

NuTone®

Rough-In Frame

MODEL IR-104

INSTALLATION INSTRUCTIONS READ & SAVE THESE INSTRUCTIONS

Model IR-104 Rough-In Frame is to be used with NuTone Model IM-3303 Series Radio-Intercom Master Unit. This literature also includes information regarding the accessory rough-ins for this Master Unit.

OVERVIEW OF INSTALLATION PROCEDURE

1. Determine the exact location of all components. See "Planning Guide" below. Contact the architect, builder or homeowner for the system plans. Check plans against the "Installation Don'ts" section of these instructions.
2. Mount the rough-in frames for the master unit, remote speakers and/or controls, and optional accessories. Note that all components may not require rough-in frames.
3. Run appropriate wiring to all component locations, including 120vAC power wiring to the master unit rough-in frame's transformers. See "Master Unit Rough-In Frame", page 4.
4. At this point, the rough-in installation is complete. See the installation instructions packaged with the master unit and other units for instructions to complete the final installation of the system.

PLANNING GUIDE

To determine all the components required in the installation, layout the system plans on the building plans or on a sketch of the building.

Familiarize yourself with the available components by studying the "Typical System" and "Representative System" diagrams.

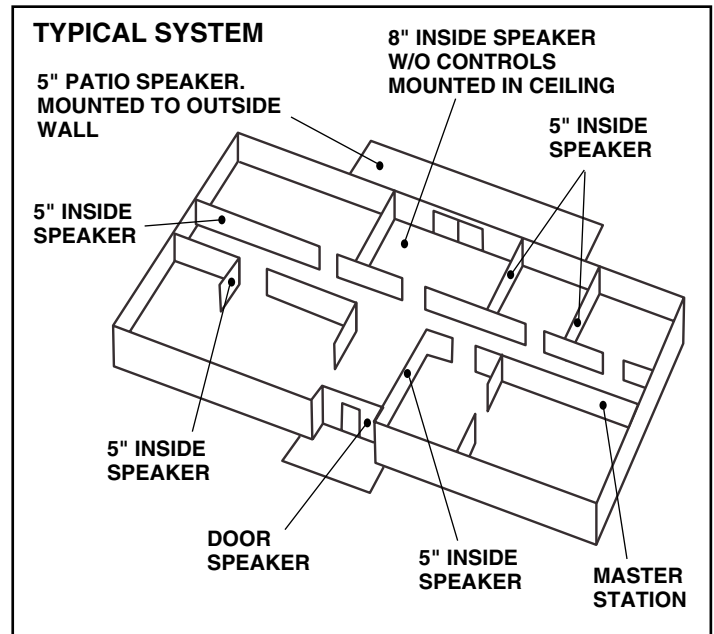
COMPONENTS

Where will the **master station** be located? How many **inside speakers** will be required? What size inside speakers will be used? Where will the inside speakers be located? How many **outside speakers** will be required? What size speakers will be used? Where will the outside speakers be located? Will **speakers without controls** be used? Where will these speakers be located? Where will their **remote controls** be located? Will the system require the use of **door speakers**? At what doors will these speakers be located? Will **portable speakers** be used? Where will wall receptacles for portable speakers be located? Will an **optional electronic chime** be used?

INSTALLATION DON'TS

1. INSIDE SPEAKERS –

- (A) Don't locate inside speaker stations on exterior walls.
- (B) Don't place more than one speaker station in a room.
- (C) Don't locate two speaker stations in a common wall between rooms.
- (D) Don't place a speaker station so it is facing another station, even if the other speaker station is across a hallway in another room.
- (E) Don't locate speaker stations where doors or furniture will interfere with the operation of the speaker.

