ground or floor.

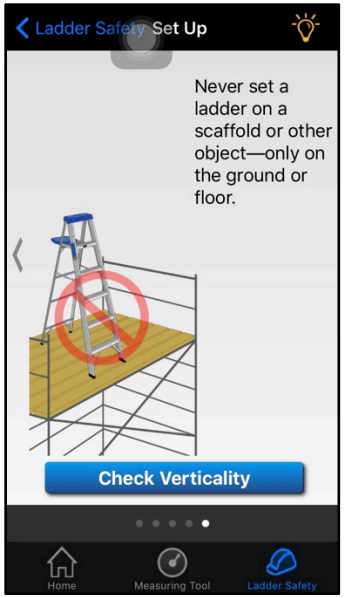
To find out how to check the verticality, tap the **Check Verticality** button.

4: Step Ladder-Set Up (cont'd)









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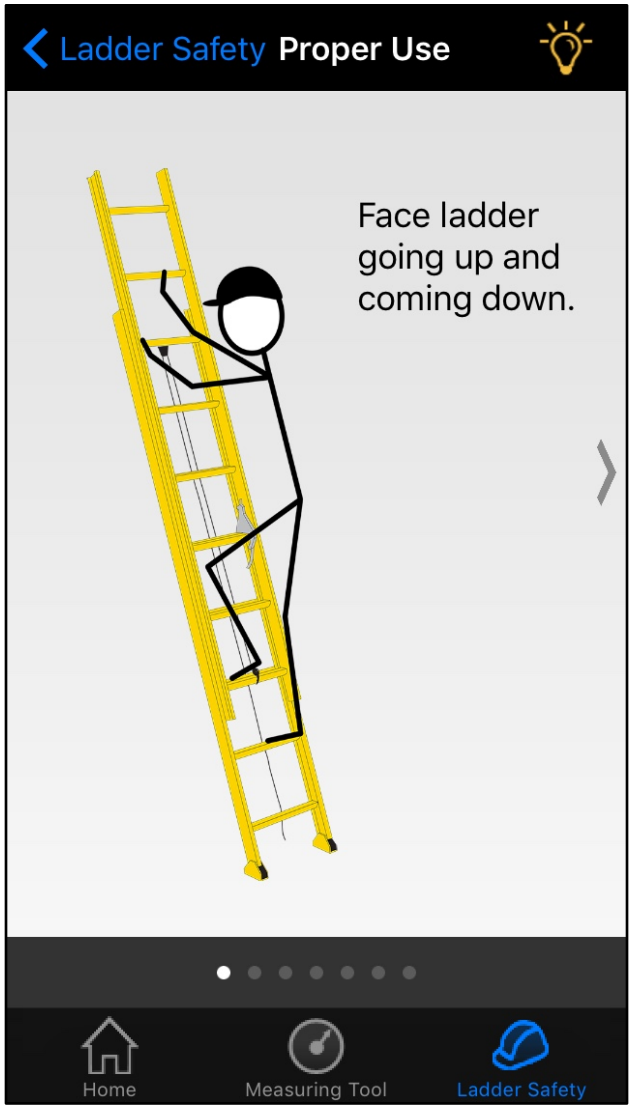
4: Step Ladder-Set Up (cont'd)

This screen shows the proper way to measure the ladder if it is level.

5: Extension Ladder-Proper Use



To view all of the images, swipe the page.

- Face ladder going up and coming down
- Keep centered between rails and avoid leaning, stretching, or making moves that could throw you off balance
- Grasp the ladder firmly. Maintain 3-point contact when practical
- Do not carry excessive loads – it may increase your risk of falling
- One person at a time
- Do not stand on the top 3 rungs
- When accessing elevated surfaces, the ladder should extend approximately 3 ft. above the upper support point and the top of the ladder should be secured from movement

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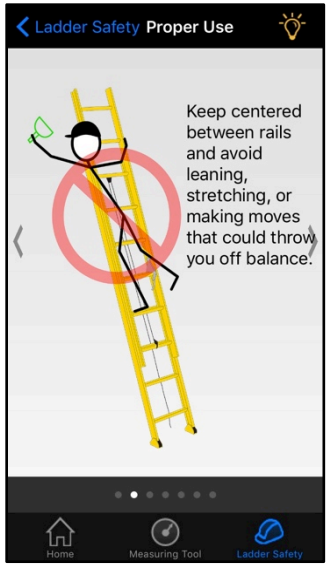
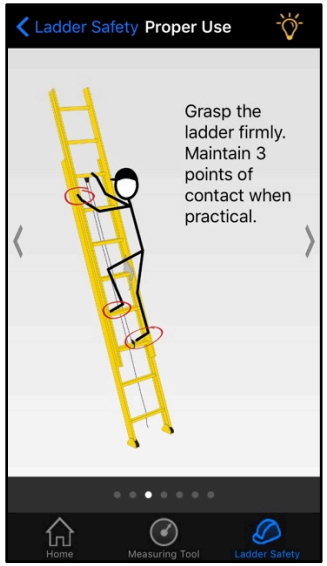
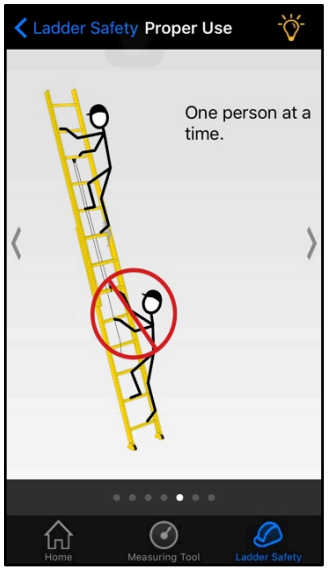
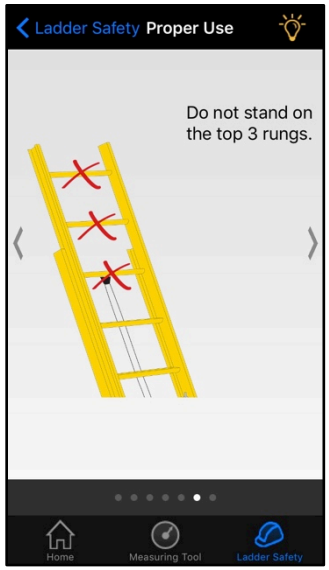
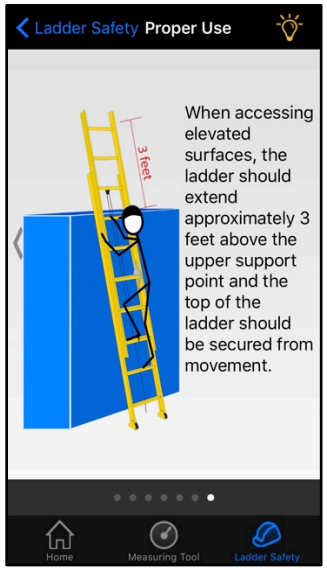
5: Extension Ladder-Proper Use (cont'd)











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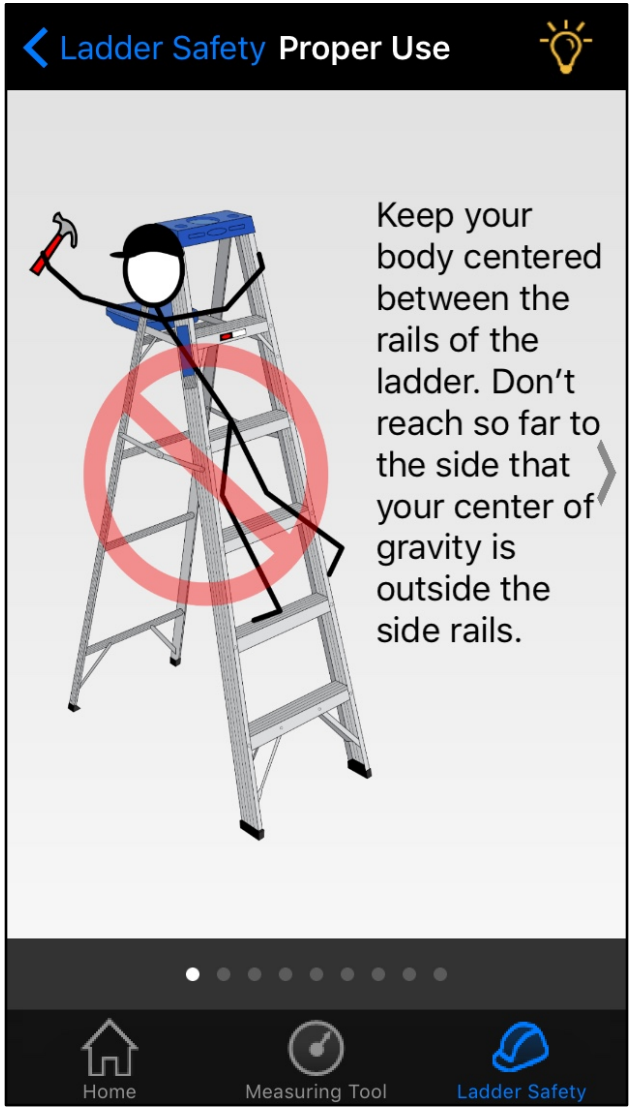
5: Step Ladder-Proper Use



To view all of the images, swipe the page.

- Keep your body centered between the rails of the ladder. Don't reach so far to the side that your center of gravity is outside the side rails.
- Stand no higher than the second step from the top.
- Move the ladder only when no one is on it. Don't try to move it while you are on it.
- One person at a time on the ladder—unless it is designed with steps on both sides.
- Face the ladder and maintain three points of contact when climbing.
- Do not carry tools or materials up or down the ladder. Use a tool belt or have them handed up to you.
- Do not climb the rear section of the ladder unless it is designed with steps.
- Grip and lean into the ladder to maintain balance.
- NEVER climb a stepladder in the closed position or leaning against something.

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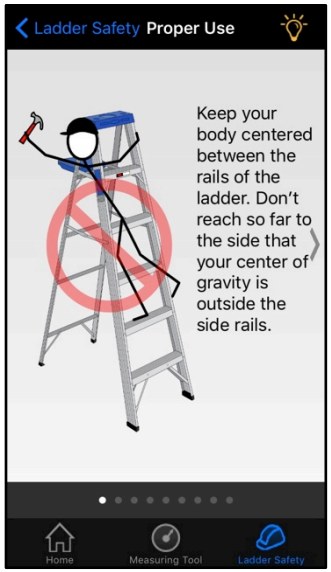
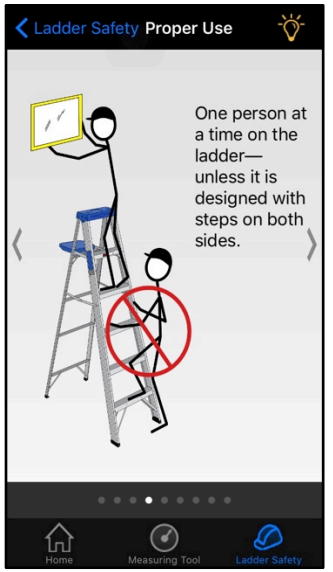
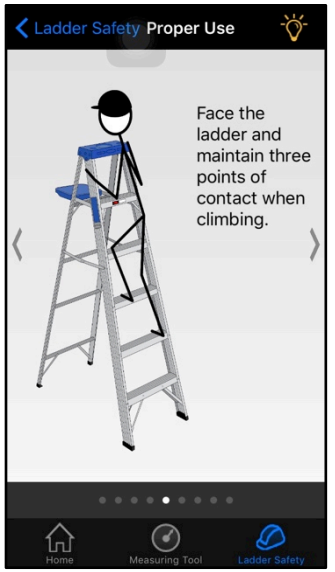
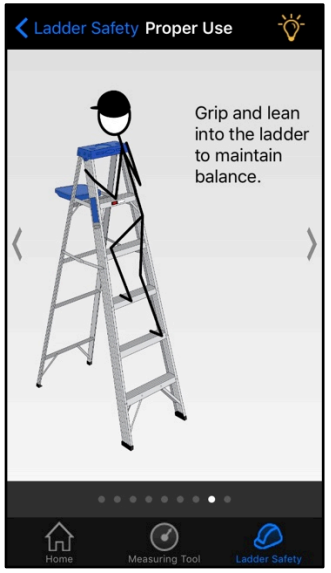
5: Step Ladder-Proper Use (cont'd)









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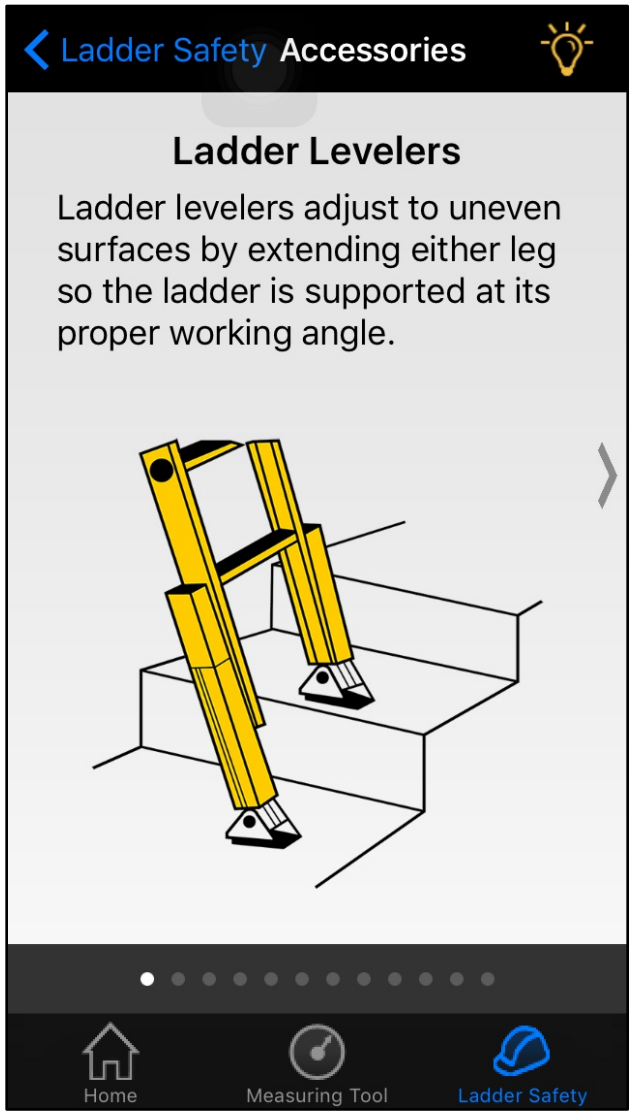
6: Extension Ladder-Accessories



To view the following images and descriptions, swipe the page.

