

## FSD/SD60, 60-2, 60-3, 35(SS), 36(SS) & 37(SS) SD50 MULTIPLE SECTION DETAILS

### APPLICATION

Ruskin combination fire smoke dampers are available with a variety of electric and pneumatic actuators for internal or external mounting. Ruskin has the largest selection of actuators and damper configurations available to meet the needs of our customers. All configurations and actuators called out are two position (Power Open and Fail Closed) actuators.

Ruskin combination fire smoke dampers are tested as a damper/actuator assembly per UL555S. The minimum UL555S test requirement is 2000 FPM, 4" S.P. and 250°F. Other velocities, static pressures and temperatures are available. See individual damper spec sheets for additional information.

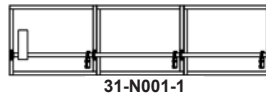
### HOW TO USE

1. Determine number of damper sections based on width and height.
2. Determine number of actuators.
3. Determine actuator installation "Internal" (in-the-airstream) or "External" (out-of-the-airstream).
4. Based on number of damper sections, quantity of actuators and actuator installation, determine which configuration shown on the following pages best suits the application.
5. Details with (001) "factory controlled" numbers are the default configurations.

(a) Example: 21-E001-2



(b) Example: 31-N001-1

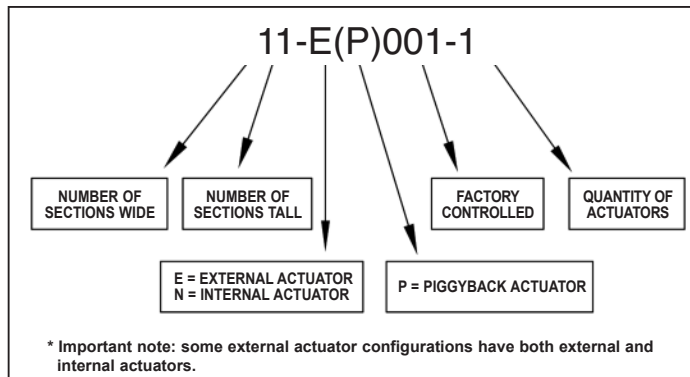


6. Optional configurations must match damper sections, actuator quantity and actuator installation.
7. Desired optional configurations must be noted on order.
8. Orders without an optional configuration specified will be built per default configurations.



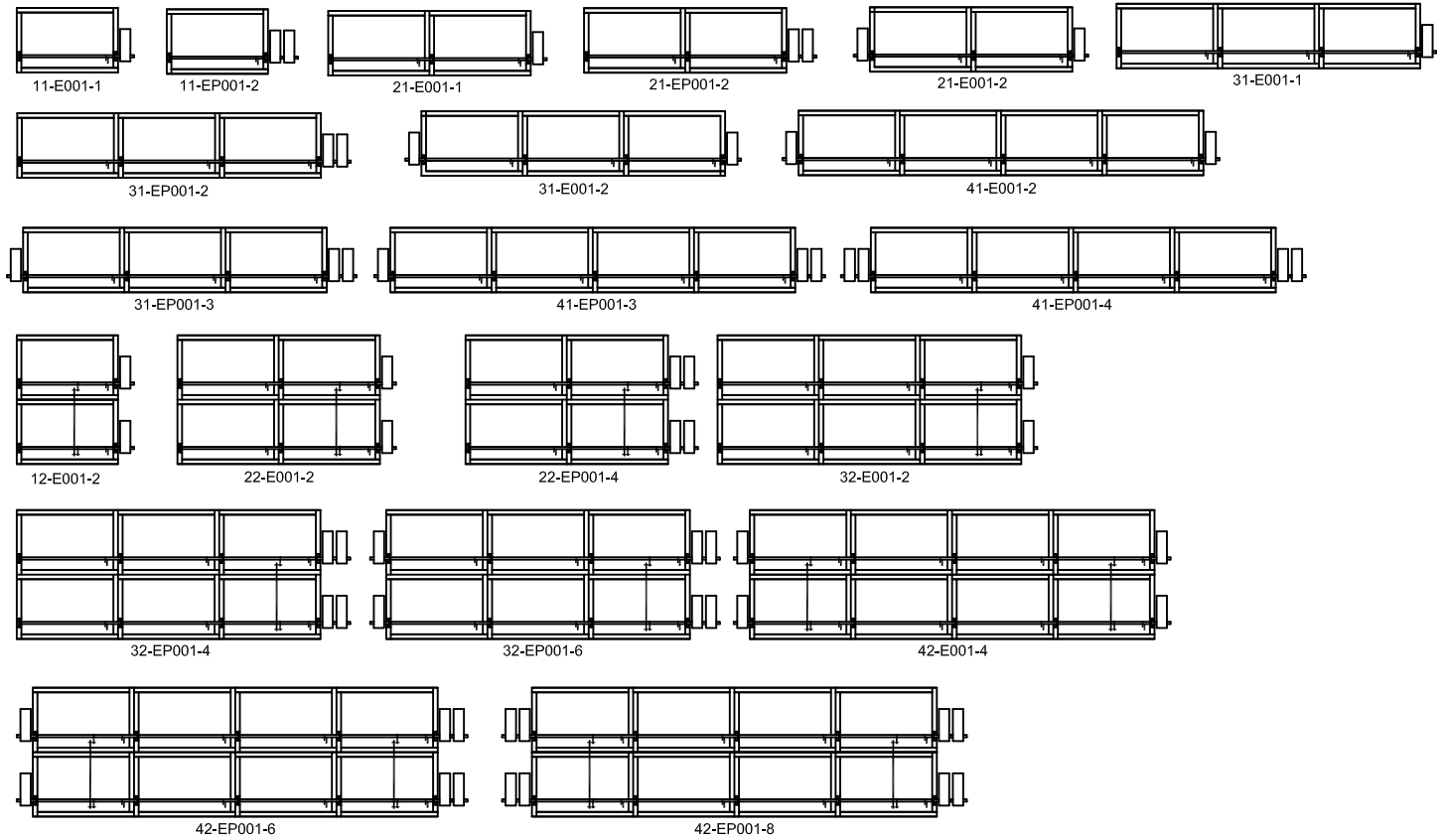
### NOTES:

1. The following details are for all standard FSD models. For models C, G, FA, GA, OW, M, BAL & XP; see individual damper spec sheet for model specific sizing.
2. Dampers larger than the maximum single section size are manufactured in multiple section assemblies consisting of equal size sections not exceeding the maximum single section size.
3. Dampers over 84" tall are shipped in multiple assemblies. See individual damper basic installation instructions for details.
4. The details shown on the following pages reflect maximum actuator/damper size limitations based on testing to UL555S.
5. All actuators must be factory mounted.
6. Actuators installed out-of-the-air-stream may extend above or below the height of the damper. Refer to the data sheet "Actuators and Accessories Space Envelope for All Fire and Smoke Dampers" for more information.
7. When obstructions are in the way, the actuators may be factory located in-the-airstream or a combination of internal and external mounting can be done to access the actuators