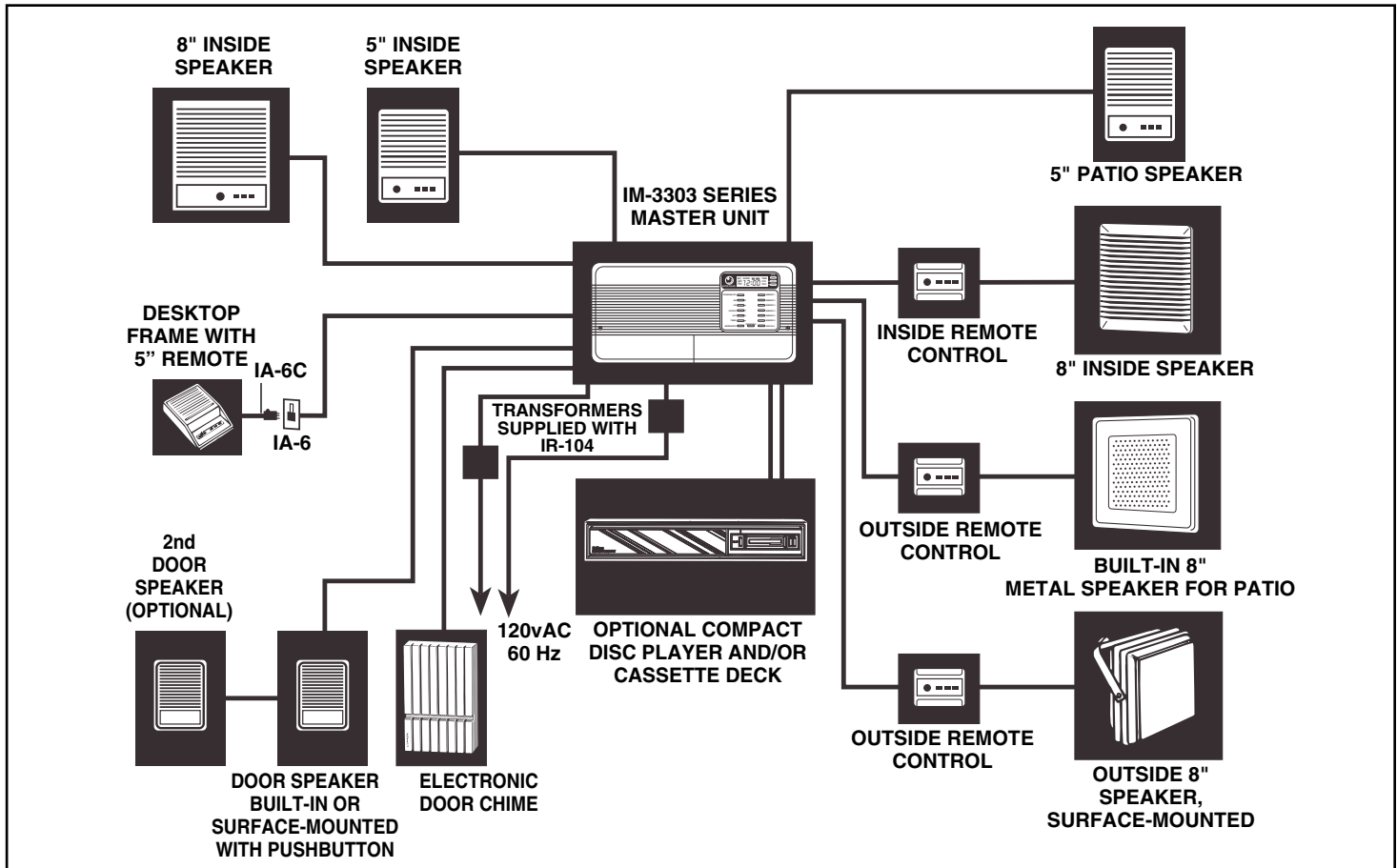


2. **MASTER STATION** – The master station has a built-in speaker with separate controls; therefore, observe the previous precautions when determining a location for the master station.
3. **DOOR SPEAKERS** – Don't mount door speakers with built-in pushbuttons out of normal reach; locate near door and not more than 60" above floor. Door speakers without pushbuttons can be mounted as desired near door (adjacent wall, porch ceiling, or overhang can be used but audio to system will be reduced).
4. **CABLE LENGTHS** – Observe cable limitations.

IM-3303 SERIES SYSTEM WIRING

REPRESENTATIVE SYSTEM DIAGRAM

This diagram provides a general idea of components used in a system. Refer to "IM-3303 Series System Wiring Diagram" (page 3) for wiring used.



WIRING INSTALLATION GUIDELINES

WIRING SPECIFICATIONS

- NuTone IW-2: 22 GA. Twisted Pair.
- NuTone IWA-3: Flat Ribbon Type 3-wire (22 GA.) Cable.
- NuTone S-143: 18 GA. 2-Conductor Insulated.
- No. 14/2: 120v, 60 Hz, Power Cable. Class 1, UL Listed (not supplied by NuTone).
- 14 GA.: Ground Wire (not supplied by NuTone).

SPEAKER WIRING

An individual 3-wire cable IWA-3 must be connected from each remote speaker or remote control to the master unit's terminal board.

MAXIMUM REMOTE OR DOOR SPEAKER RUN – 300 feet.

MAXIMUM TOTAL OF IWA-3 PER SYSTEM – 2000 feet.

MAXIMUM NUMBER OF SPEAKERS – The IM-3303 Series Radio Intercom system will accommodate up to 13 remote speakers and 3 door speakers.