- Ladder levelers
- Ladder feet, spurs, and spur plates
- Stabilizer straps
- Side rail end covers
- Stabilizers and standoffs
- Gutter protectors
- Corner standoffs
- V-rungs
- Pole chain/strap and pole lashes
- Cable (strand) hooks

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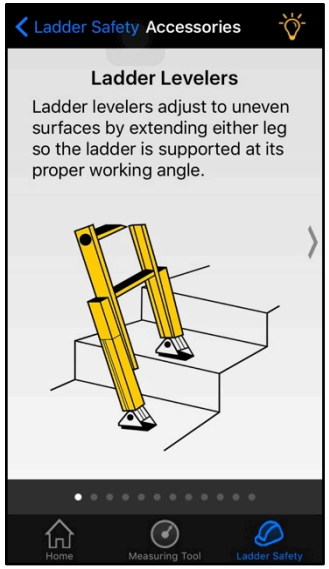
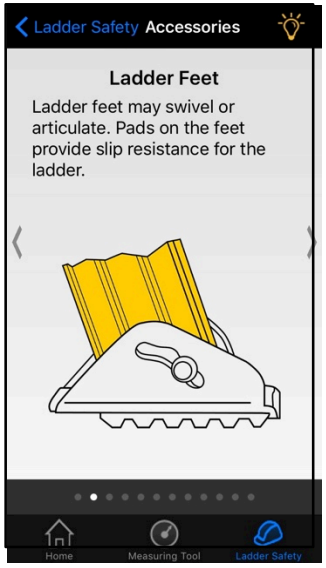
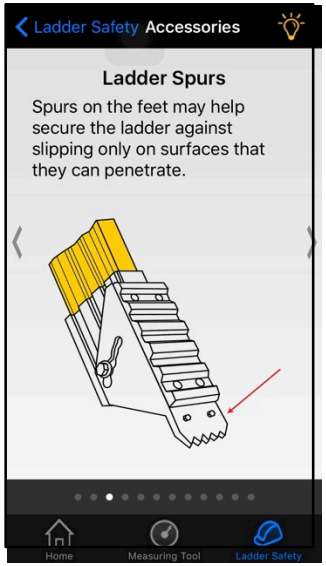
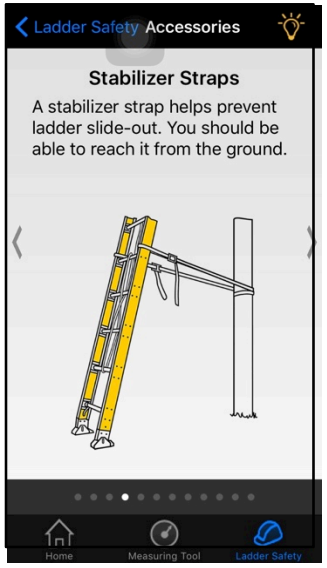
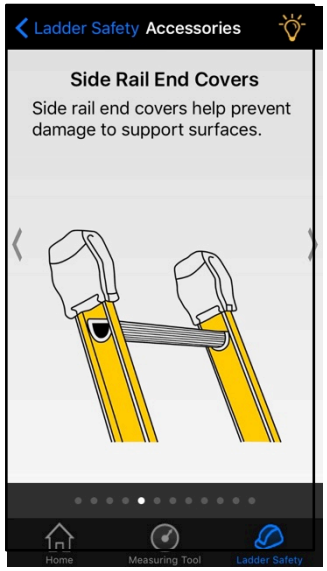
6: Extension Ladder-Accessories (cont'd)

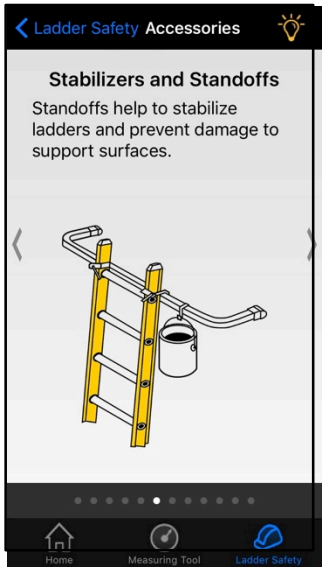


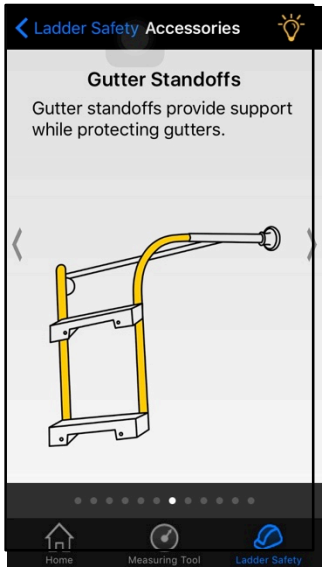


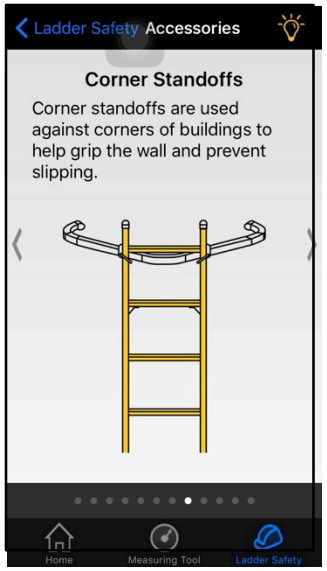












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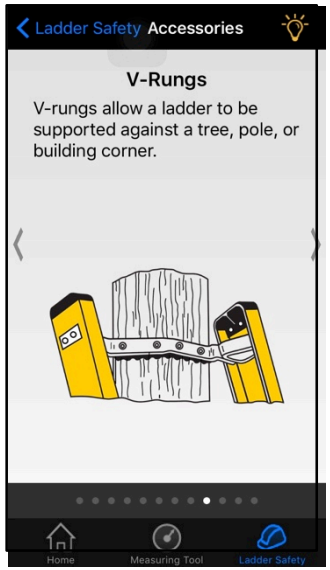
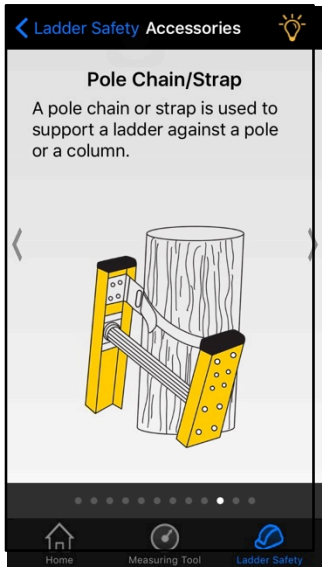
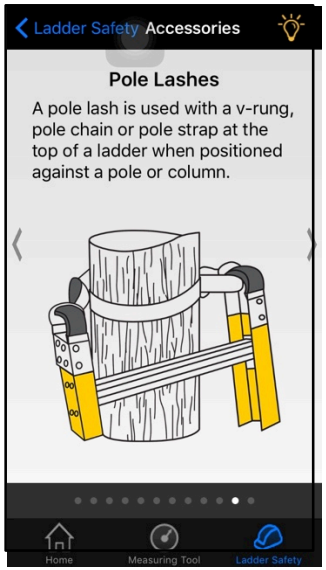
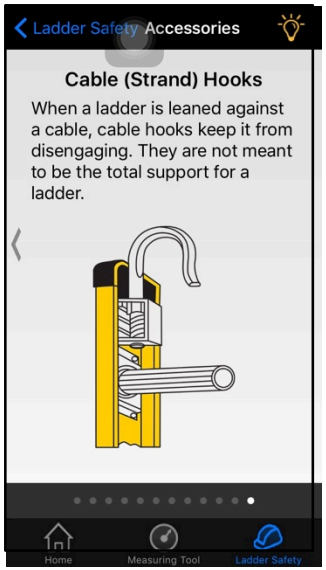
6: Extension Ladder-Accessories (cont'd)









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6: Step Ladder-Accessories

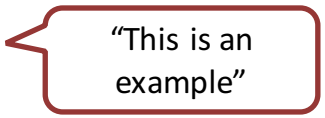
Since there are no safety related accessories for step ladders, the user is notified that there are no safety accessories on this tab.

Accessibility Features

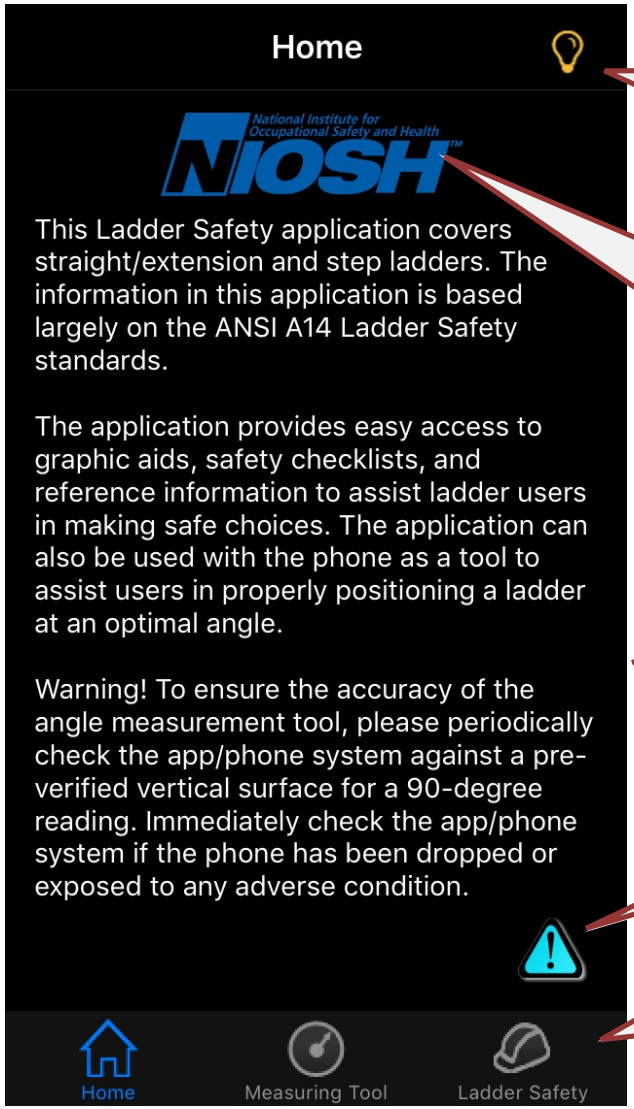
The Ladder Safety app features a high-contrast mode and is compatible with the accessibility features built into iOS devices.

Please refer to your device manual for instructions to enable the Accessibility Services.

** The speech bubbles, similar to the one below, will denote the VoiceOver responses.*



Home Screen: Ladder Application



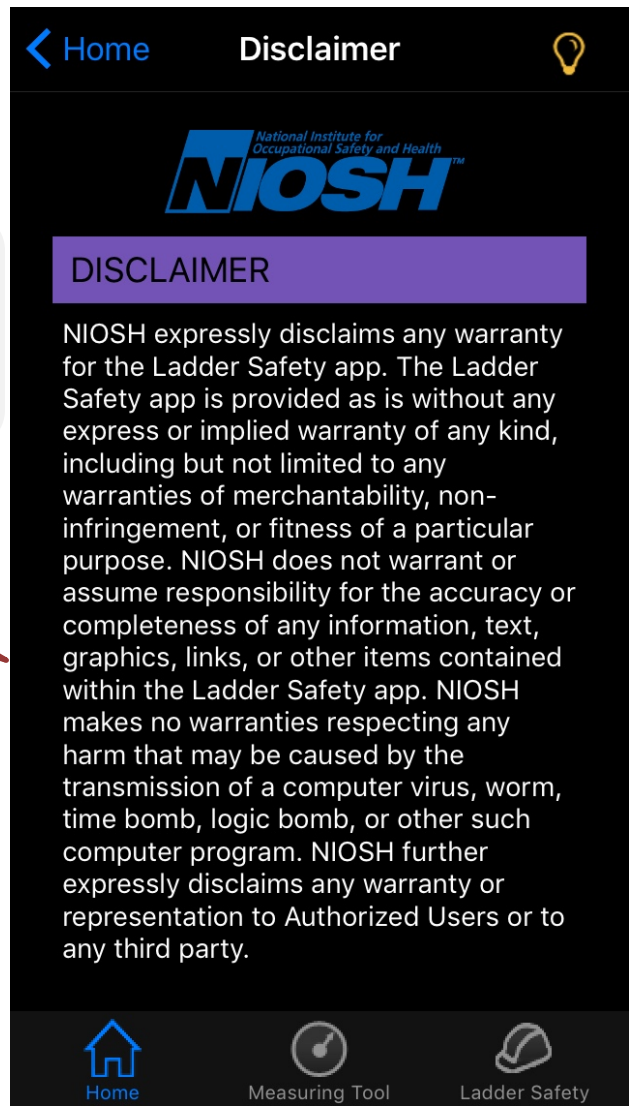
"High contrast"

"NIOSH, National Institute for Occupational Safety and Health"

The text displayed on the screen

"Disclaimer"

The labels for the associated button



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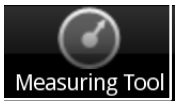
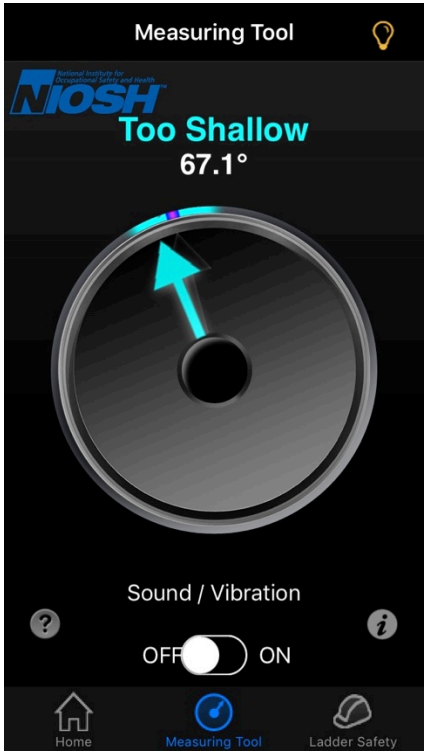
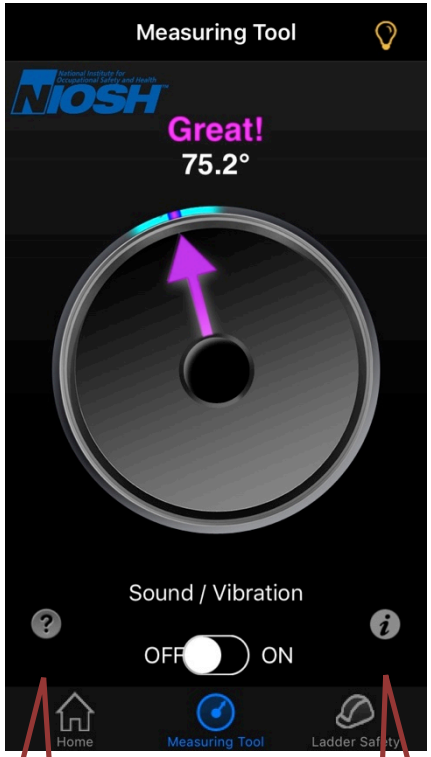


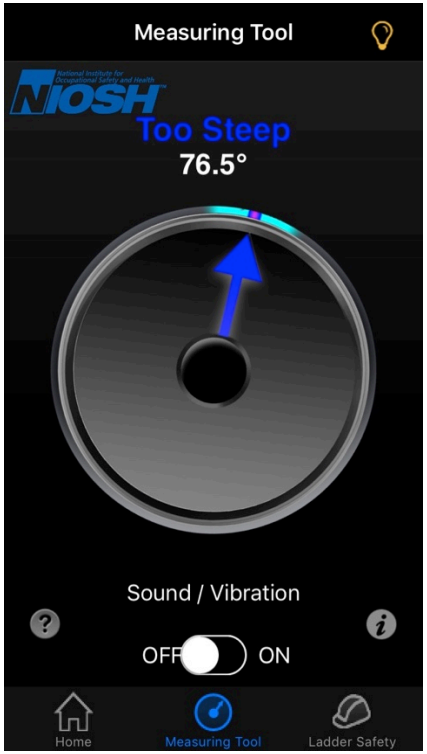
Measuring Tool

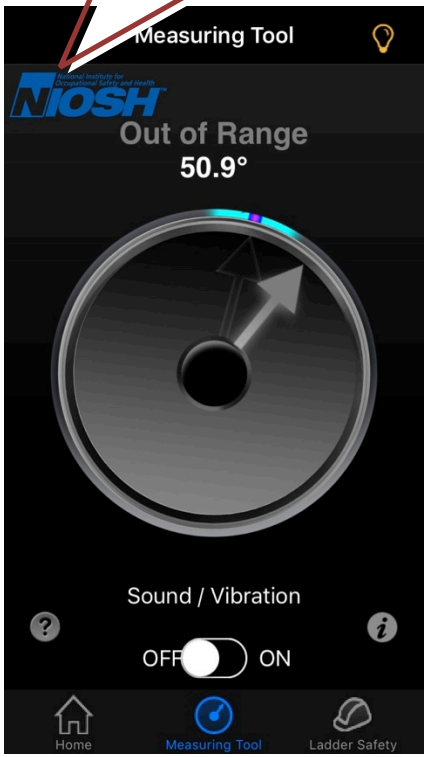
All text displayed will read aloud the associated text.