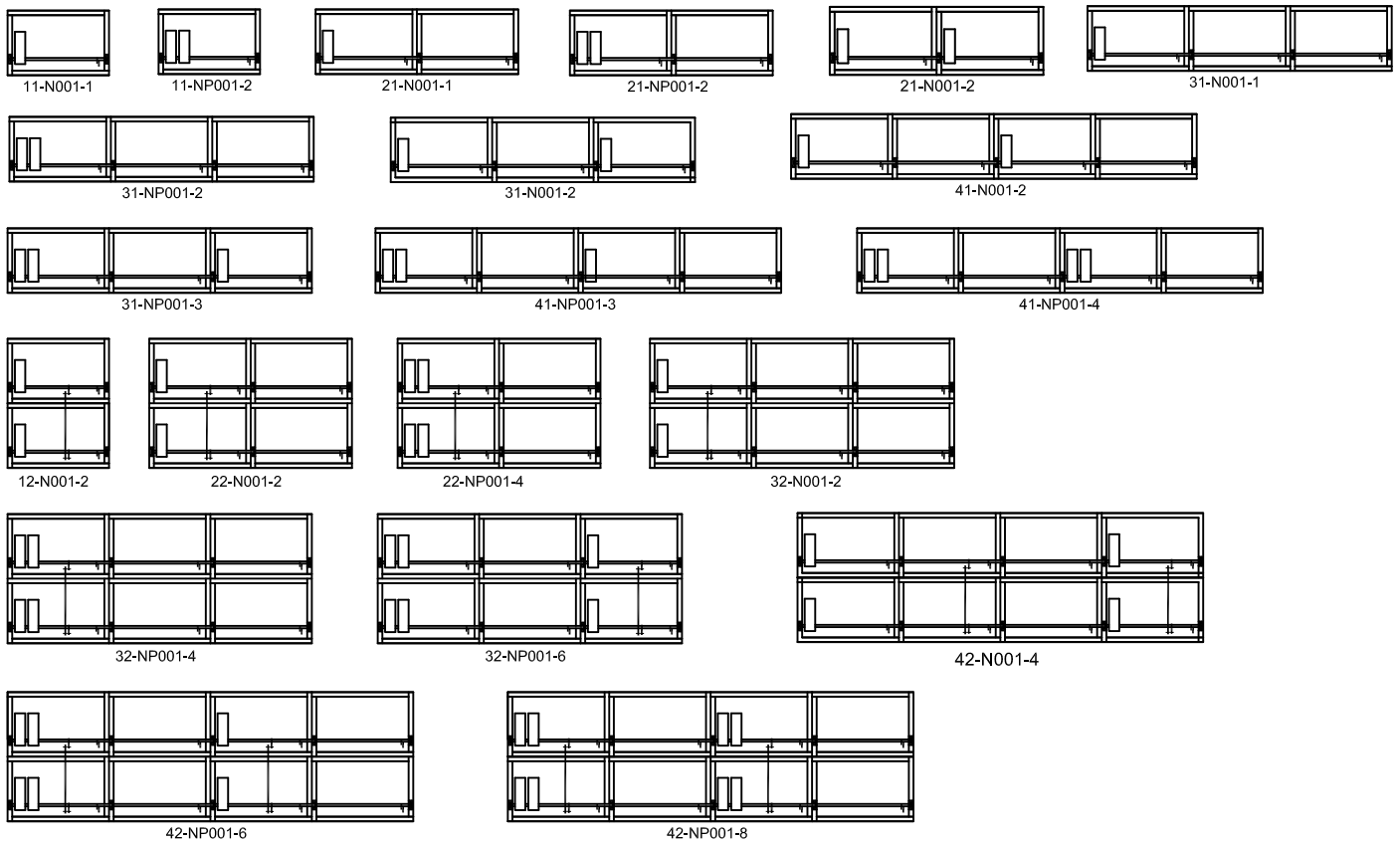


\*\*\*Ruskin tests combination fire smoke dampers to UL555S with actuators mounted both "External" (out-of-the-airstream) and "Internal" (in-the-air-stream). This allows Ruskin to mount actuators in multiple locations and configurations for each damper assembly.

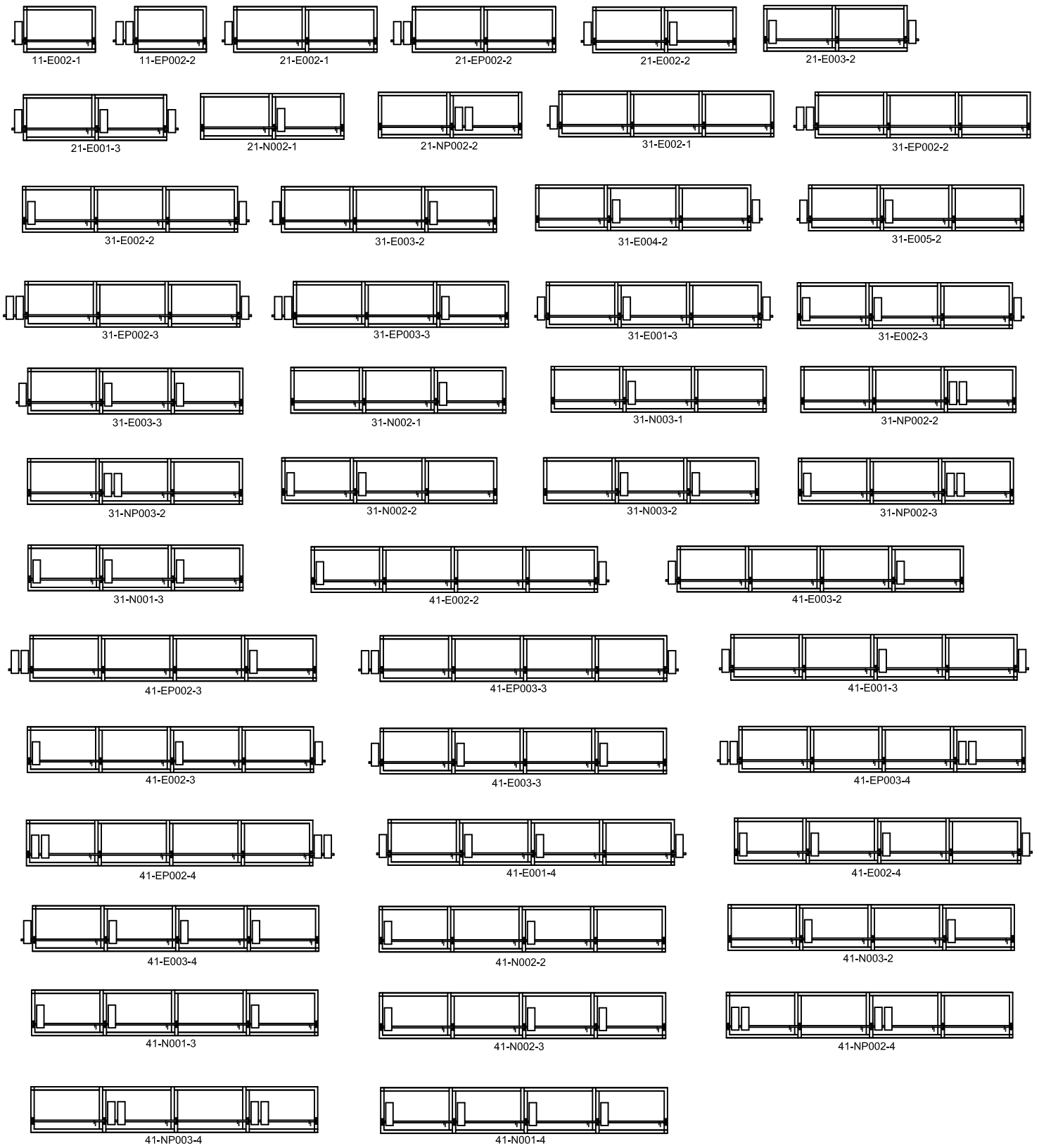
## EXTERNAL DEFAULT CONFIGURATIONS



## INTERNAL DEFAULT CONFIGURATIONS



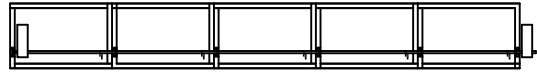
# OPTIONAL SINGLE SECTION TALL CONFIGURATIONS