IMPORTANT: NuTone cannot be responsible for improper Radio-Intercom operation that results from interference generated by light dimmers, fluorescent

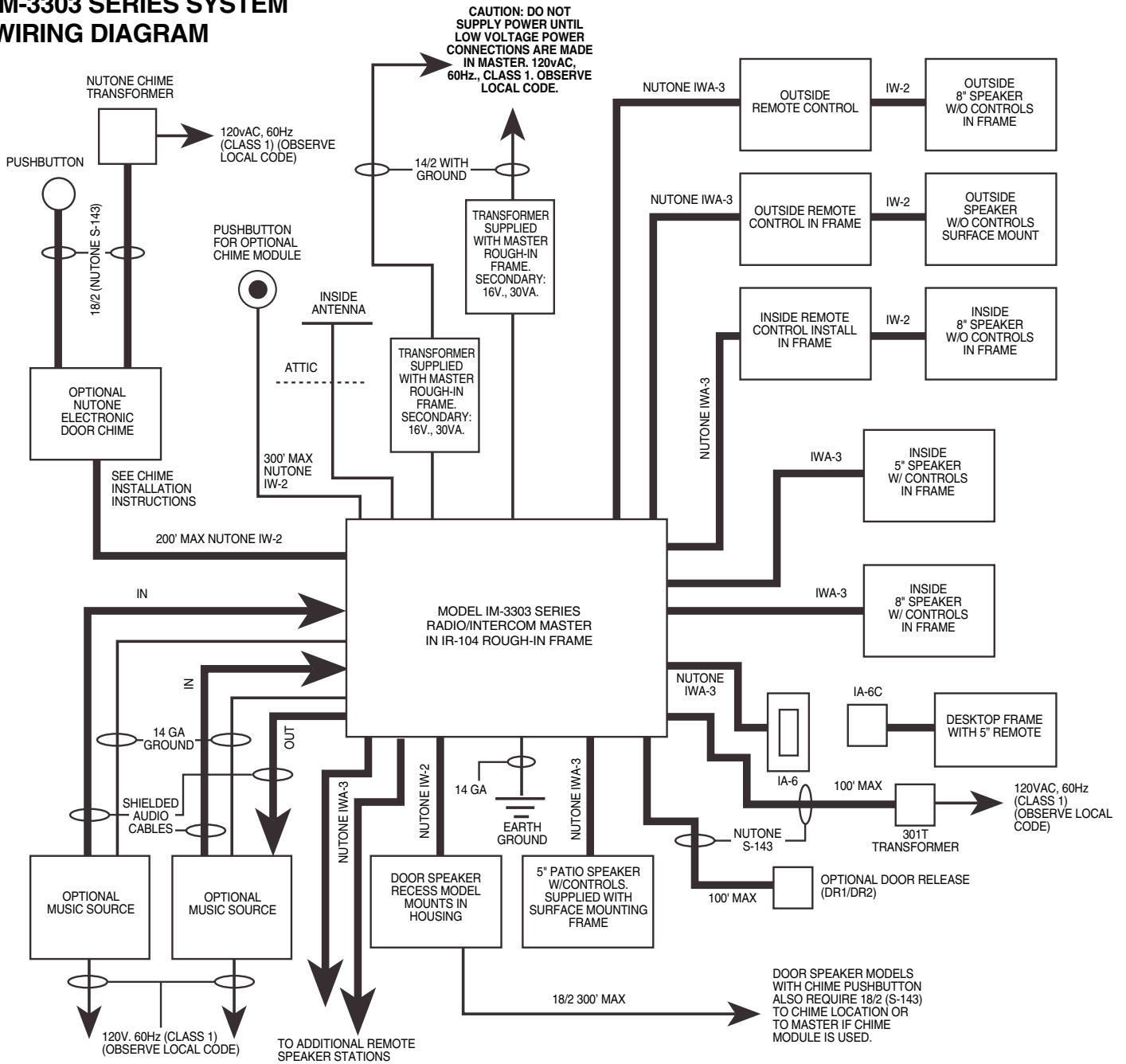
lighting fixtures, and similar electrical products. Such interference must be corrected at the source. As an aid to help reduce this interference, all remote speaker wires and cables must be placed at least 12 inches from any A.C. power wiring.

CAUTIONS

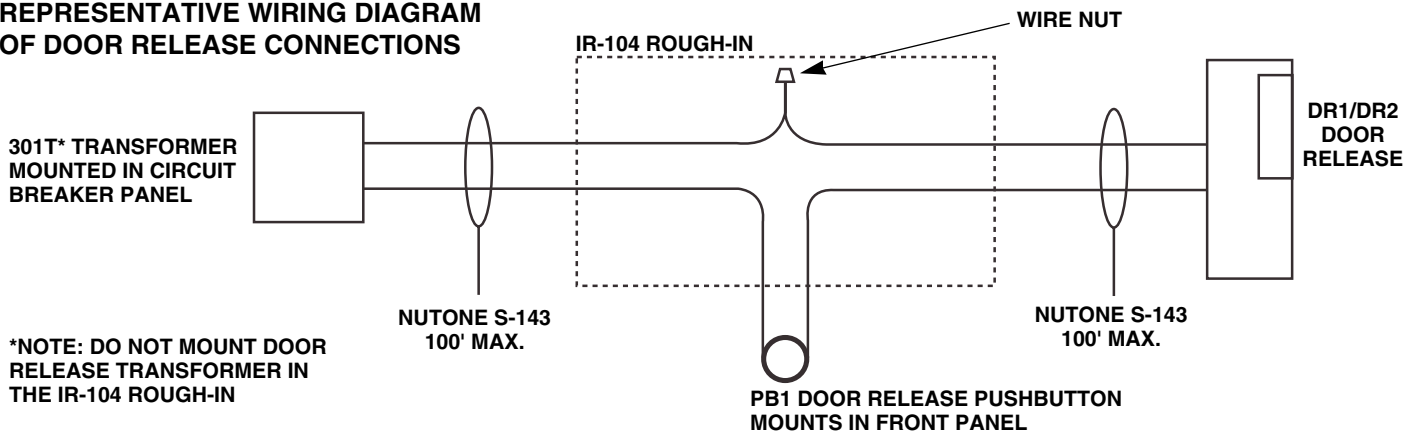
1. Observe local code requirements.
2. Route all system wiring as far as practical (at least 12") from household power wiring, lamp dimmers, furnace controls, etc.
3. Avoid stapling cables.
4. Be sure the IR-104 Rough-In is properly grounded to an earth ground source.
5. Use only IW-2 (2-conductor twisted pair) for connection to door speakers and electronic chime.