"NIOSH, National Institute for Occupational Health and Safety









"Help"

"Home"

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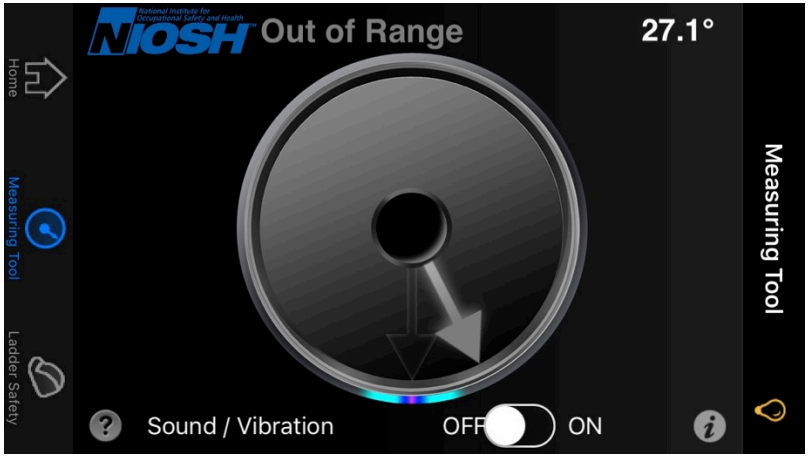
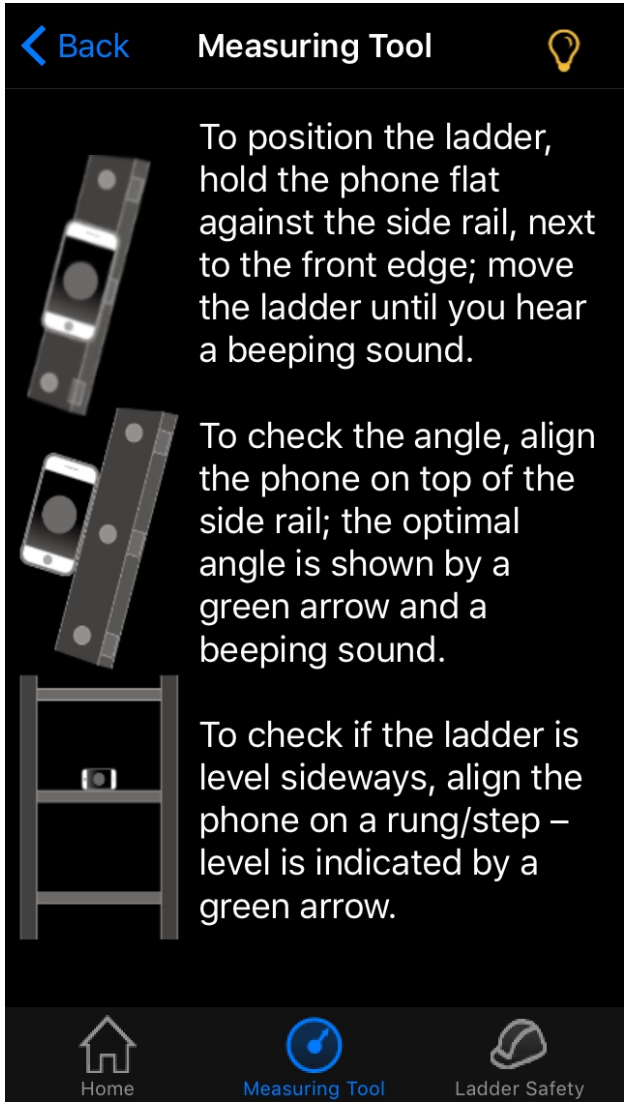
Measuring Tool: Verticality



Measuring Tool

Help



The text display as displayed.

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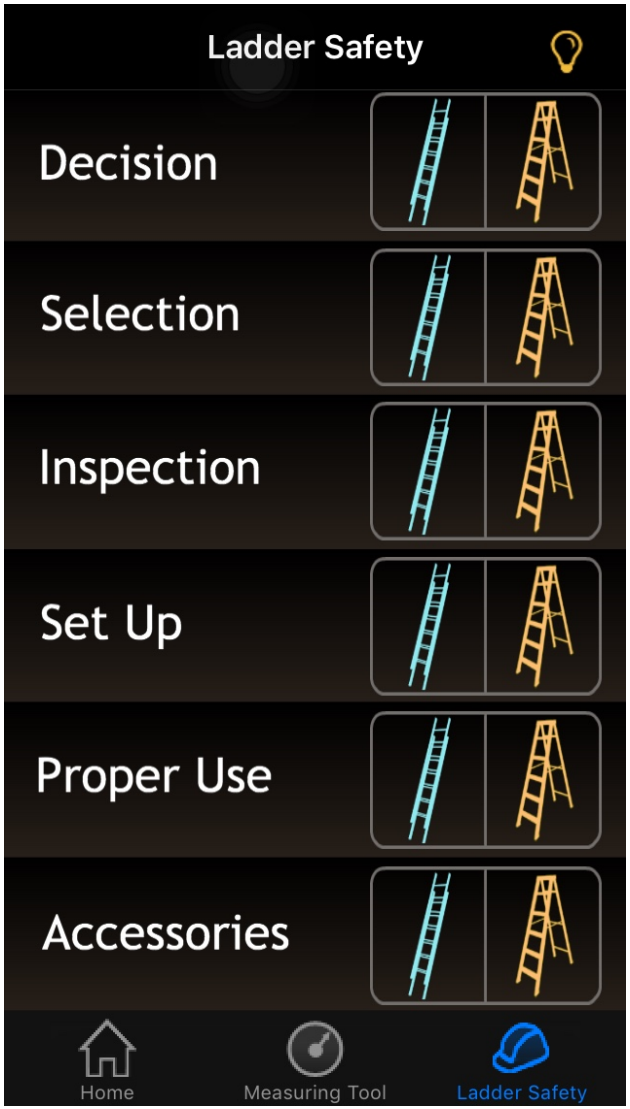
Ladder Safety



"Extension/Step Ladder Decision"

"Extension/Step Ladder Selection"

"Extension/Step Ladder Inspection"

"Extension/Step Ladder Set Up"

"Extension/Step Ladder Proper Use"

"Extension/Step Ladder Accessories"

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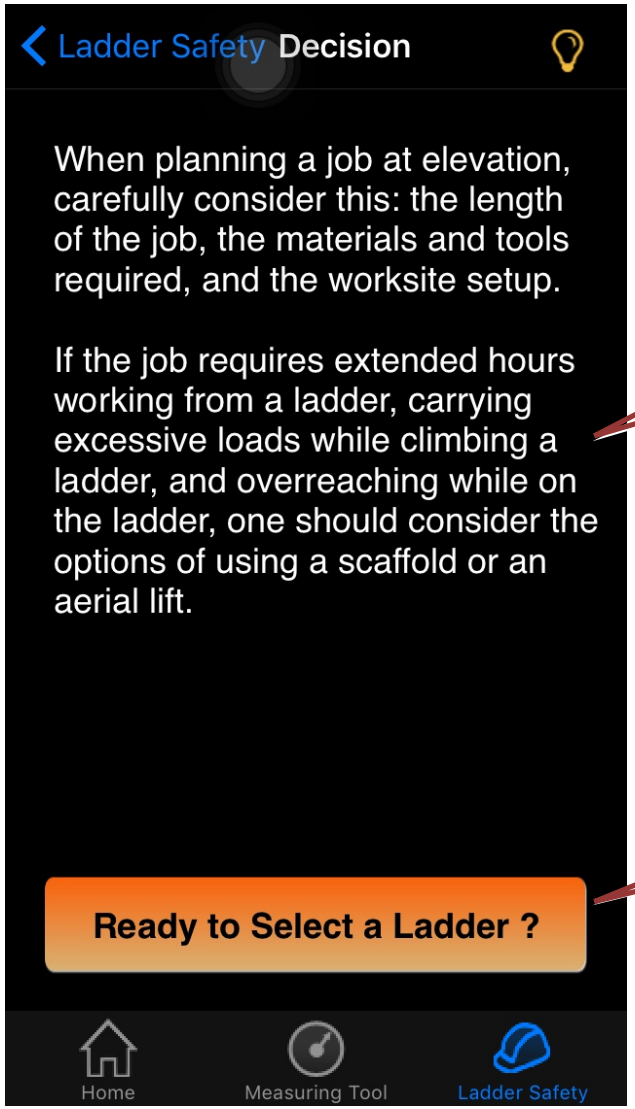
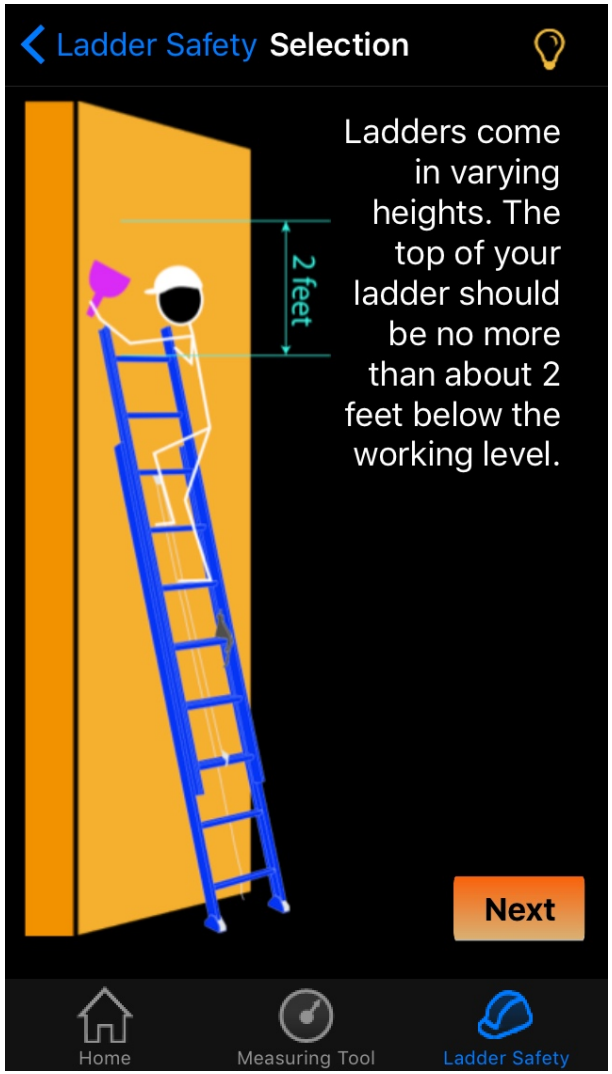
1: Decision



The text as it appears on the screen.

"Ready to select a ladder"

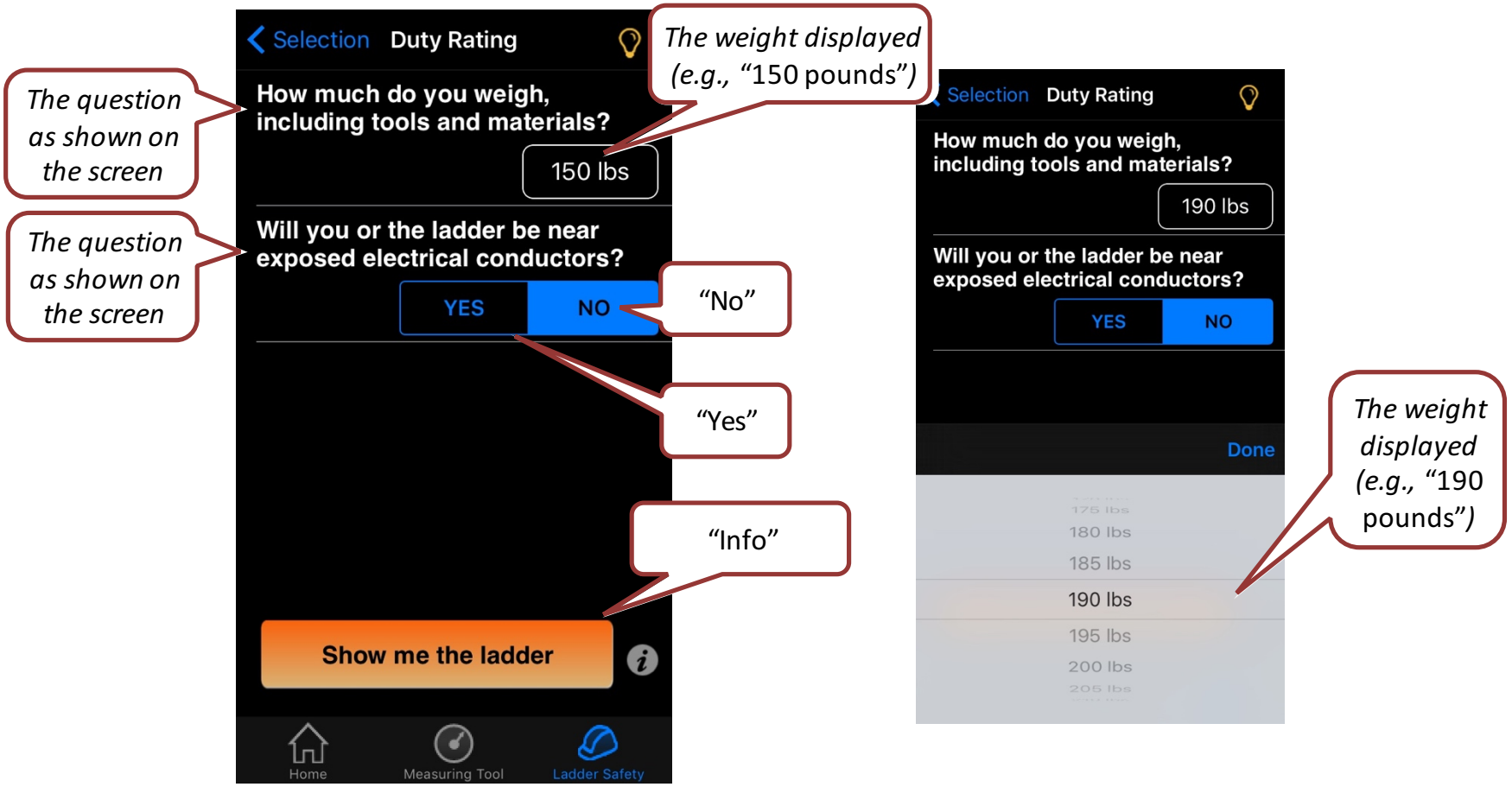
2: Extension Ladder-Selection Home Screen



The text as it appears on the screen.