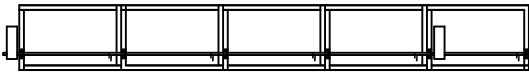
# OPTIONAL SINGLE SECTION TALL CONFIGURATIONS CONTINUED



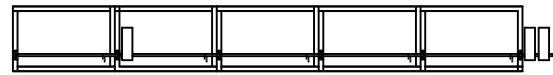
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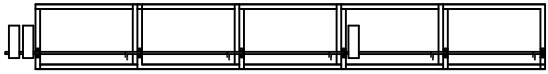
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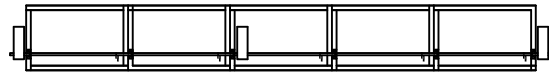
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51-EP001-3



51-EP002-3



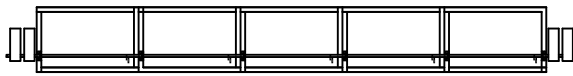
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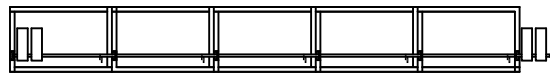
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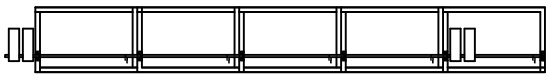
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51-EP002-4



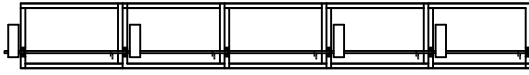
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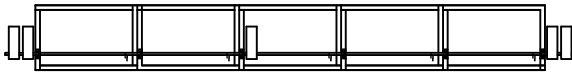
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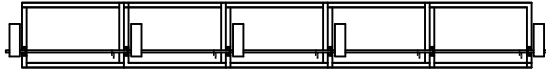
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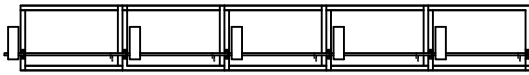
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51-E001-5



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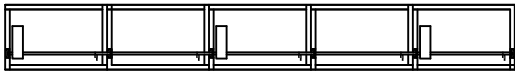
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51-NP001-3



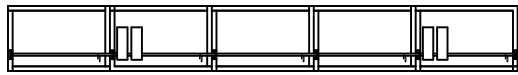
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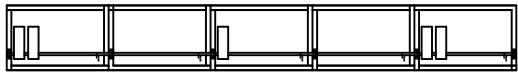
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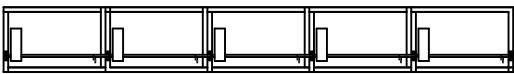
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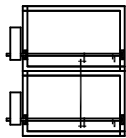


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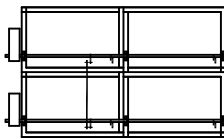


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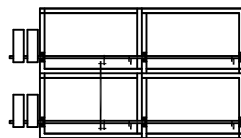
# OPTIONAL TWO SECTION TALL CONFIGURATIONS



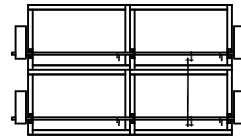
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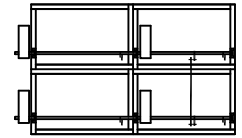
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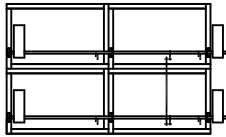
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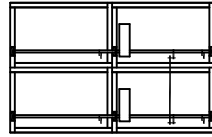
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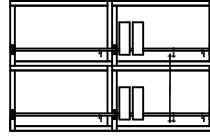
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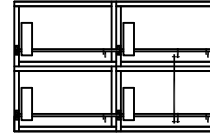
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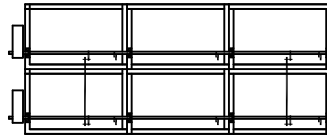
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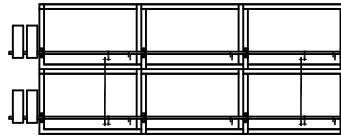
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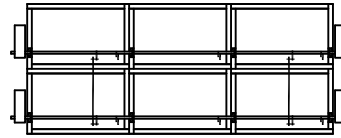
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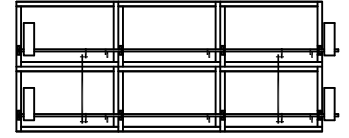
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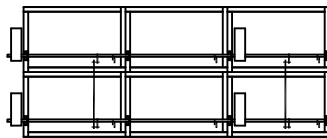
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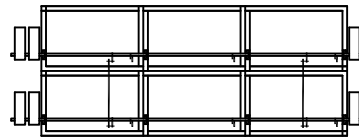
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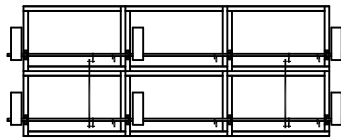
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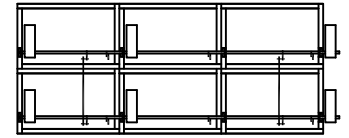
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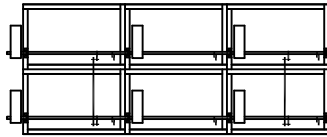
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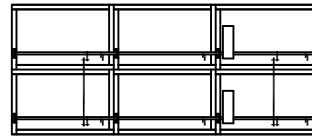
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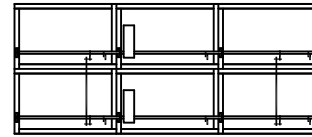
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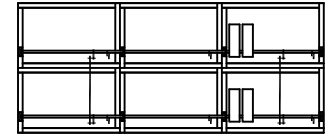
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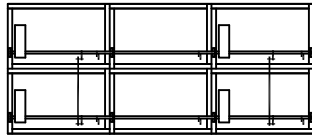
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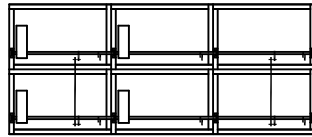
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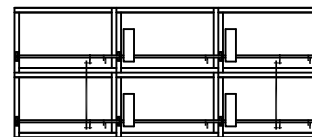
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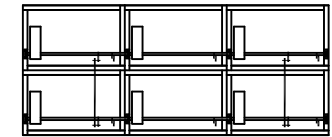
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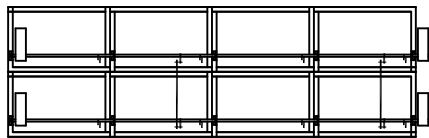
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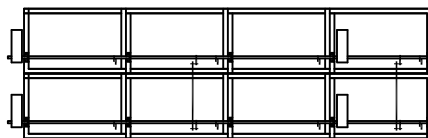
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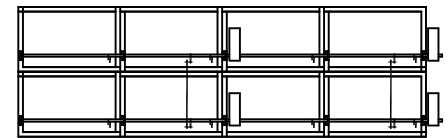
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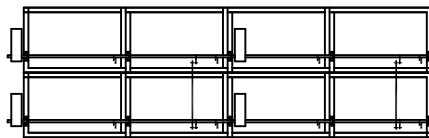
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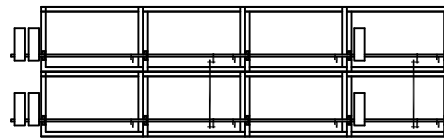
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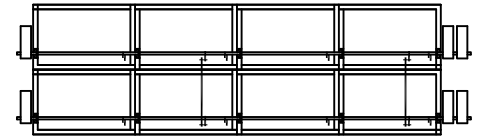
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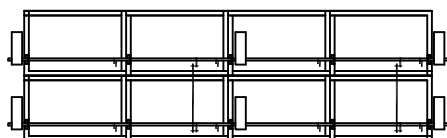
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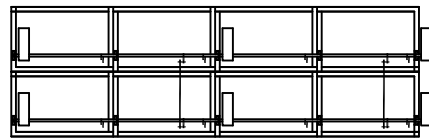
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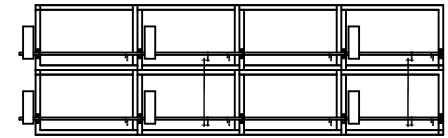
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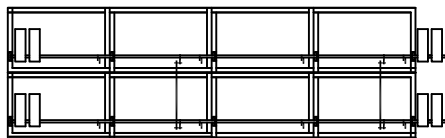
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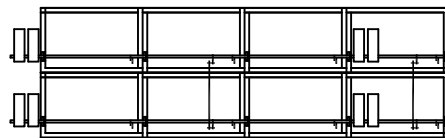
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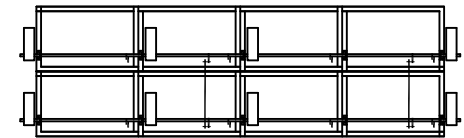
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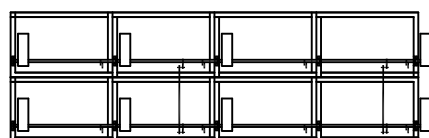
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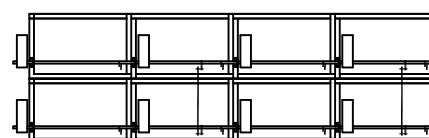
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42-E001-8