The IM-3303 Series Radio-Intercom System is designed to be used only with NuTone specified wire. No other wire should be used. The use of wire other than NuTone wire may result in faulty installation and improper operation.

IM-3303 SERIES SYSTEM WIRING DIAGRAM



REPRESENTATIVE WIRING DIAGRAM OF DOOR RELEASE CONNECTIONS



MASTER UNIT ROUGH-IN FRAME

MODEL IR-104 FRAME

1. **REQUIREMENTS** – Mounts between 16" center-to-center wall studs, with a minimum wall depth of 3½". Allow at least 4" from edge of frame to adjacent wall or cabinet.
2. Position frame only as shown. Install square and level at a convenient operation height (60" above floor to top of frame is normal for most installations).
3. Using screws or nails, mount frame between wall studs, securing through mounting slots in side of frame. Slots are provided so the frame may be adjusted to fit flush against the finished wall surface.

FOR EXISTING WALL CONSTRUCTION – Make wall cutout 14½" wide by 7" high between wall studs.

TRANSFORMER INSTALLATION

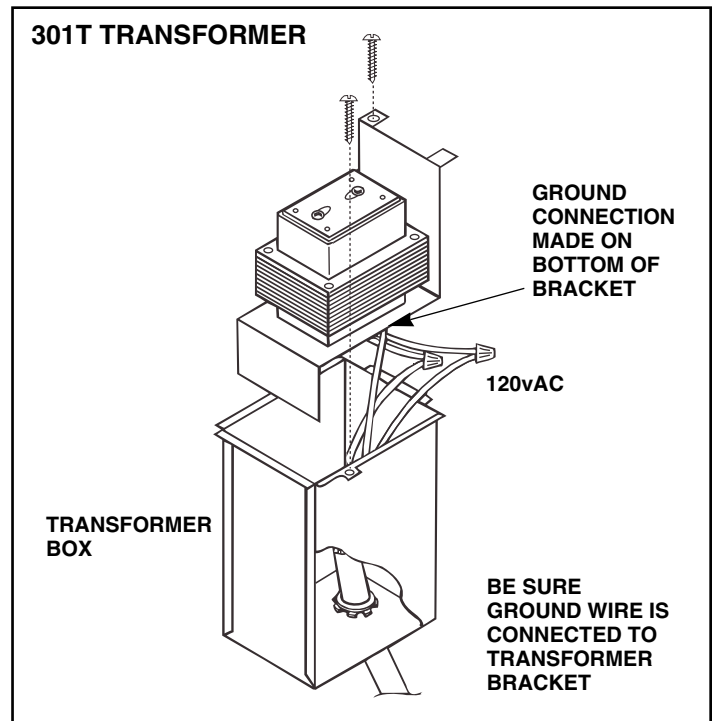
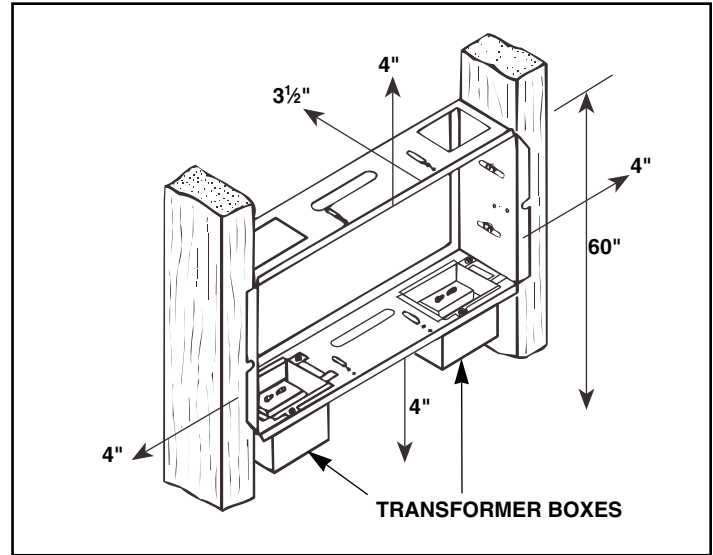
301T TRANSFORMERS (2 supplied with rough-in)