"Next"

2: Extension Ladder-Selection



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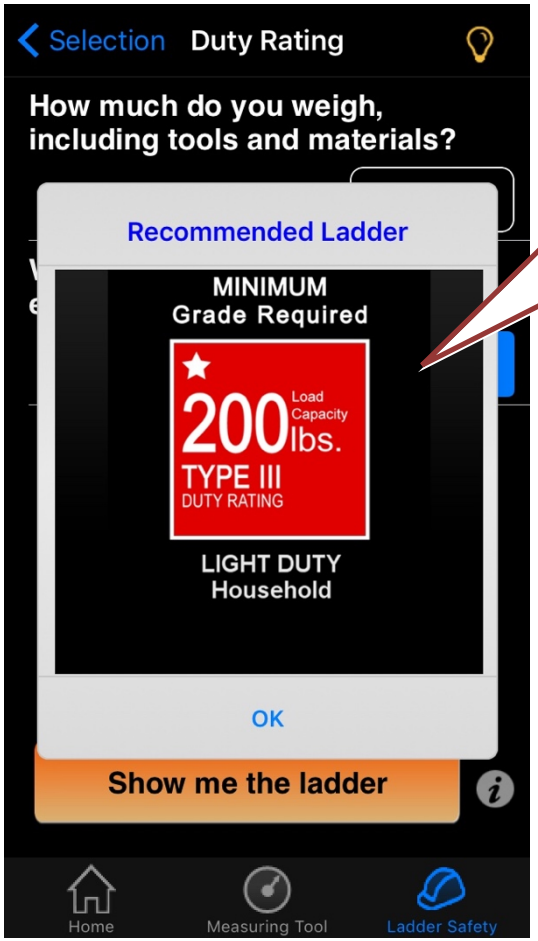
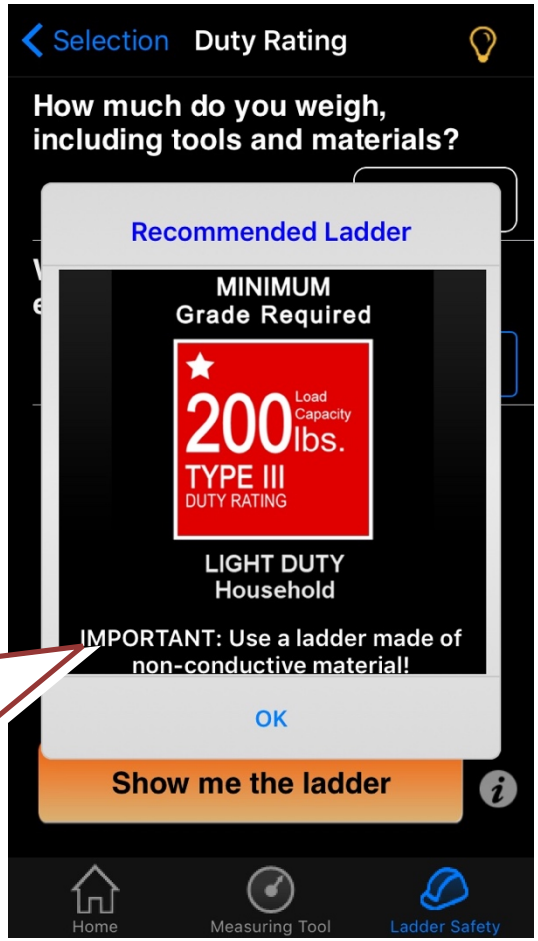
2: Extension Ladder-Selection

Show Me The Ladder



"Recommended ladder, minimum grade required, 200 pounds load capacity, type 3 duty rating, light duty household."



"Recommended ladder, minimum grade required, 200 pounds load capacity, type 3 duty rating, light duty household. Important, use a ladder made of non-conductive material."

A similar text is read aloud for the Type II, Type I, Type IA, and Type IAA stickers

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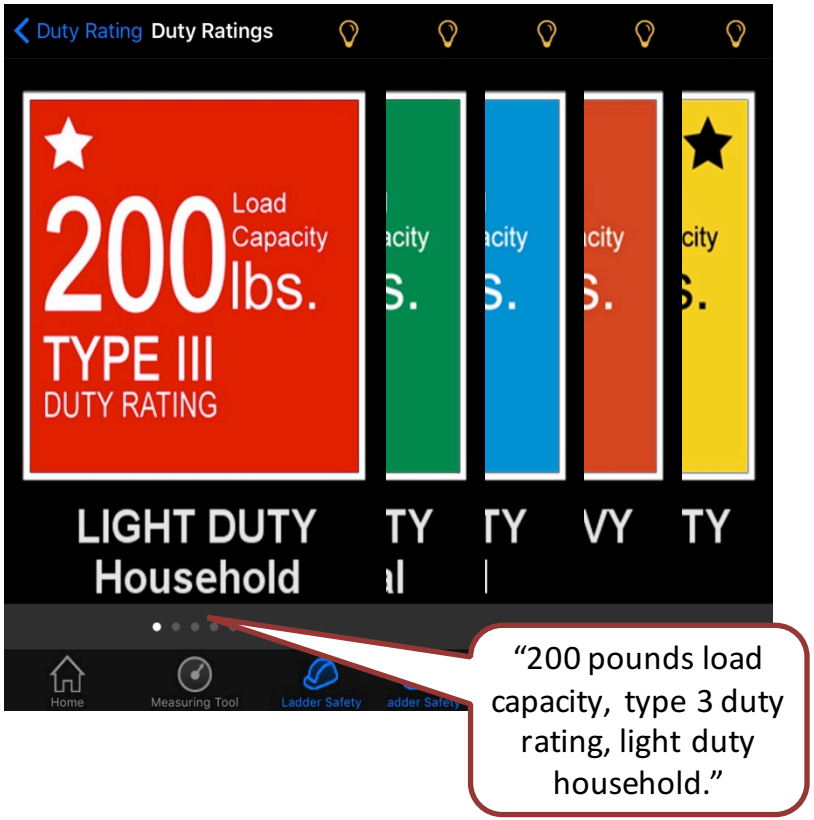
2: Extension Ladder-Selection

Sample Rating Stickers



Below is the transcript for all rating stickers.

Type 3: "200 pounds load capacity, type 3 duty rating, light duty household."

Type 2: "225 pounds load capacity, type 2 duty rating, medium duty household."

Type 1: "250 pounds load capacity, type 1 duty rating, heavy duty industrial."

Type 1A: "300 pounds load capacity, type 1A duty rating, extra heavy duty industrial."

Type 1AA: "375 pounds load capacity, type 1AA duty rating, special duty industrial."

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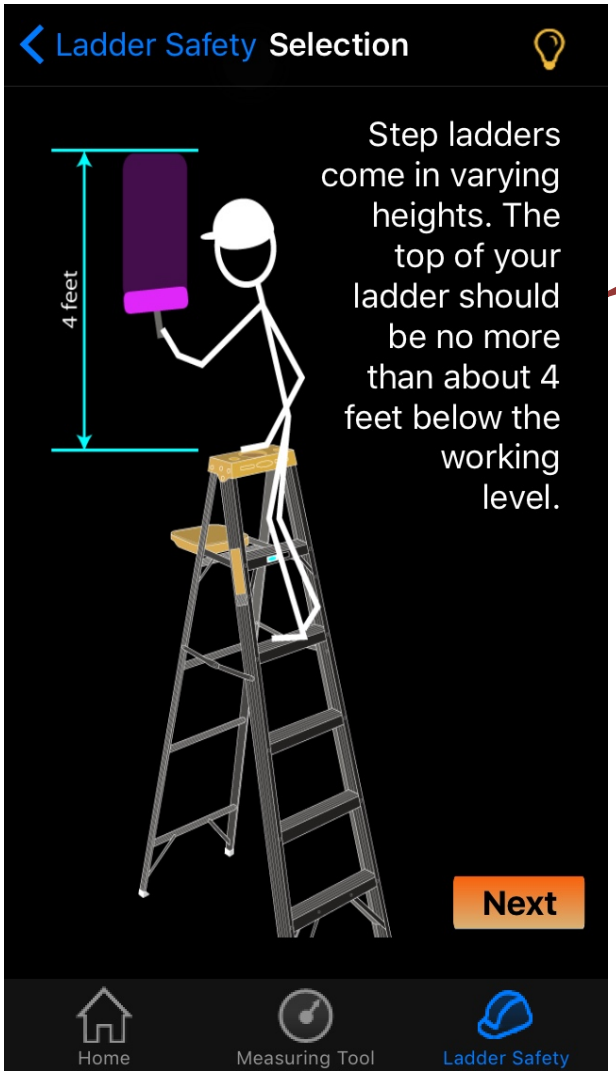
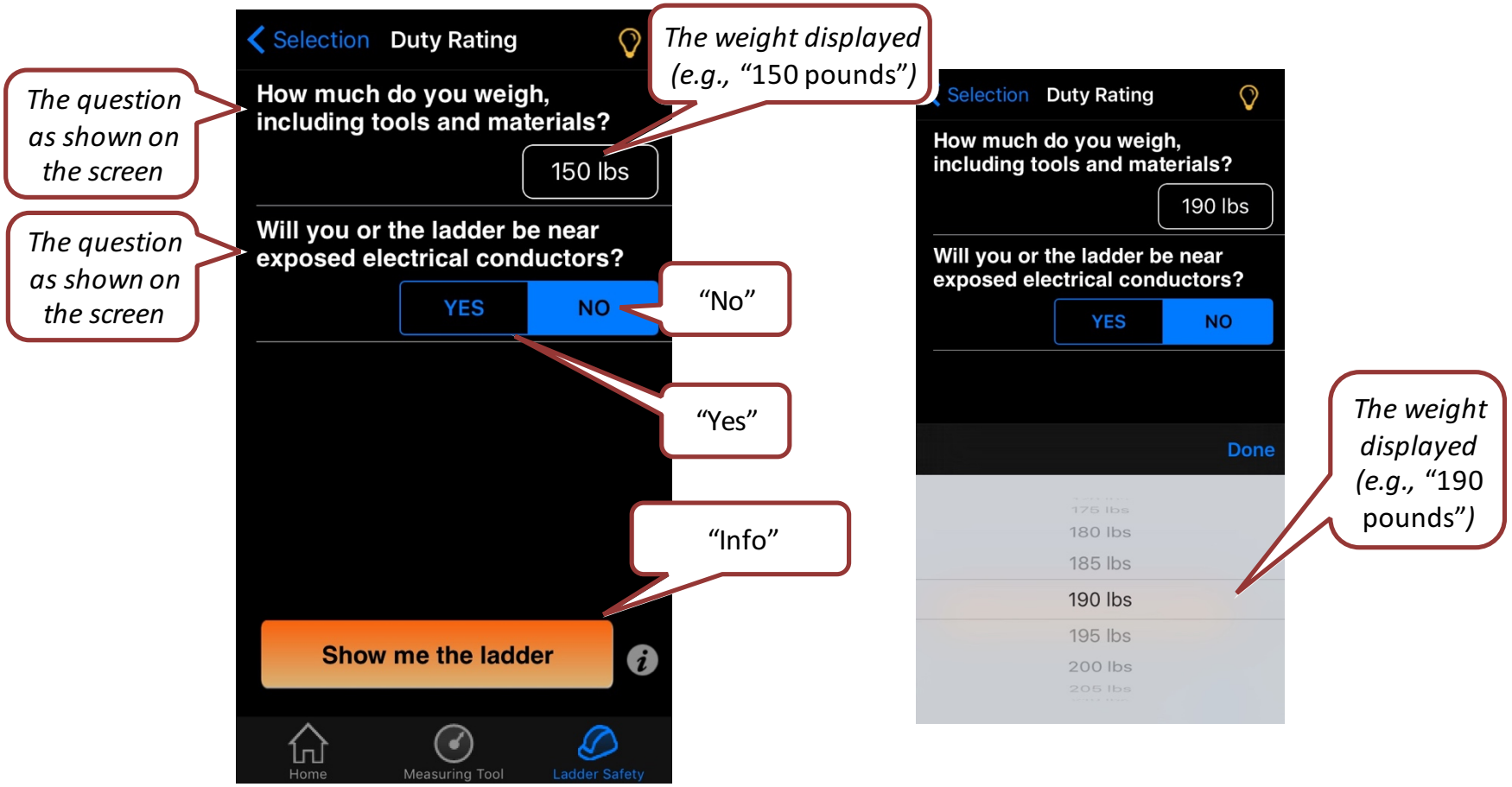
2: Step Ladder-Selection Home Screen



The text as it appears on the screen.

"Next"

2: Step Ladder-Selection



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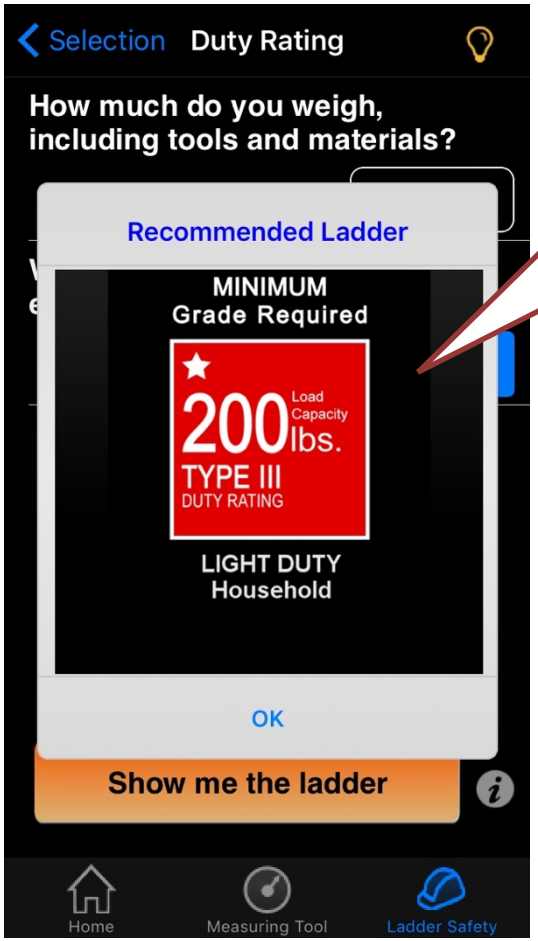
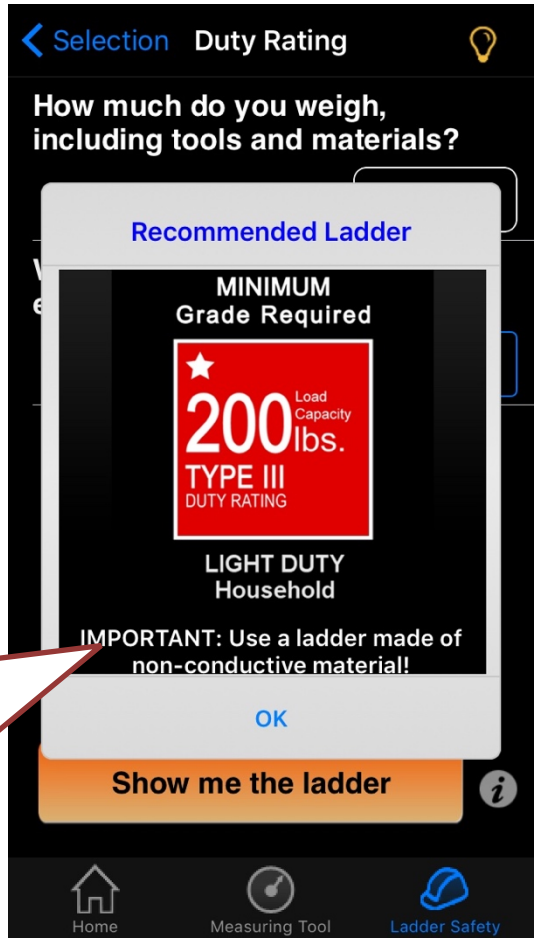
2: Step Ladder-Selection

Show Me The Ladder



"Recommended ladder, minimum grade required, 200 pounds load capacity, type 3 duty rating, light duty household."



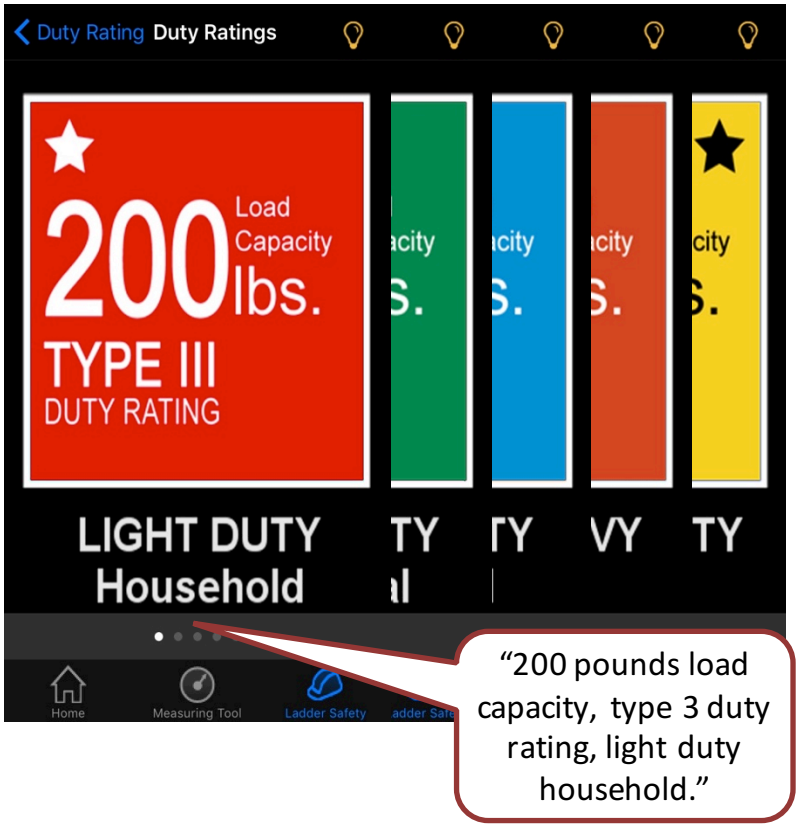
"Recommended ladder, minimum grade required, 200 pounds load capacity, type 3 duty rating, light duty household. Important, use a ladder made of non-conductive material."