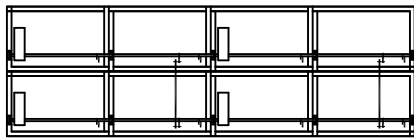


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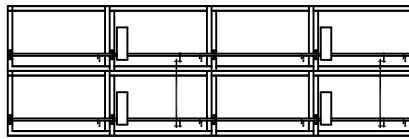


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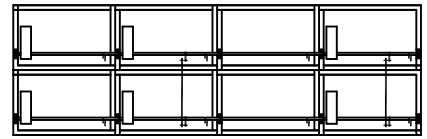
# OPTIONAL TWO SECTION TALL CONFIGURATIONS CONTINUED



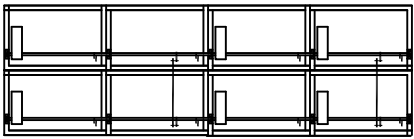
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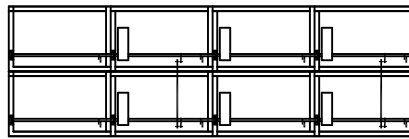
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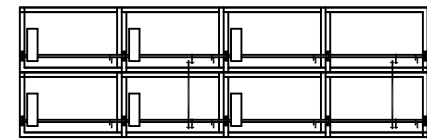
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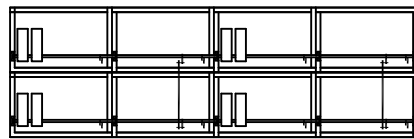
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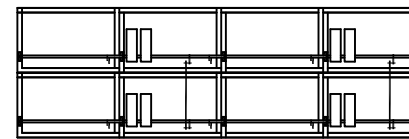
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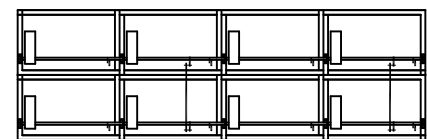
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42-NP002-8



42-NP003-8



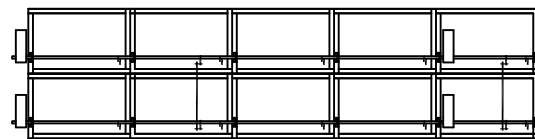
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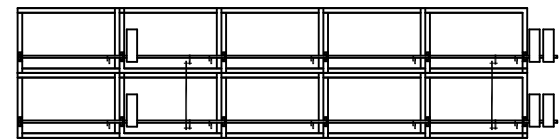
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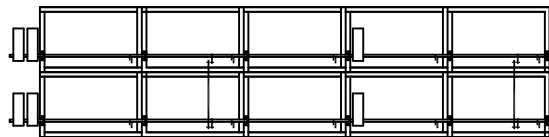
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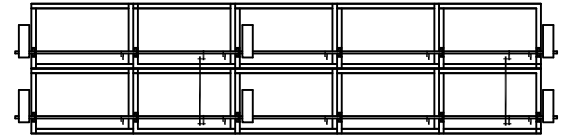
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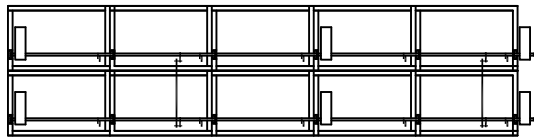
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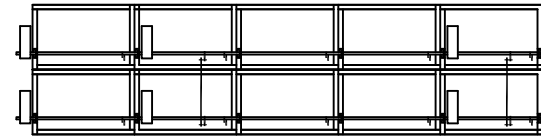
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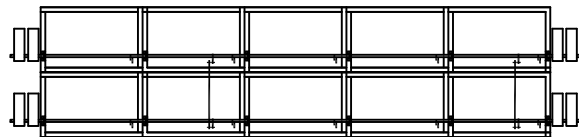
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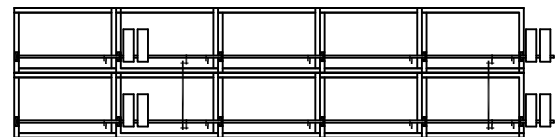
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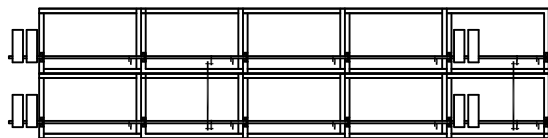
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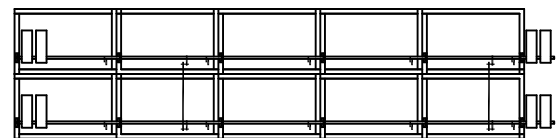
52-EP001-8