1. Place transformer boxes into IR-104 frame as shown in illustration.
2. Pull 120vAC house wiring through the holes in the bottom of transformer boxes and secure with box connectors (not supplied).
3. Connect transformers primary leads to 120vAC house wiring as shown in illustration. **Be sure ground wires are connected to transformer brackets.**
4. Place transformers into the transformer boxes. See illustration.
5. As illustrated, secure each transformer box with two screws.

AM/FM ANTENNA

Refer to page 7.

Install antenna as described in provided instructions. Leave 12" of antenna lead with pin connector for connection to master unit.



ACCESSORY ROUGH-IN FRAMES

NOTE: Refer to NuTone's catalog for model number information of the rough-in(s) that are required for mounting the components of the radio-intercom system.

Each rough-in has been illustrated in the following pages of this booklet; a brief description of the installation procedure is provided for each rough-in.

Refer to the installation instructions packaged with each rough-in for a more detailed installation procedure.

HOUSING (for recess-mounted door speakers)

NOTE: Surface-mounted door speaker models are available. For these models, no rough-in is required.

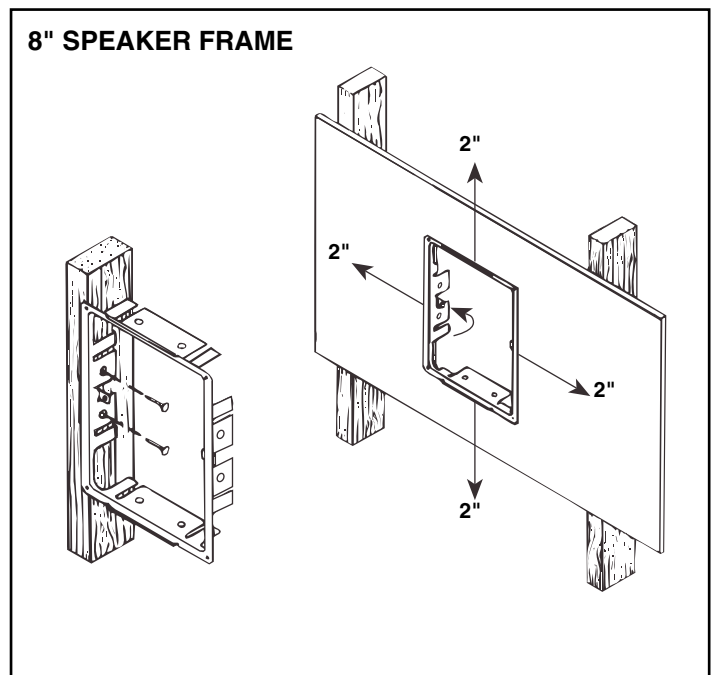
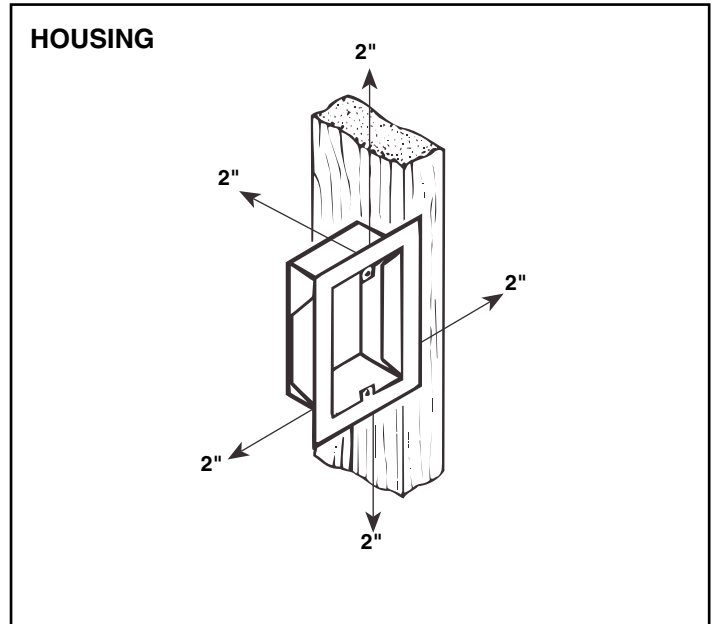
1. **REQUIREMENTS** – 2" from all sides of housing and a minimum wall depth of 2".
2. **DOOR SPEAKERS** – Don't mount door speakers with built-in pushbuttons out of normal reach; locate near door and not more than 60" above floor. Door speakers without pushbuttons can be mounted as desired near door (adjacent wall, porch ceiling, or overhang can be used, but audio to system will be reduced).
3. **FOR FRAME CONSTRUCTION** – Mount to stud through side of housing.
FOR MASONRY CONSTRUCTION – Make opening $3\frac{1}{16}$ " wide by 5" high and grout housing in place.