A similar text is read aloud for the Type II, Type I, Type IA, and Type IAA stickers

National Institute for Occupational Safety and Health NIOSH

2: Step Ladder-Selection

Sample Rating Stickers



Below is the transcript for all rating stickers.

Type 3: "200 pounds load capacity, type 3 duty rating, light duty household."

Type 2: "225 pounds load capacity, type 2 duty rating, medium duty household."

Type 1: "250 pounds load capacity, type 1 duty rating, heavy duty industrial."

Type 1A: "300 pounds load capacity, type 1A duty rating, extra heavy duty industrial."

Type 1AA: "375 pounds load capacity, type 1AA duty rating, special duty industrial."

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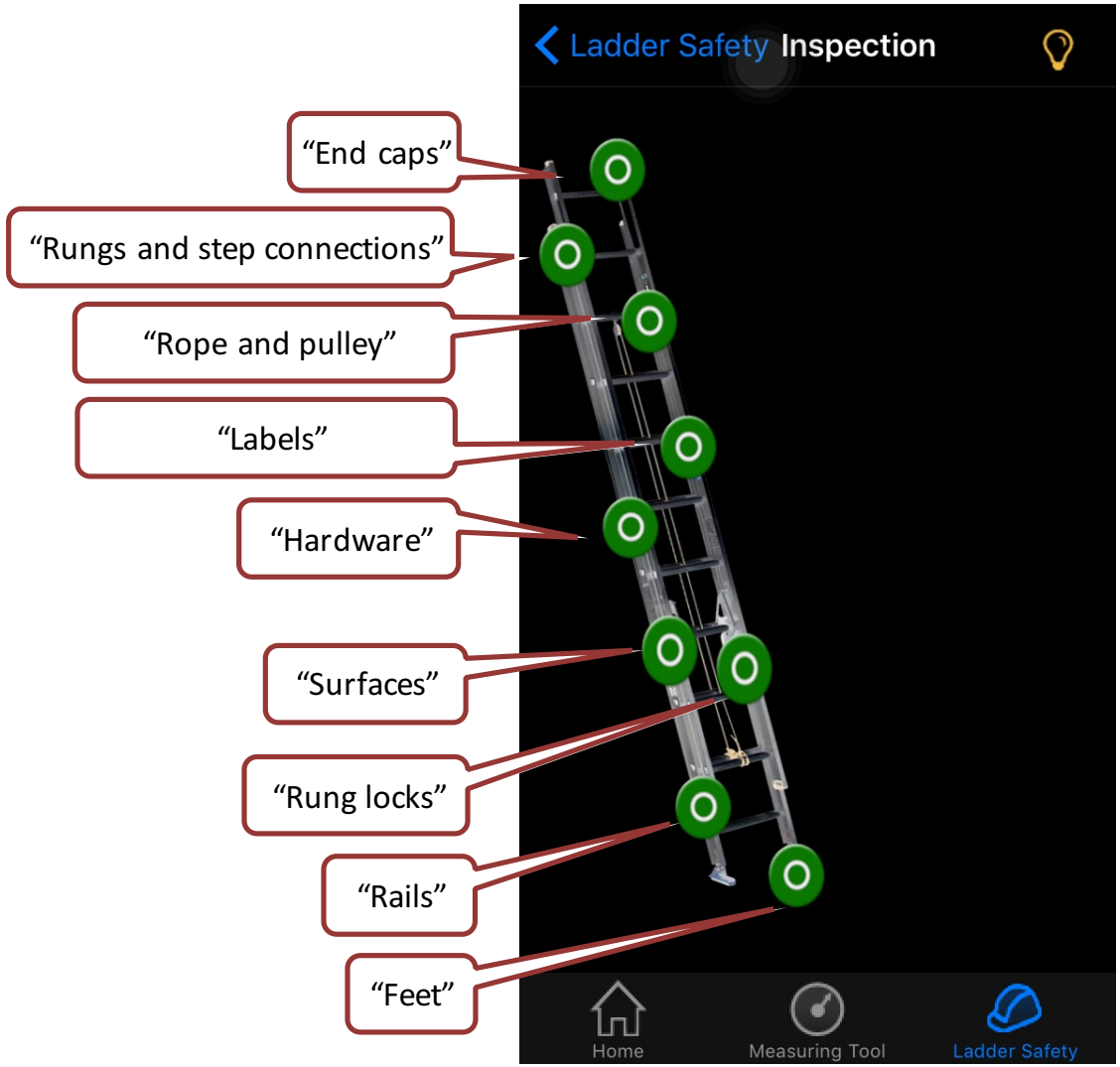
3: Extension Ladder-Inspection



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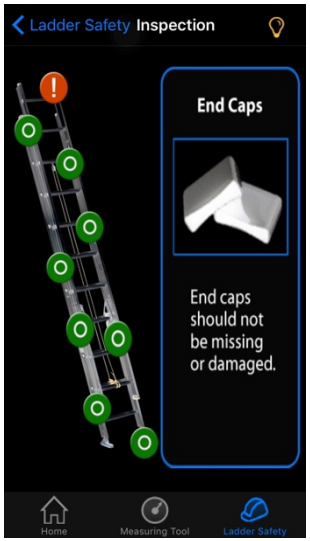
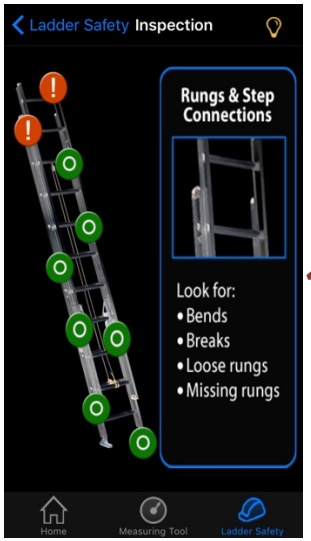
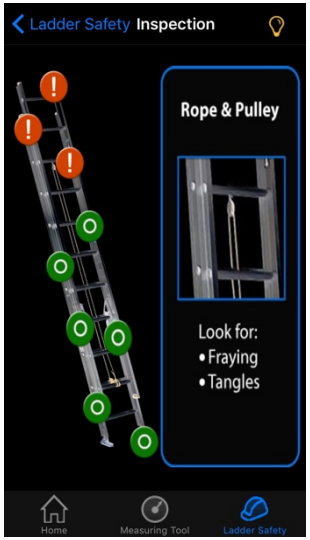
3: Extension Ladder-Inspection (cont'd)



"End caps should not be missing or damaged"



"Look for bends, breaks, loose rungs, and missing rungs on the rungs and step connections?



"Look for fraying and tangles on the rope and pulleys"

"Are labels missing or not readable?"

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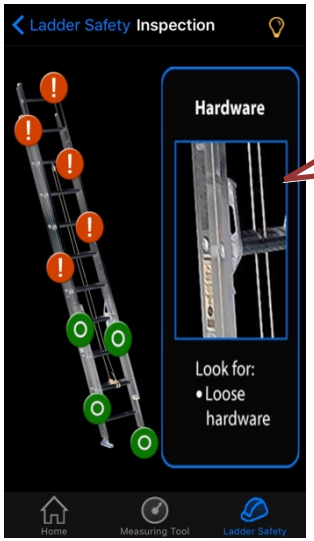
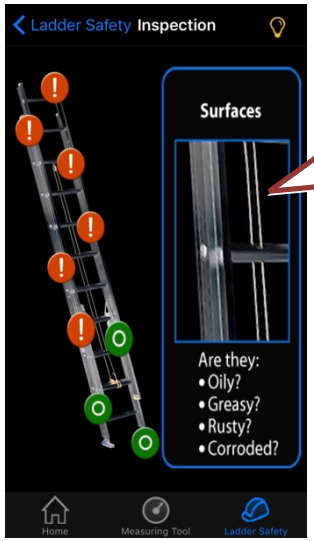
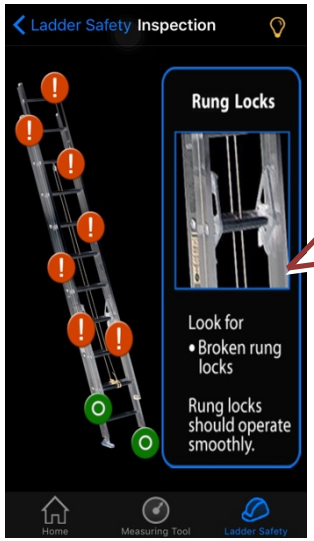
3: Extension Ladder-Inspection (cont'd)



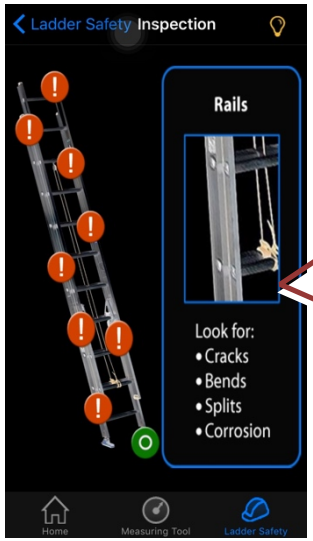
"Look for loose hardware"



"Are the surfaces oily, greasy, rusty, or corroded?"



"Look for broken rung locks. Rung locks should operate smoothly."



"Look for cracks, bends, splits, and corrosion on the rails"

"Look for missing, worn, or damaged shoes on the feet. Look for missing slip-resistant on the feet. The feet should rotate smoothly"

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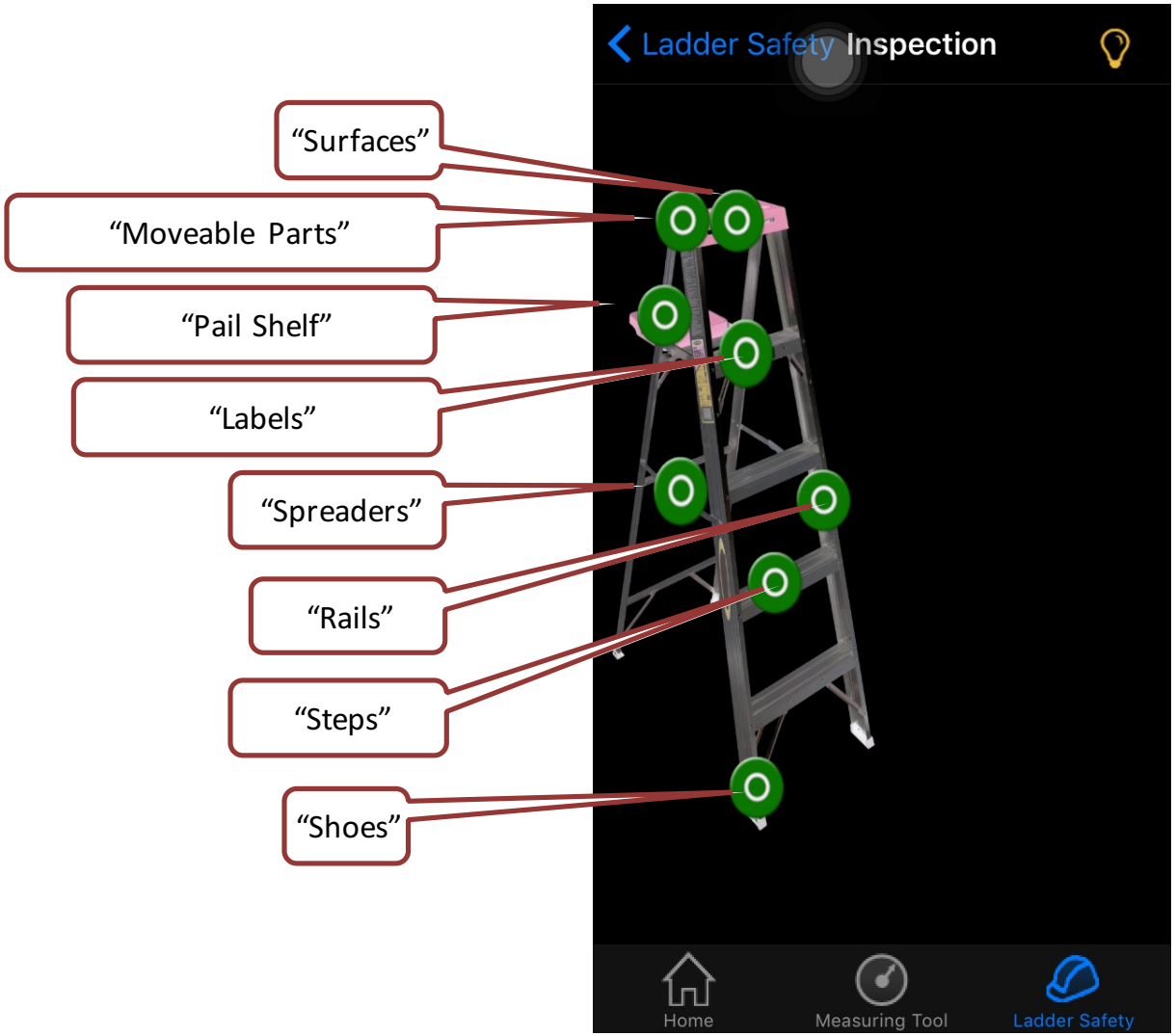
3: Step Ladder-Inspection



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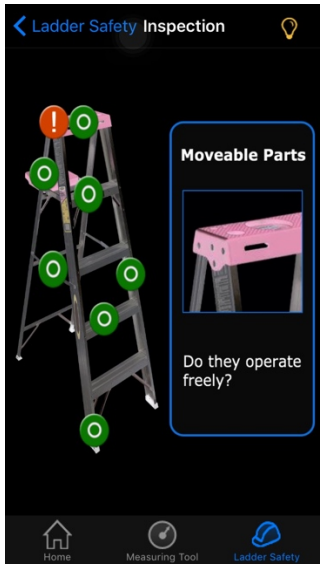
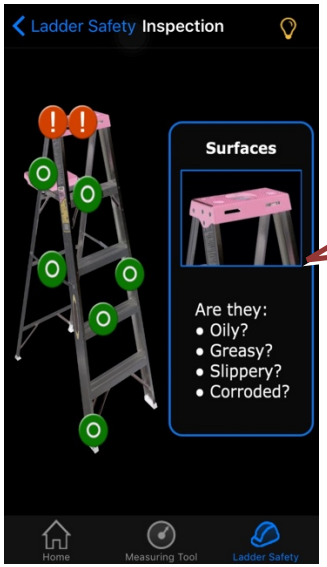
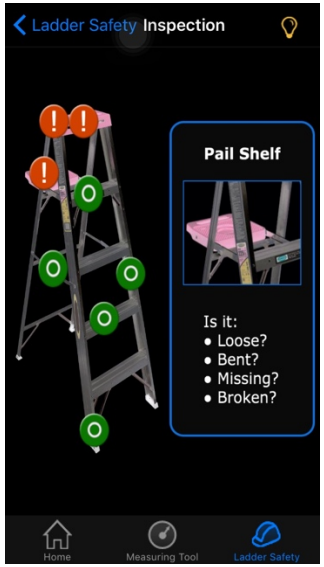
3: Step Ladder-Inspection (cont'd)



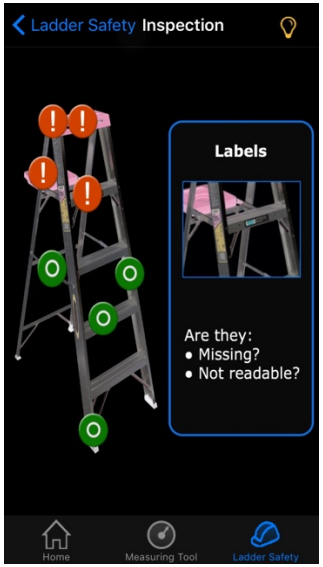
"Do they operate freely?"