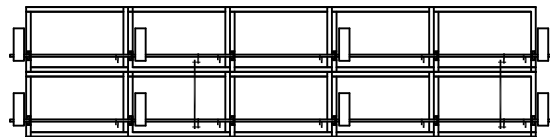
52-EP002-8



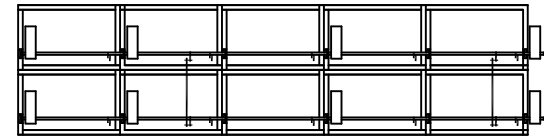
52-EP003-8



52-EP004-8

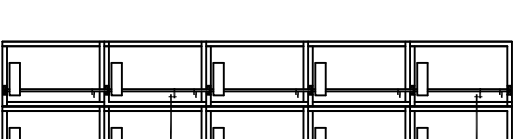
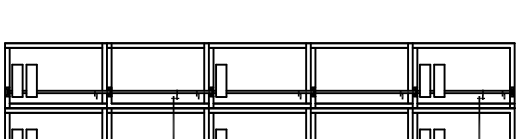
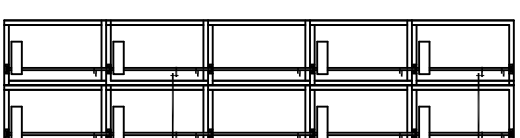
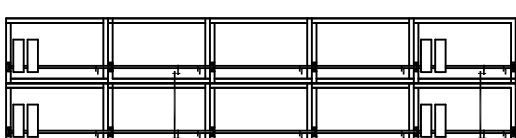
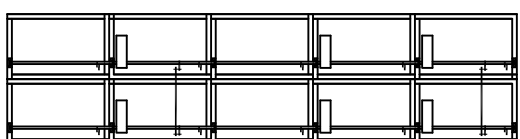
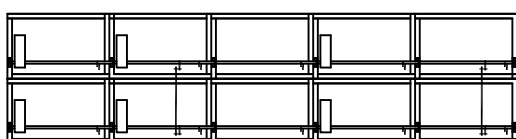
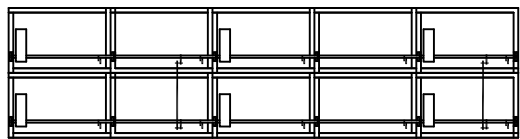
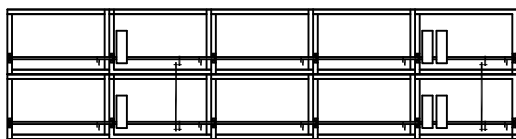
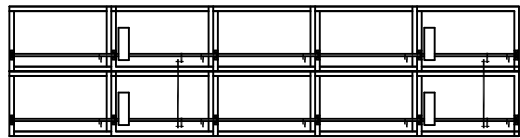
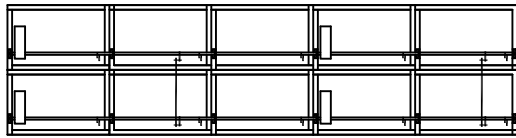
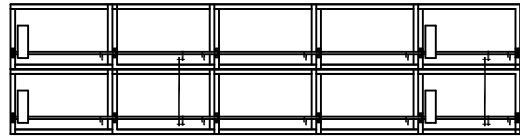
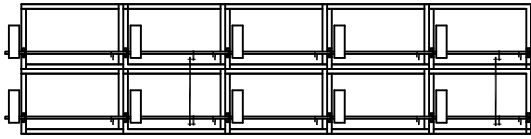
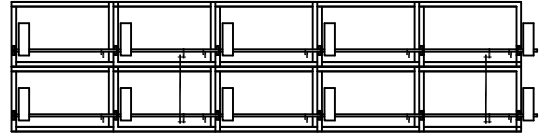
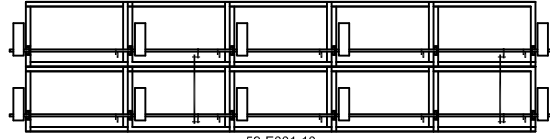
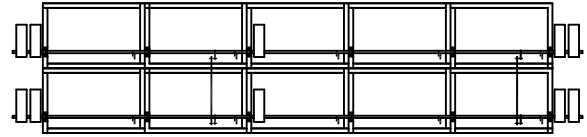
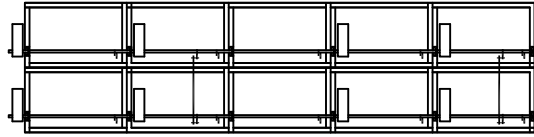


52-E001-8

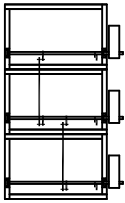


52-E002-8

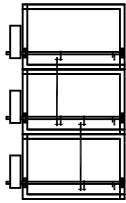
# OPTIONAL TWO SECTION TALL CONFIGURATIONS CONTINUED



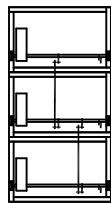
# OPTIONAL THREE SECTION TALL CONFIGURATIONS