8" SPEAKER FRAME (for 8" inside remote speakers)

1. **REQUIREMENTS** – To accommodate the speaker panel, allow a minimum clearance – on all sides of the rough-in frame – of 2". Wall depth required: $2\frac{3}{4}$ ".
The speaker frame must be mounted in vertical position.
2. **NEW CONSTRUCTION** – Position frame against wall stud. Use nails or wood screws to secure frame to stud.
3. **EXISTING CONSTRUCTION** – Frame may be mounted next to a wall stud or between wall studs. Mounting tabs make mounting easy. Use frame as template for cutout. See instructions provided with frame.

WALL RECEPTACLE (for portable speaker)

1. Mounts to single gang outlet box.
2. Mount single-gang outlet box to wall stud, generally at same height as standard electrical outlet – 19" - 20" above floor. If finished wall is in place, use outlet box as template, and make cutout beside wall stud.

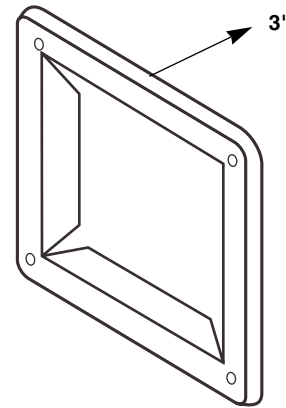


ACCESSORY ROUGH-IN FRAMES (CONTINUED)

8" SPEAKER FRAME (for 8" model outside speaker)

- 1. REQUIREMENTS** – Make an opening in an outside wall 10 $\frac{1}{16}$ " wide by 11 $\frac{1}{16}$ " high. The frame requires a minimum wall depth of 3".
2. Locate frame where desired (generally, top of frame about 60" from ground). For wood construction, mount frame through slots on each side. For other construction, frame must be grouted in place.

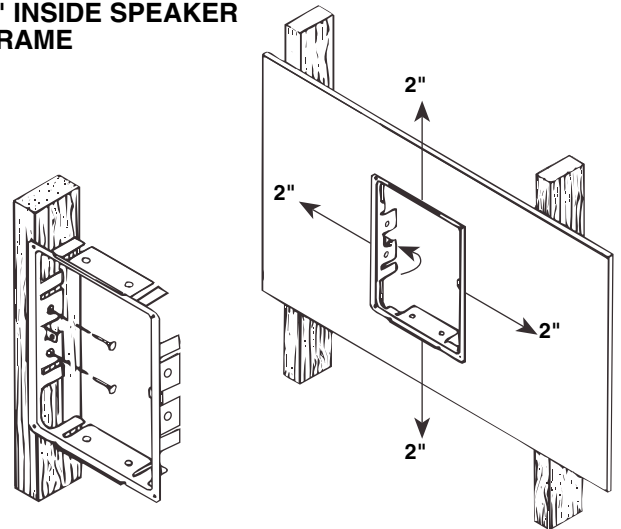
8" OUTSIDE SPEAKER FRAME



5" SPEAKER FRAME (for 5" inside remote speakers)

- 1. REQUIREMENTS** – To accommodate the speaker panel, allow a minimum clearance – on all sides of the rough-in frame – of two inches (2"). Wall depth required: 1 $\frac{5}{8}$ ".
The speaker frame must be mounted in vertical position.
- 2. NEW CONSTRUCTION** – Position frame against wall stud. Use nails or wood screws to secure frame to stud.
- 3. EXISTING CONSTRUCTION** – Frame may be mounted next to a wall stud or between wall studs. Mounting tabs make mounting easy. Use frame as template for cutout. See instructions provided with frame.

5" INSIDE SPEAKER FRAME



5" OUTSIDE SURFACE-MOUNT FRAME (supplied with 5" outside remote speakers)

1. Allow a minimum clearance on all sides of frame of 2".
2. Mount approximately 60" above floor.
3. Secure to wall through two mounting holes.

FRAME (for remote controls)

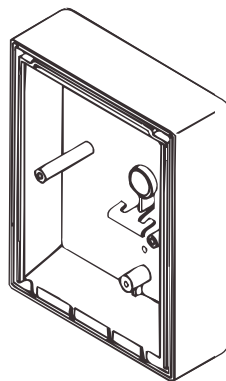
IMPORTANT: Speakers that do not have built-in controls require a separate remote control.

1. Remote Control should be located near the speaker which it will control. Locate Remote Control where it can be easily operated – generally, 50" - 60" above floor is satisfactory.