"Are they Oily, Greasy, Slippery Corroded?"



Is it loose, bent, missing, broken?"



"Are they missing, not readable?"

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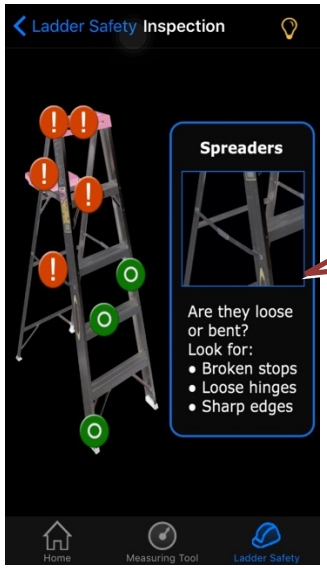
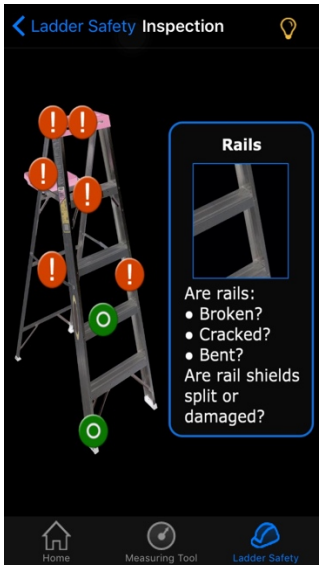
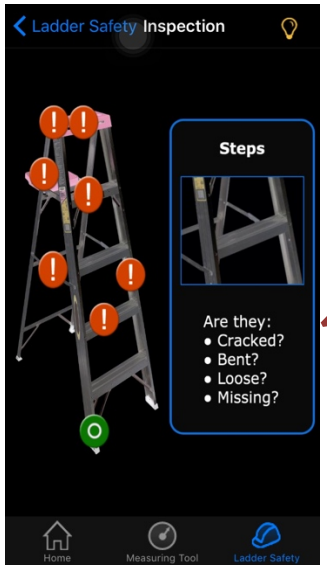
3: Step Ladder-Inspection (cont'd)



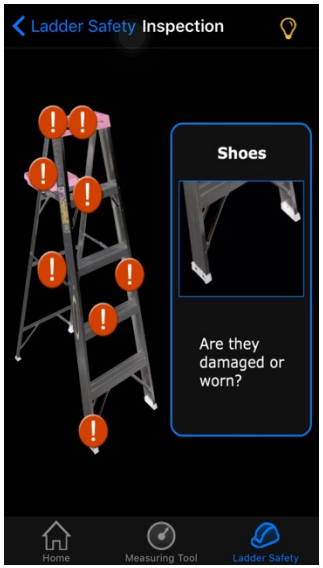
"Are they loose or bent. Look for broken steps, loose hinges, sharp edges"



"Are rails broken, cracked, bent. Are rail shields split or damaged?



"Are they cracked, bent, loose, missing?"



"Are they damaged or worn?

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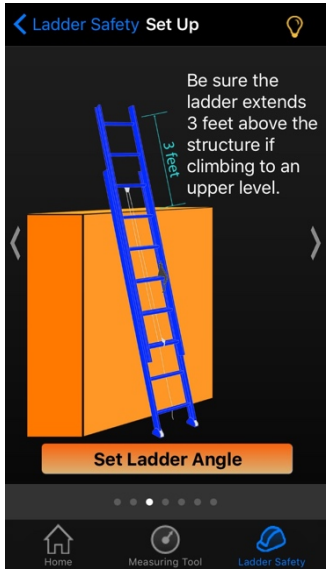
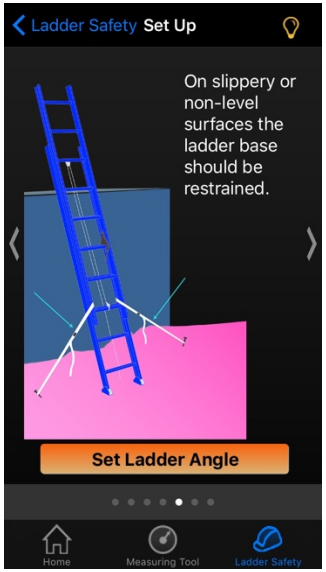
4: Extension Ladder-Set Up

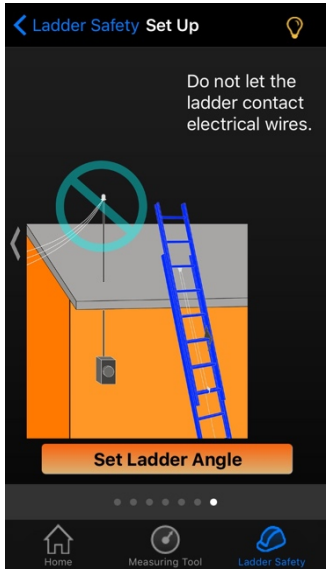
The text as it appears on the screen.

"Set ladder angle"

4: Extension Ladder-Set Up (cont'd)







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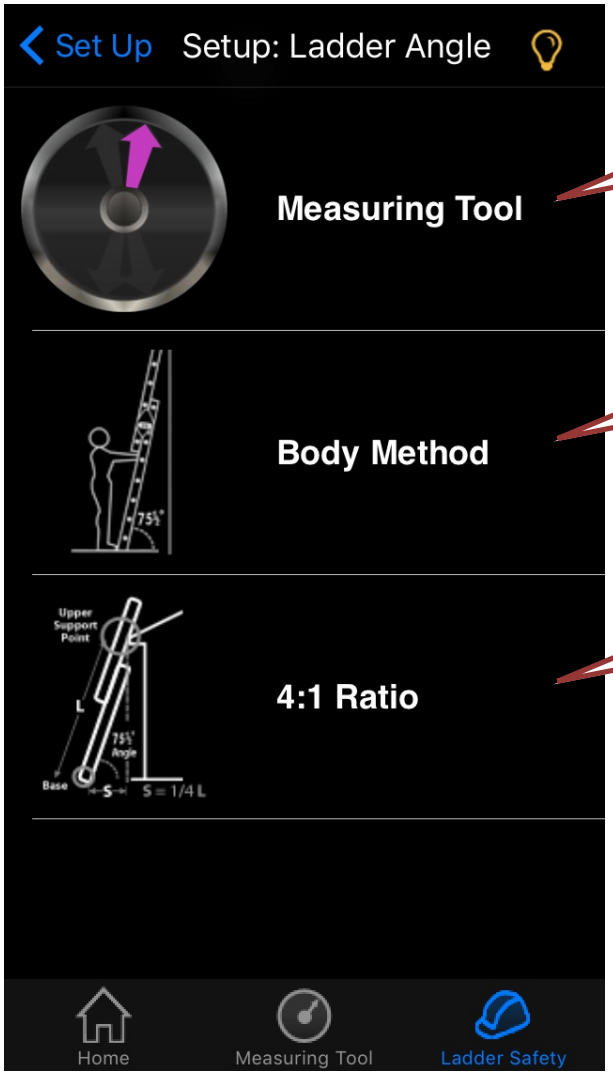
4: Extension Ladder-Set Up (cont'd)



"How to use the measuring tool"

"How to use the body method"

"How to use the four to one ratio"

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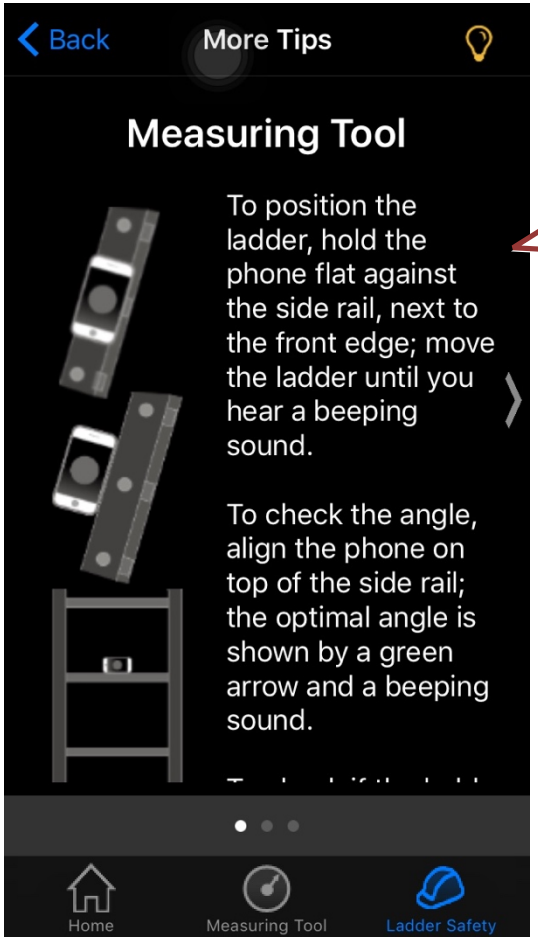
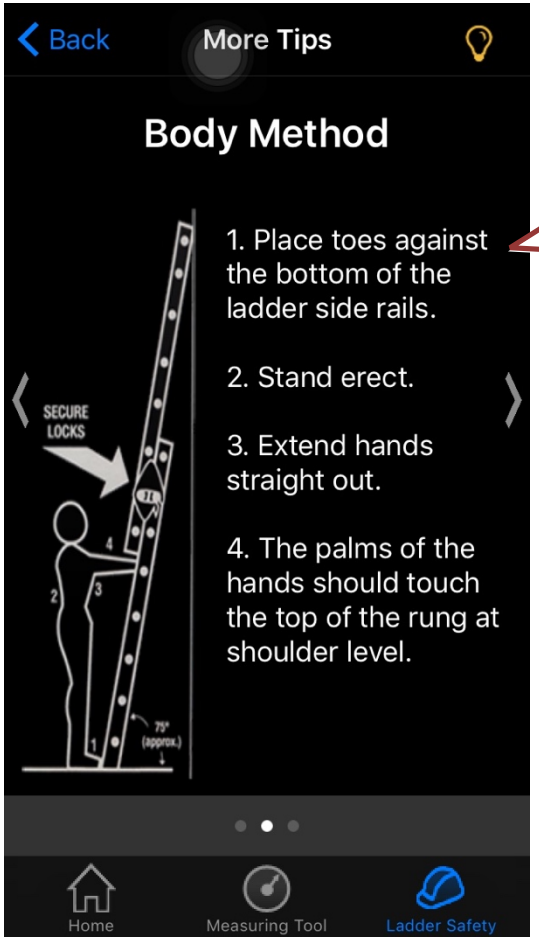
4: Extension Ladder-Set Up (cont'd)



The instructions as it appears on the screen.



The instructions as it appears on the screen.

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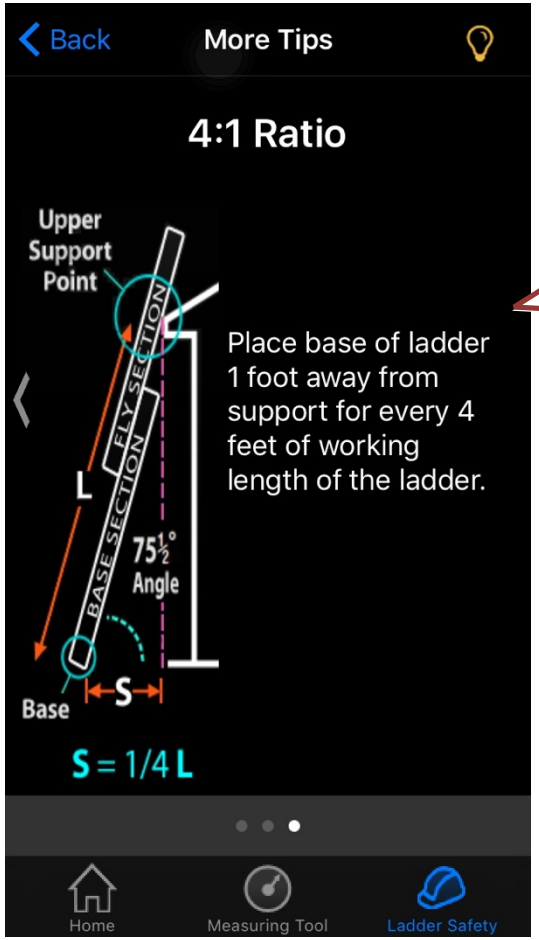
4: Extension Ladder-Set Up (cont'd)



The instructions as it appears on the screen.

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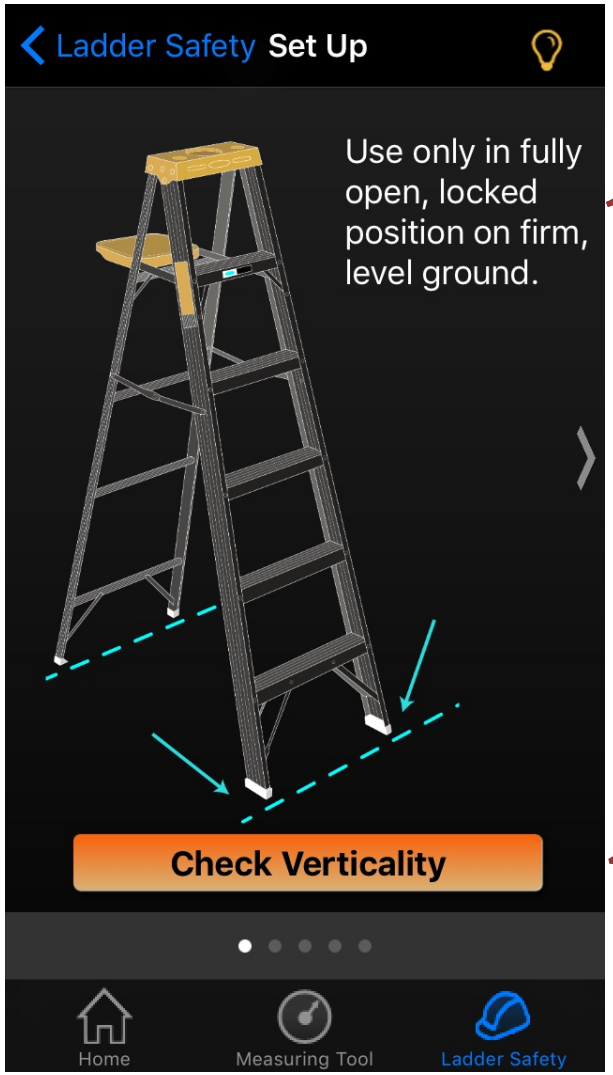
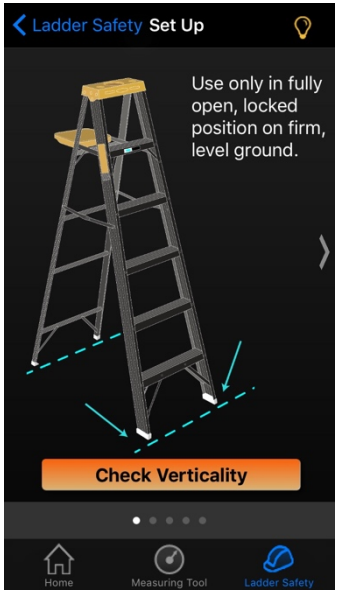
4: Step Ladder-Set Up

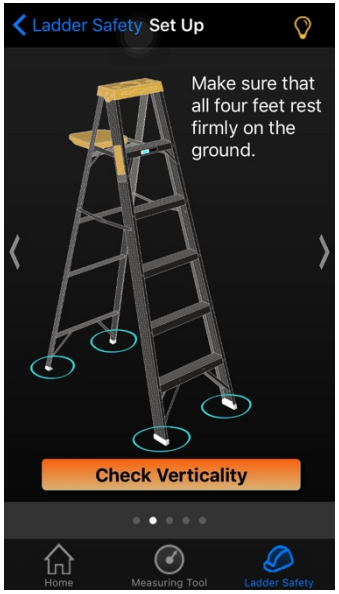


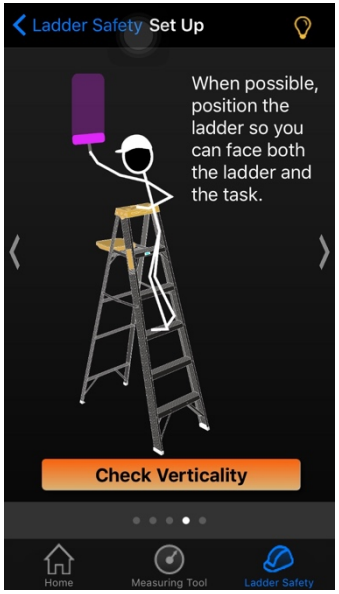
The text as it appears on the screen.