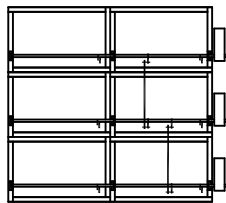
13-E001-3



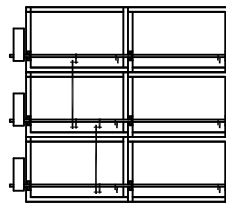
13-E002-3



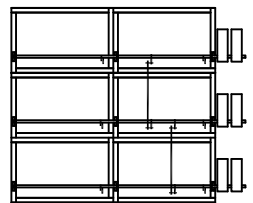
13-N001-3



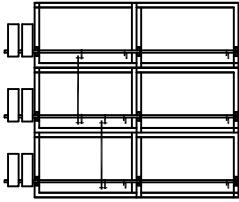
23-E001-3



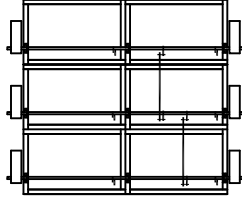
23-E002-3



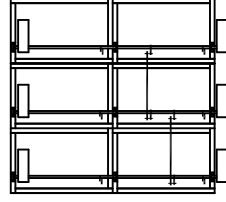
23-EP001-6



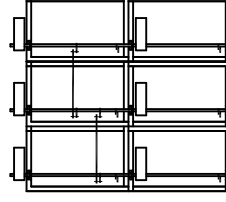
23-EP002-6



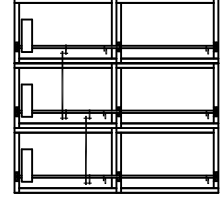
23-E001-6



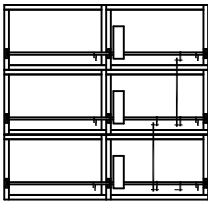
23-E002-6



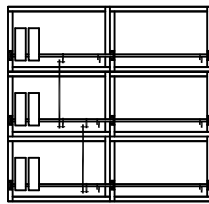
23-E003-6



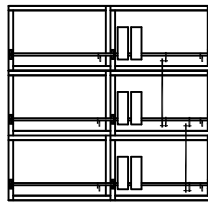
23-N001-3



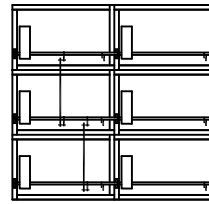
23-N002-3



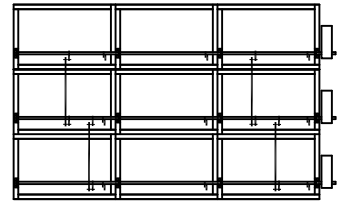
23-NP001-6



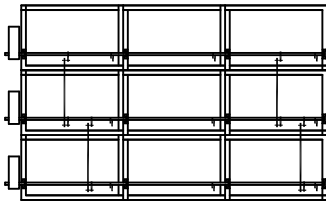
23-NP002-6



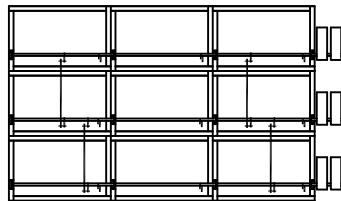
23-N001-6



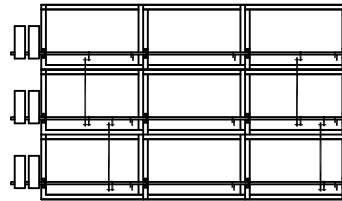
33-E001-3



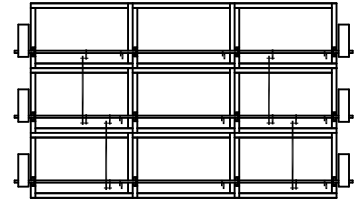
33-E002-3



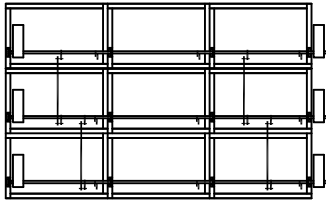
33-EP001-6



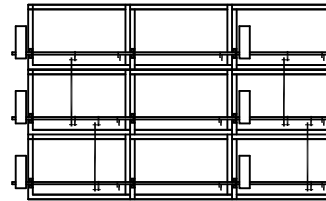
33-EP002-6



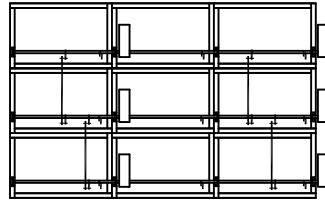
33-E001-6



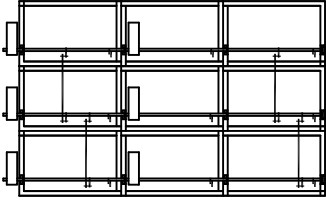
33-E002-6



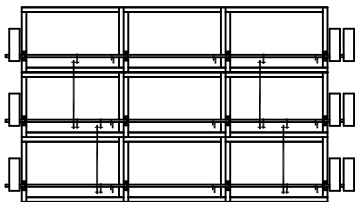
33-E003-6



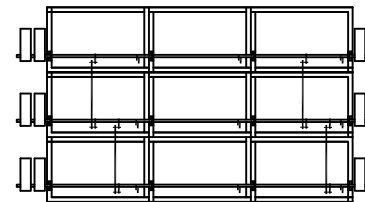
33-E004-6



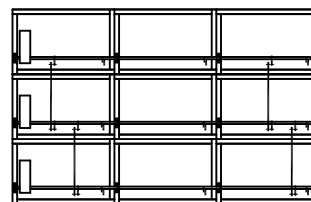
33-E005-6



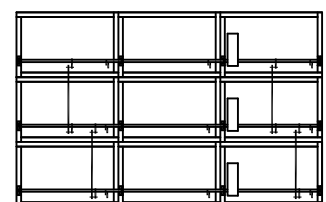
33-EP001-9



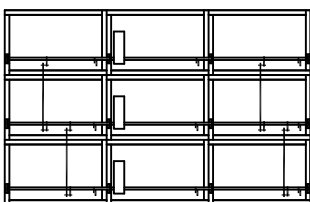
33-EP002-9



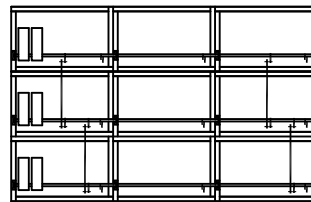
33-N001-3



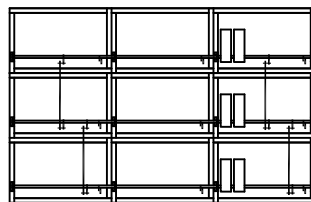
33-N002-3



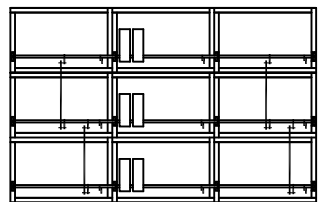
33-N003-3



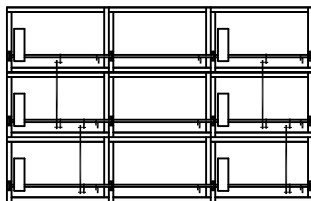
33-NP001-6



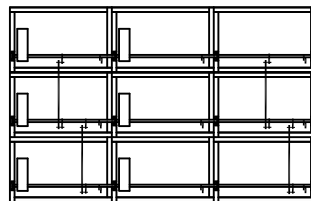
33-NP002-6



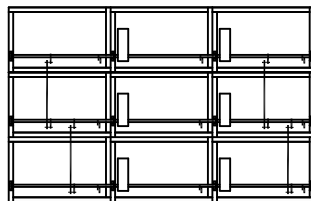
33-NP003-6



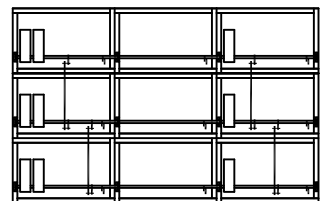
33-N001-6



33-N002-6



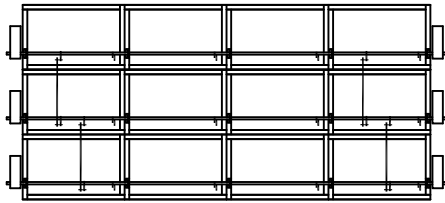
33-N003-6



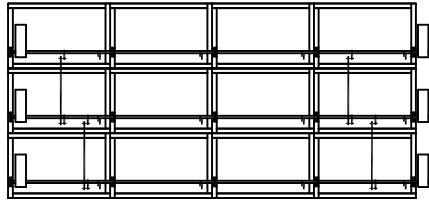
33-NP001-9



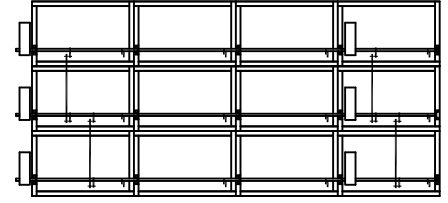
## OPTIONAL THREE SECTION TALL CONFIGURATIONS CONTINUED