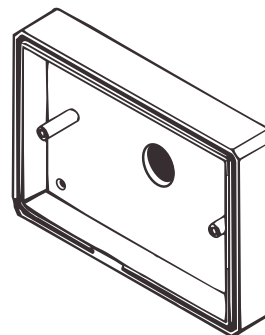
- 2. INSIDE HOUSE** – For recessed mounting, use rough-in housing and mount to wall stud.

OUTSIDE HOUSE – Must surface mount to the outside of the house. Secure to wall through four mounting holes (frame supplied with outside remote controls).

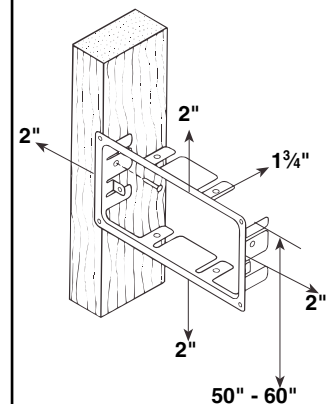
5" OUTSIDE SURFACE MOUNT FRAME



FRAME FOR OUTSIDE REMOTE CONTROLS



FRAME FOR INSIDE REMOTE CONTROLS



INSTALLING THE ANTENNA

The folded dipole antenna has a 20' lead which may be increased by attaching standard 300 ohm, twin lead (T.V. antenna wire) and should be installed using one of the following methods.

INSTALLATION METHODS

DIMENSIONS

Antenna Span: 60 inches.
Lead Length: 20 feet.

STAPLING

Refer to Figure 1.

Use staples to attach twin lead wire to rafters or joists. Insert the staple lengthwise in the plastic between the wires. **Do not staple across the wires.**

NAILING

Refer to Figure 2.

Nails may be used to attach the twin lead wire to rafters or joists. Place nails in the plastic between the two wires. **Do not nail over or through a wire. Do not wrap the twin-lead wire around a nail.**

Refer to Figure 3.

Nails may be used to attach the plastic center block and the two plastic end caps. Use nail holes provided in these pieces.

ATTIC RAFTER INSTALLATION

1. Refer to Figure 4. Staple antenna to attic rafters horizontally.
2. Refer to Figure 5. Nail a 5 foot piece of scrap board horizontally between rafters to provide a clear span of 60". Nail the center block to the center of the board. Staple antenna leads to board.

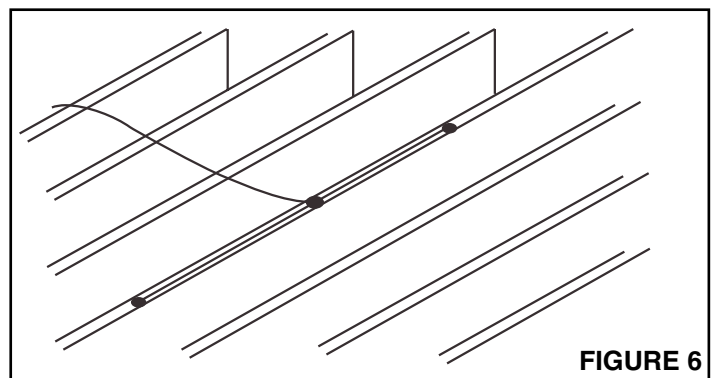
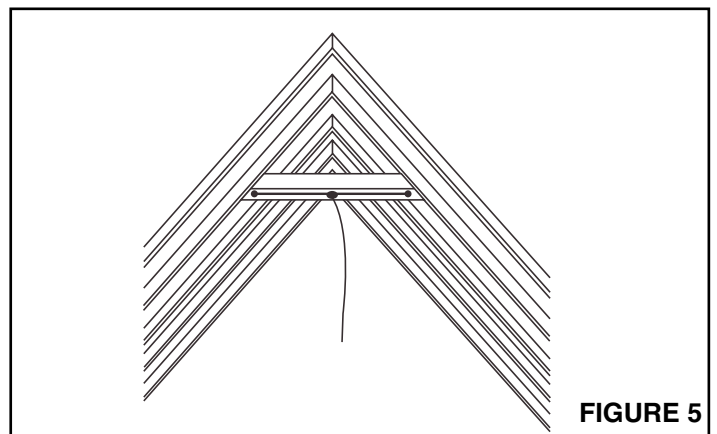
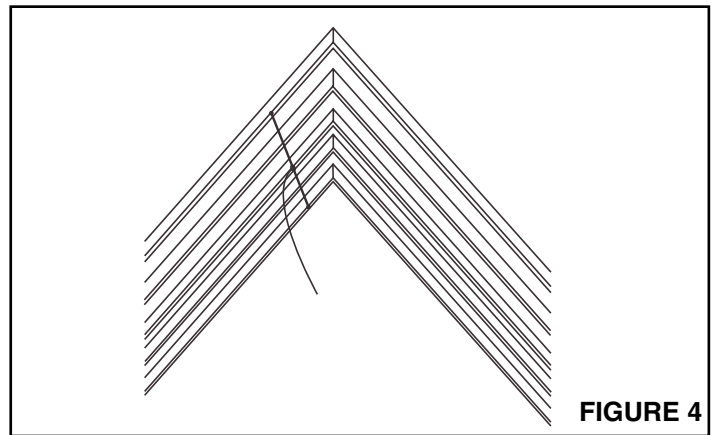
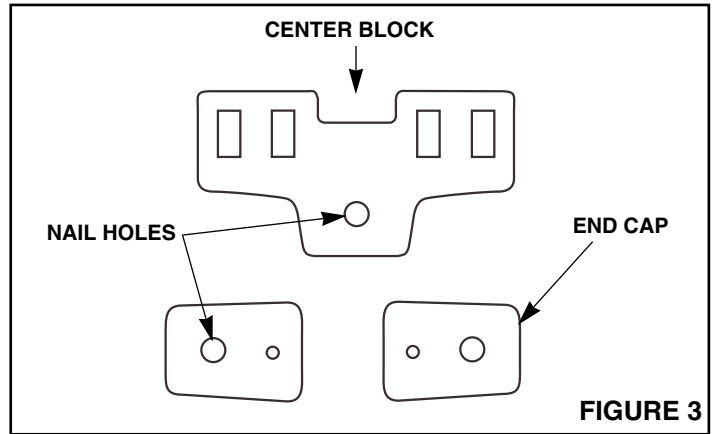
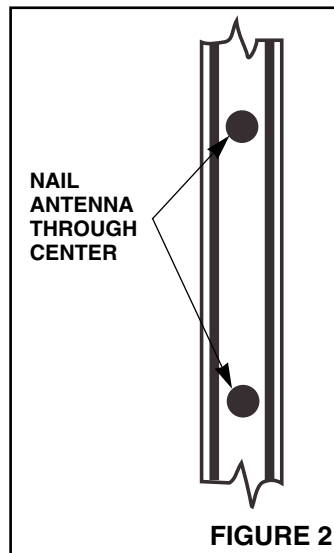
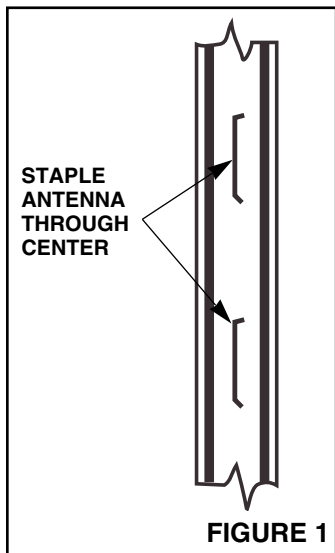
CEILING JOIST INSTALLATION