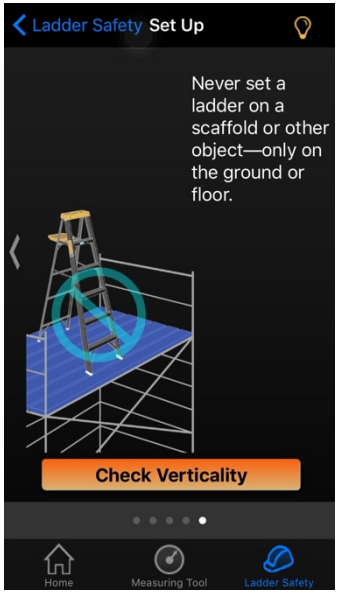
"Check Verticality"

4: Step Ladder-Set Up (cont'd)









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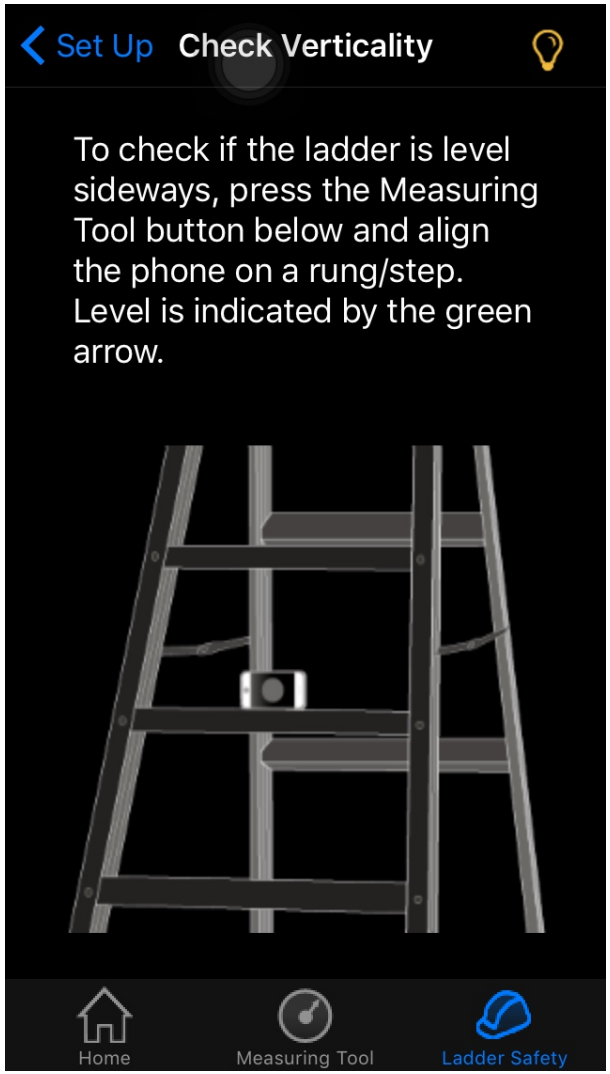
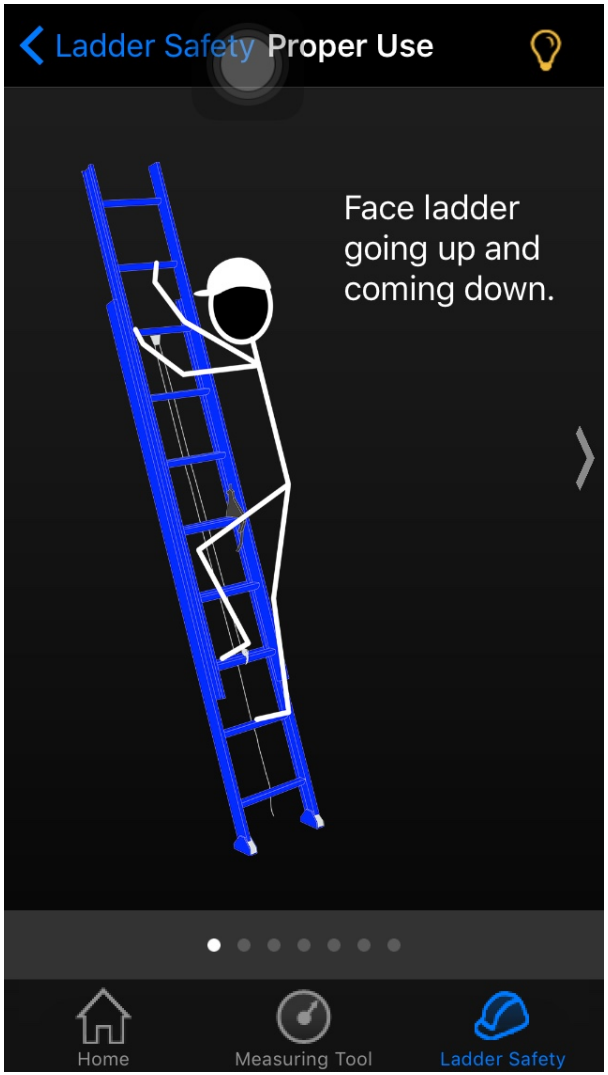
4: Step Ladder-Set Up (cont'd)



The text as it appears on the screen.

5: Extension Ladder-Proper Use



For all Proper Use screens, the instructions read aloud is the same as the text.

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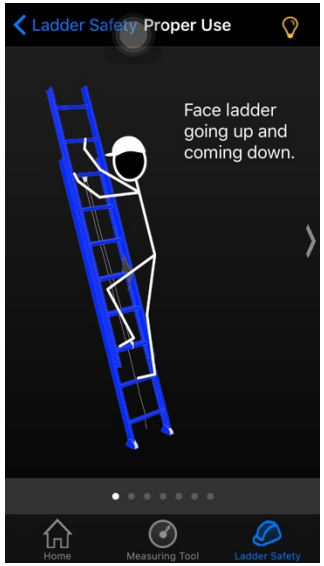
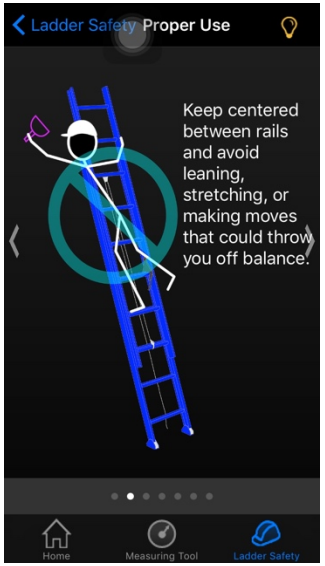
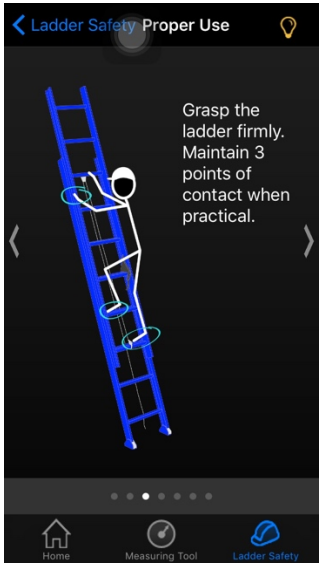
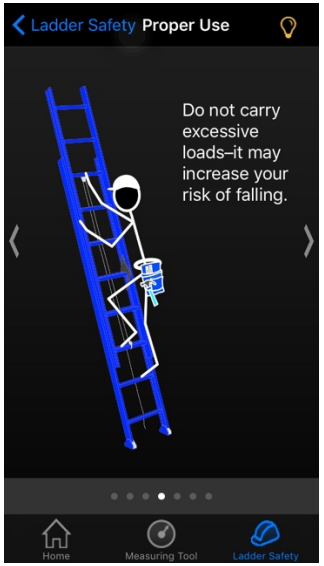
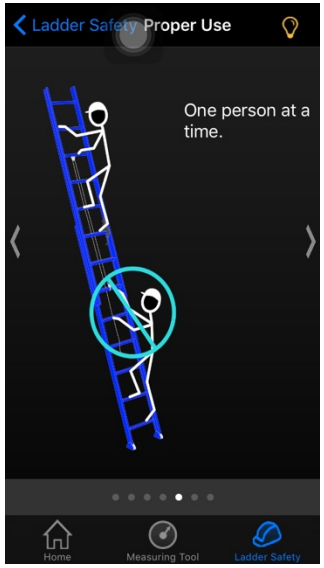
5: Extension Ladder-Proper Use (cont'd)

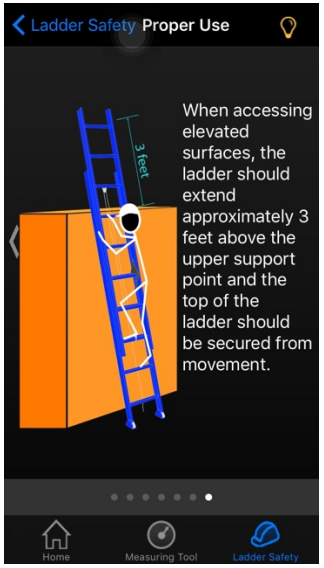












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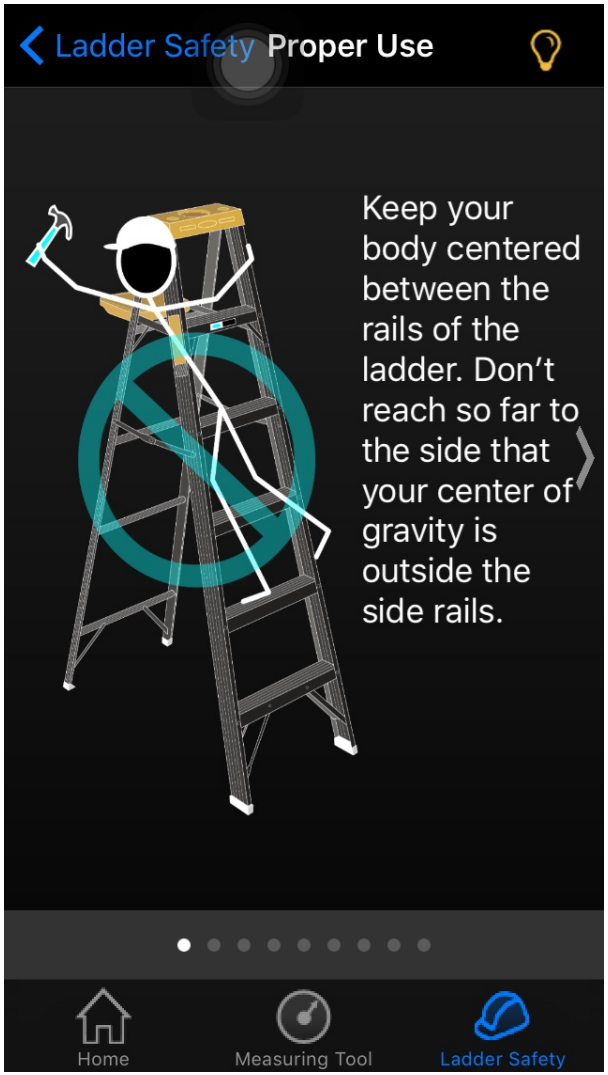
5: Step Ladder-Proper Use



For all Proper Use screens, the instructions read aloud is the same as the text.

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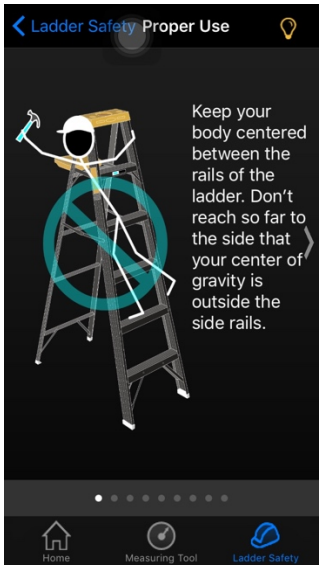
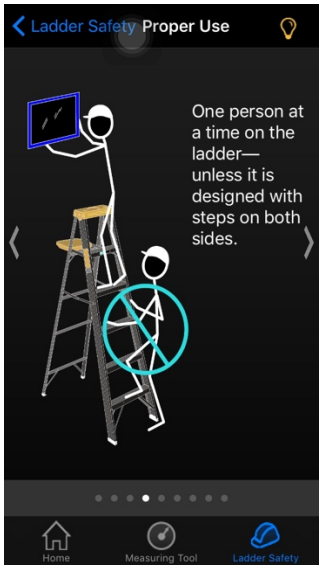
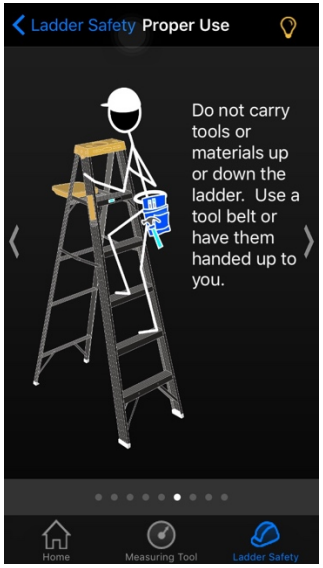
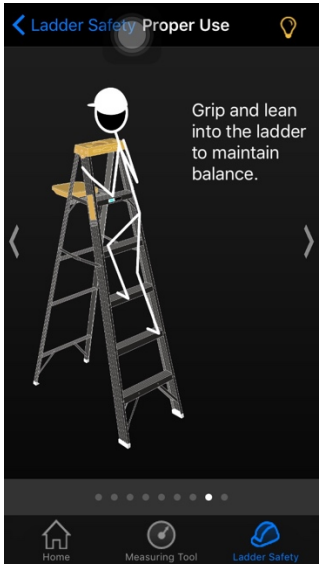
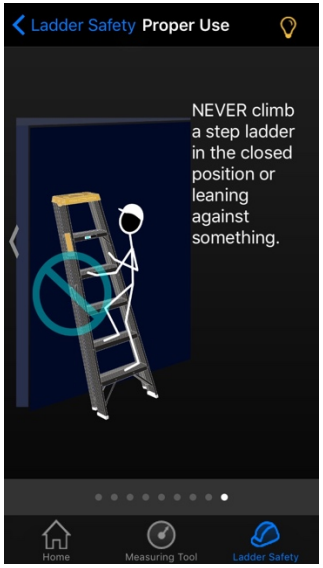
5: Step Ladder-Proper Use (cont'd)











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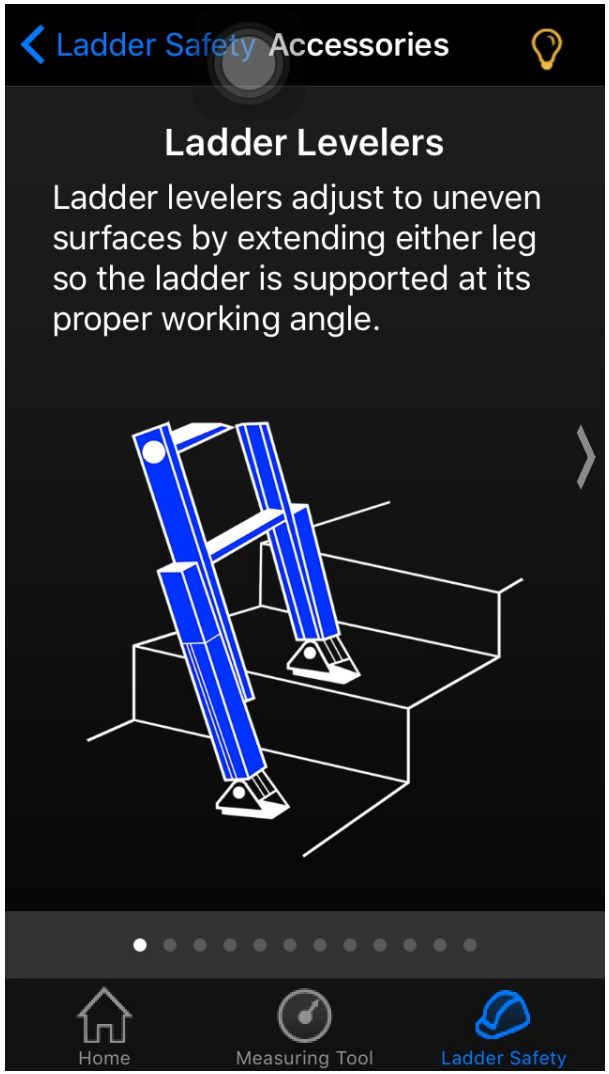
6: Extension Ladder-Accessories



For all accessories images, the text read aloud will be the same as the caption.