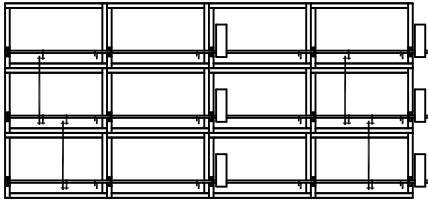
43-E001-6



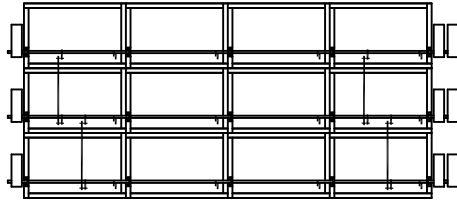
43-E002-6



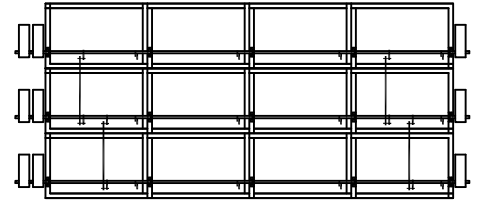
43-E003-6



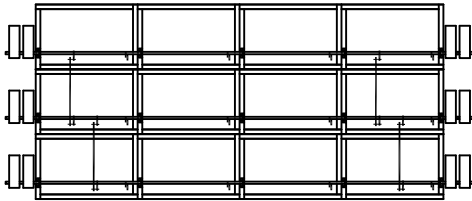
43-E004-6



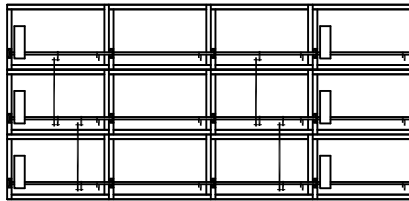
43-EP001-9



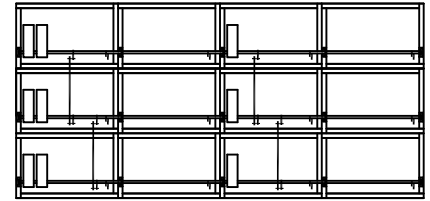
43-EP002-9



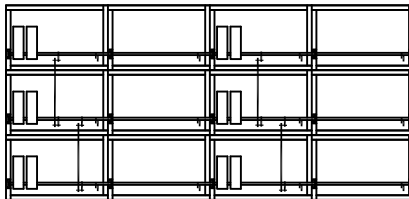
43-EP001-12



43-N001-6

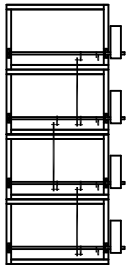


43-NP001-9

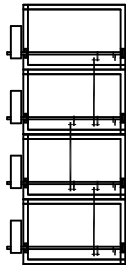


43-NP001-12

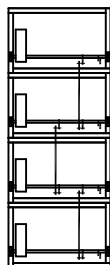
## OPTIONAL FOUR SECTION TALL CONFIGURATIONS



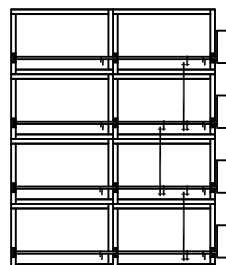
14-E001-4



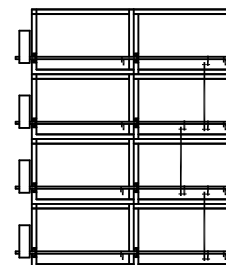
14-E002-4



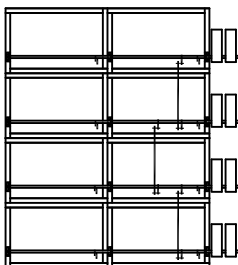
14-N001-4



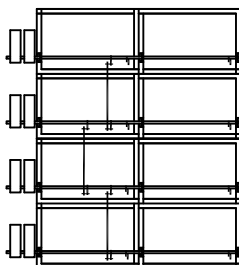
24-E001-4



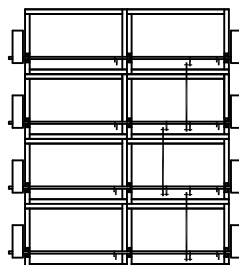
24-E002-4



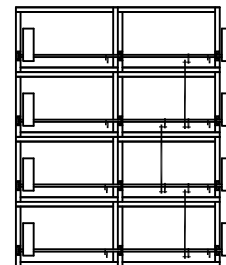
24-EP001-8



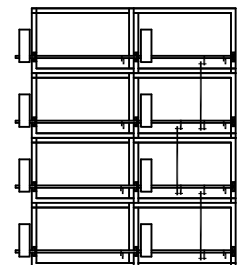
24-EP002-8



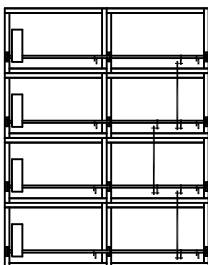
24-E001-8



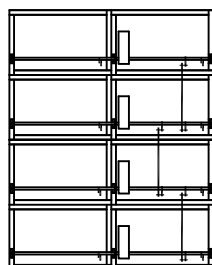
24-E002-8



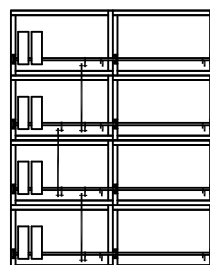
24-E003-8



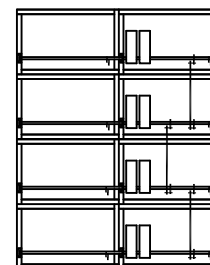
24-N001-4



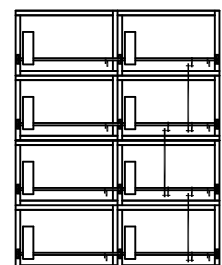
24-N002-4



24-NP001-8

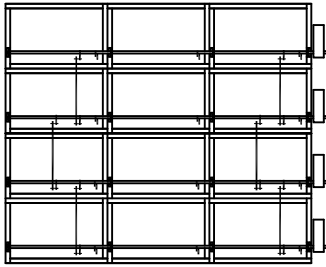


24-NP002-8

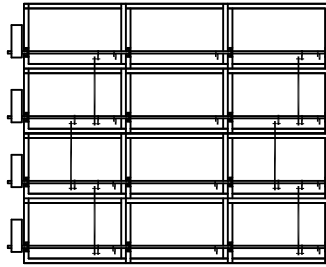


24-N001-8

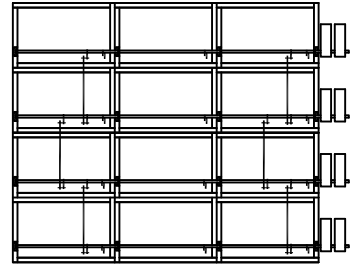
# OPTIONAL FOUR SECTION TALL CONFIGURATIONS CONTINUED