Refer to Figure 6.

When attic space is limited, staple antenna to ceiling joists.

TWIN-LEAD CONNECTION

1. Run the 20 foot twin lead to the master unit.
2. Place the antenna's connector onto the two pins on the master unit's master board as specified in master unit's installation instructions.



NuTone®

Two Year Limited Warranty

WARRANTY OWNER: NuTone warrants to the original consumer purchaser of its products that such products will be free from defects in materials or workmanship for a period of two (2) years from the date of original purchase. **THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

During this two year period, NuTone will, at its option, repair or replace, without charge, any product or part which is found to be defective under normal use and service. **THIS WARRANTY DOES NOT EXTEND TO FLUORESCENT LAMP STARTERS OR TUBES, FILTERS, DUCT, ROOF CAPS, WALL CAPS AND OTHER ACCESSORIES FOR DUCTING.** This warranty does not cover (a) normal maintenance and service or (b) any products or parts which have been subject to misuse, negligence, accident, improper maintenance or repair (other than by NuTone), faulty installation or installation contrary to recommended installation instructions.

The duration of any implied warranty is limited to the one year period as specified for the express warranty. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

NUTONE'S OBLIGATION TO REPAIR OR REPLACE, AT NUTONE'S OPTION, SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY. NUTONE SHALL NOT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH PRODUCT USE OR PERFORMANCE. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. This warranty supersedes all prior warranties.

WARRANTY SERVICE: To qualify for warranty service, you must (a) notify NuTone at the address stated below or telephone 1/800-543-8687, (b) give the model number and part identification and (c) describe the nature of any defect in the product or part. At the time of requesting warranty service, you must present evidence of the original purchase date.

Date of Installation

Builder or Installer

Model No. and Product Description

IF YOU NEED ASSISTANCE OR SERVICE:

For the location of your nearest NuTone Independent Authorized Service Center:

Residents of the contiguous United States Dial Free 1-800-543-8687

Please be prepared to provide:

Product model number • Date and Proof of purchase • The nature of the difficulty

Residents of Alaska or Hawaii should write to: NuTone Inc. Attn: Department of National Field Service, 4820 Red Bank Road, Cincinnati Ohio 45227-1599.

Residents of Canada should write to: Broan-NuTone Canada, 1140 Tristar Drive, Mississauga, Ontario, Canada L5T 1H9.

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Product specifications subject to change without notice.

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