For every accessories description, the text read aloud will be the same as the text that is on the screen.

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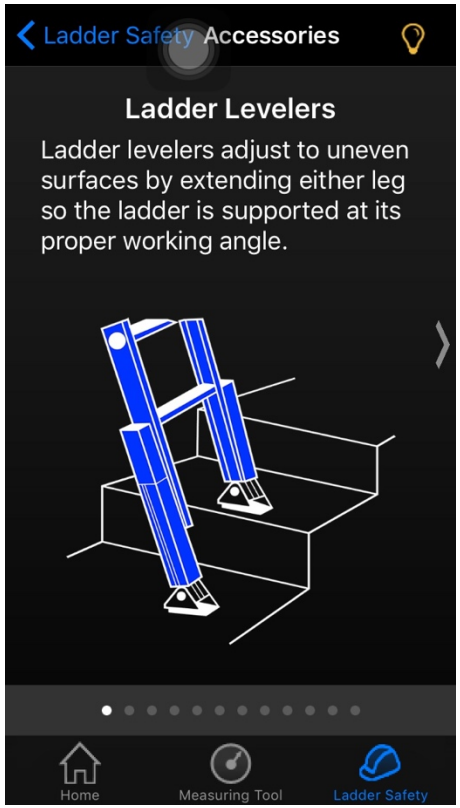
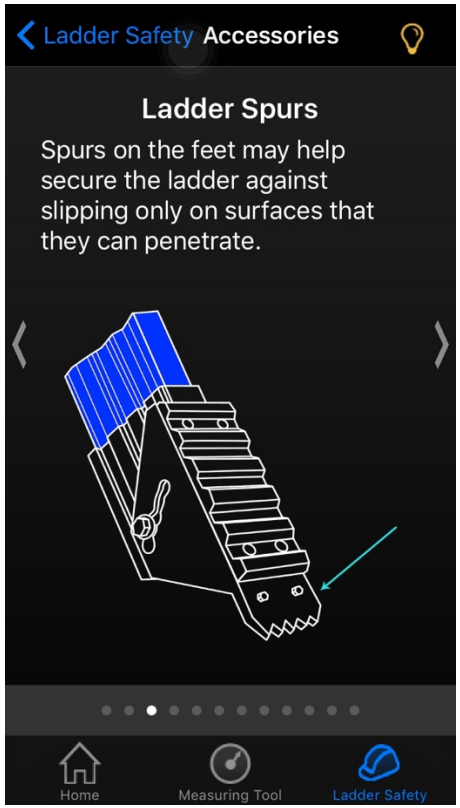
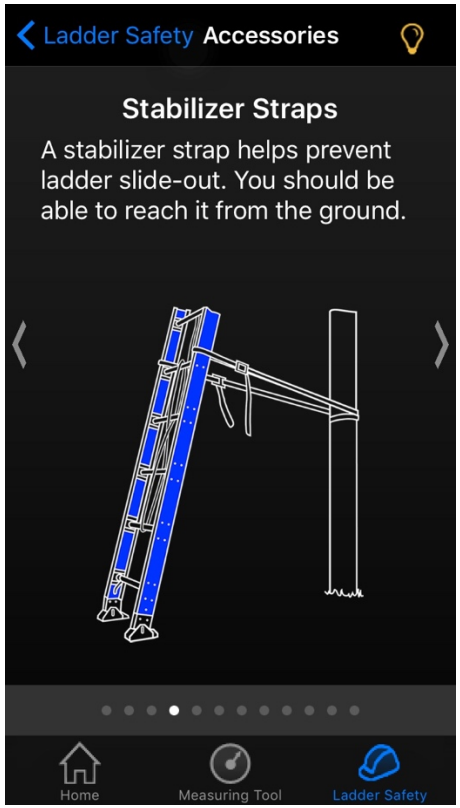
6: Extension Ladder-Accessories (cont'd)







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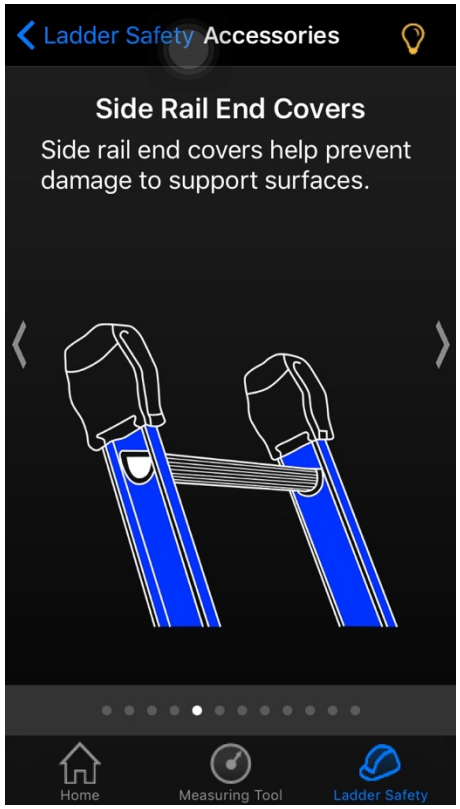
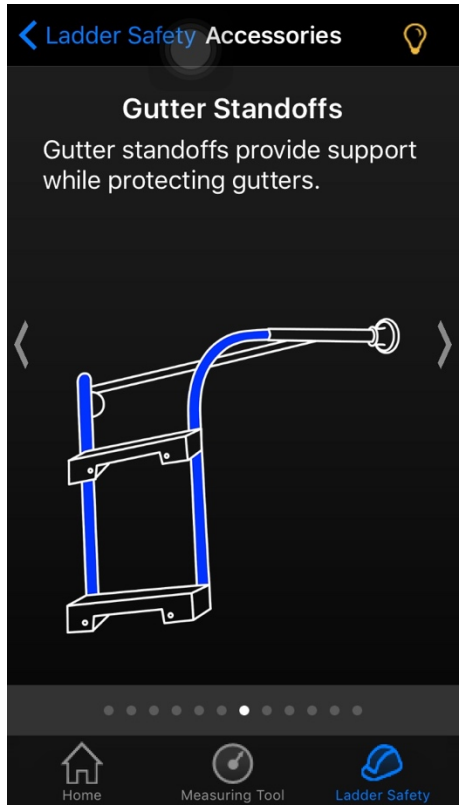
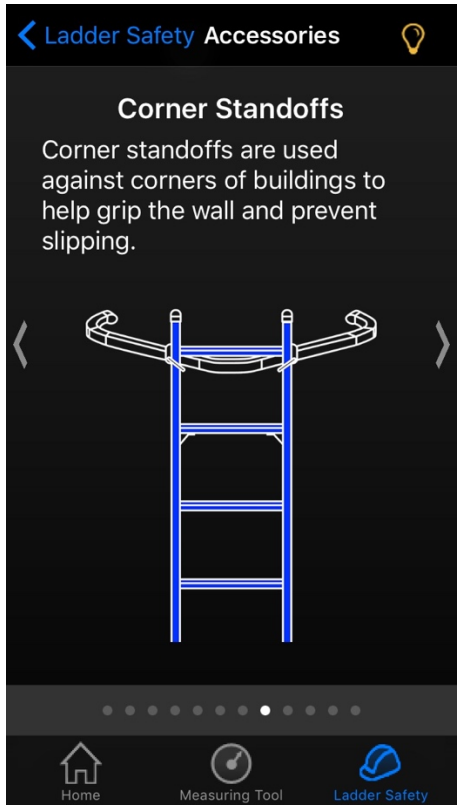
6: Extension Ladder-Accessories (cont'd)







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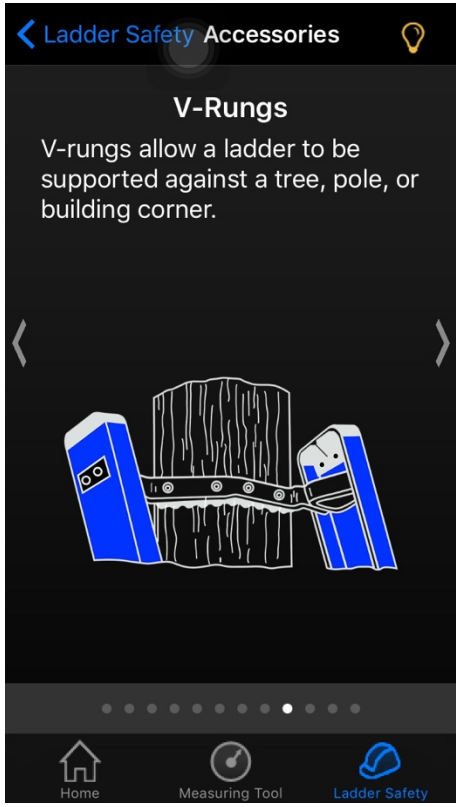
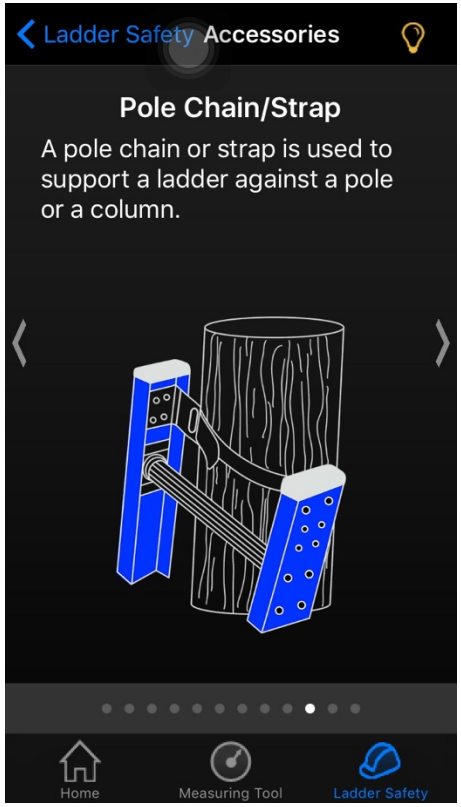
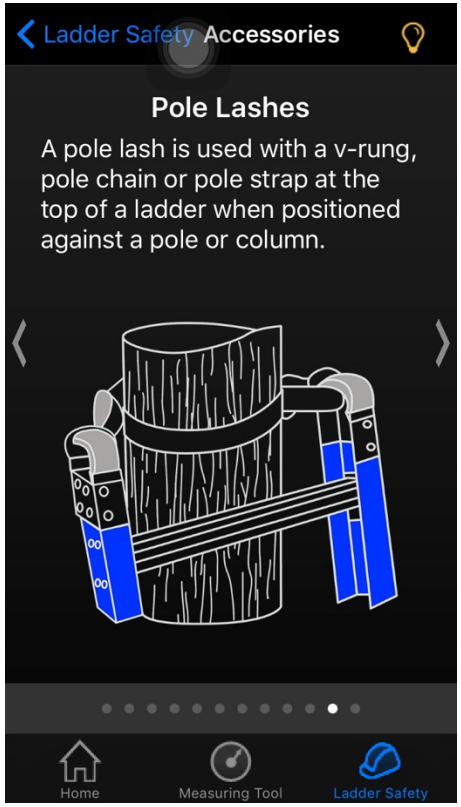
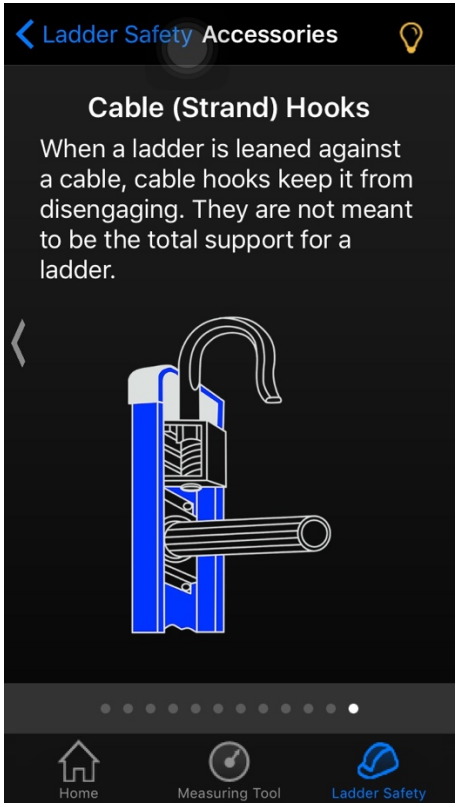
6: Extension Ladder-Accessories (cont'd)









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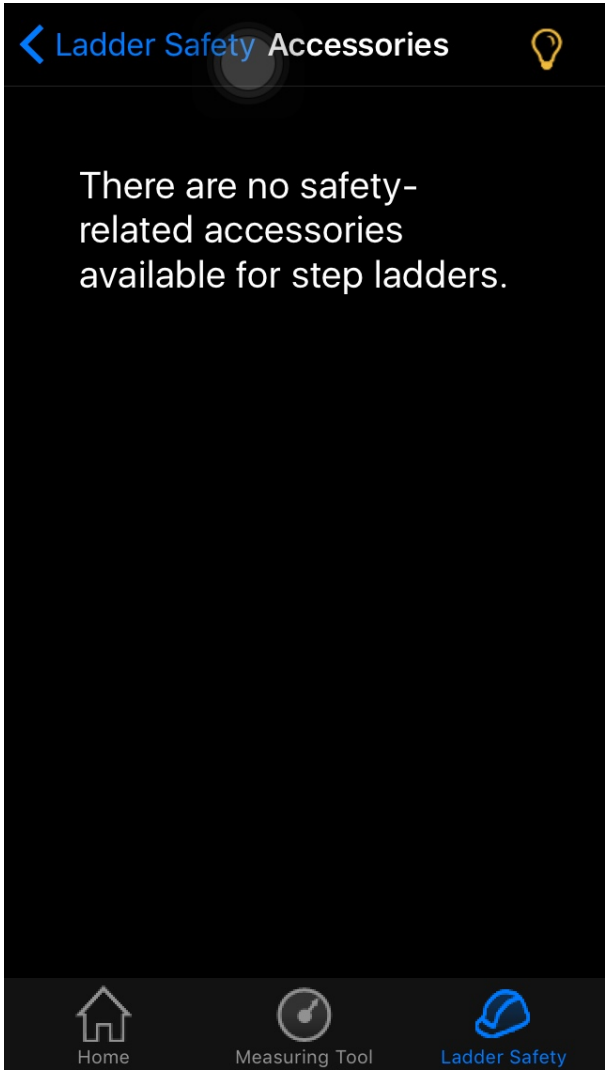
6: Step Ladder-Accessories



"There are no safety- related accessories available for step ladders."

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