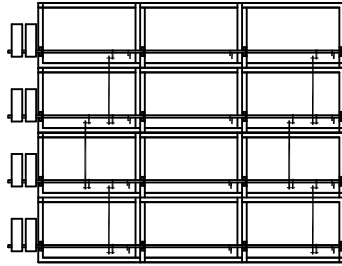
34-E001-4



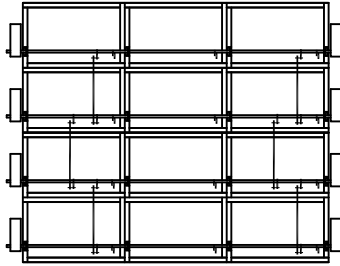
34-E002-4



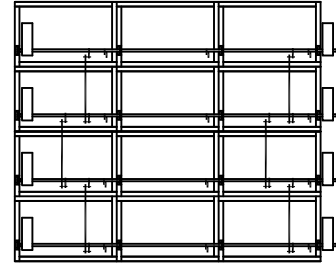
34-EP001-8



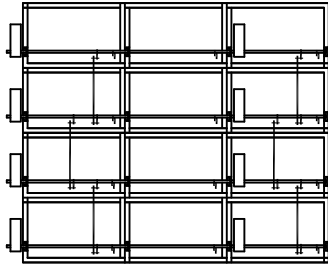
34-EP002-8



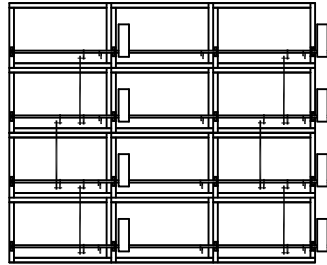
34-E001-8



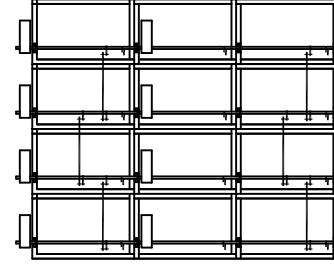
34-E002-8



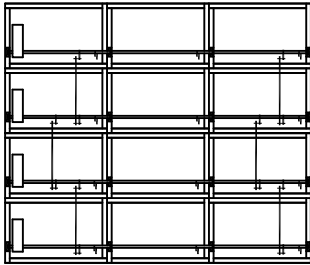
34-E003-8



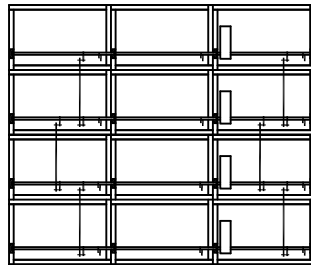
34-E004-8



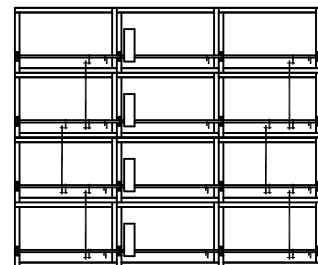
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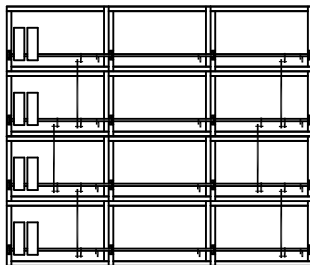
34-N001-4



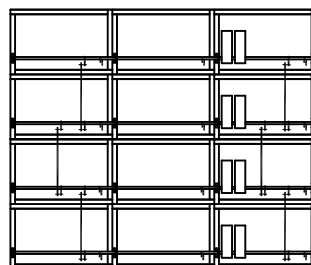
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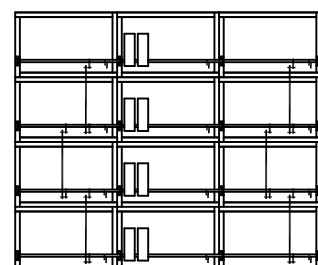
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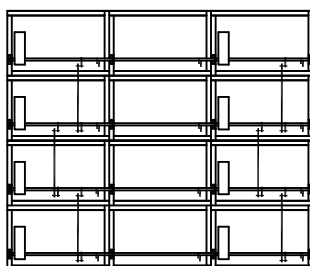
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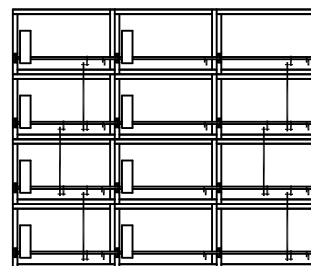
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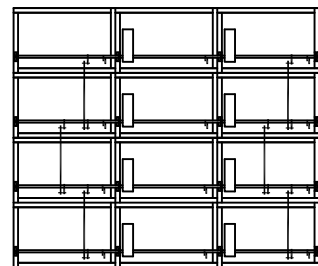
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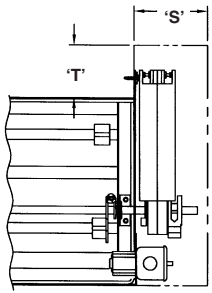


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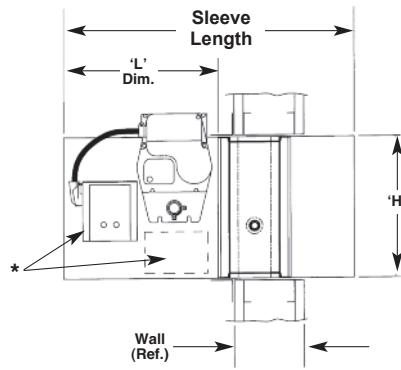


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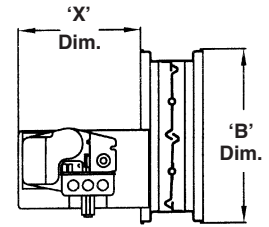
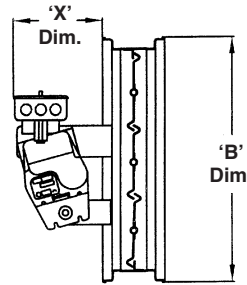
# TYPICAL ACTUATOR MOUNTING



Ruskin recommends 6" (152) of additional space beyond the "S" dimension for ease of maintenance.



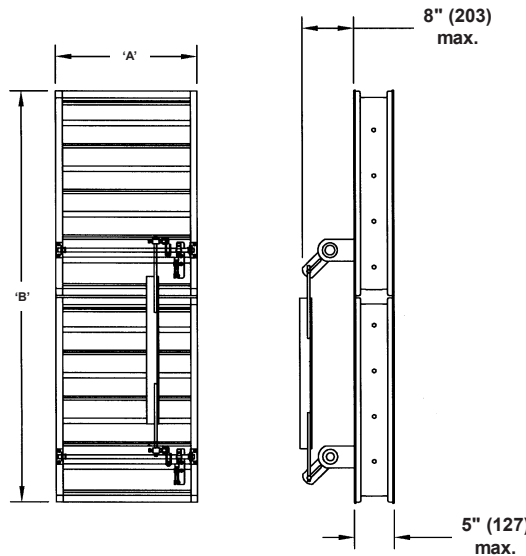
TYPICAL EXTERNAL MOUNT



TYPICAL INTERNAL MOUNT

NOTE: See the appropriate damper spec sheet for the actuator envelope dimensions.

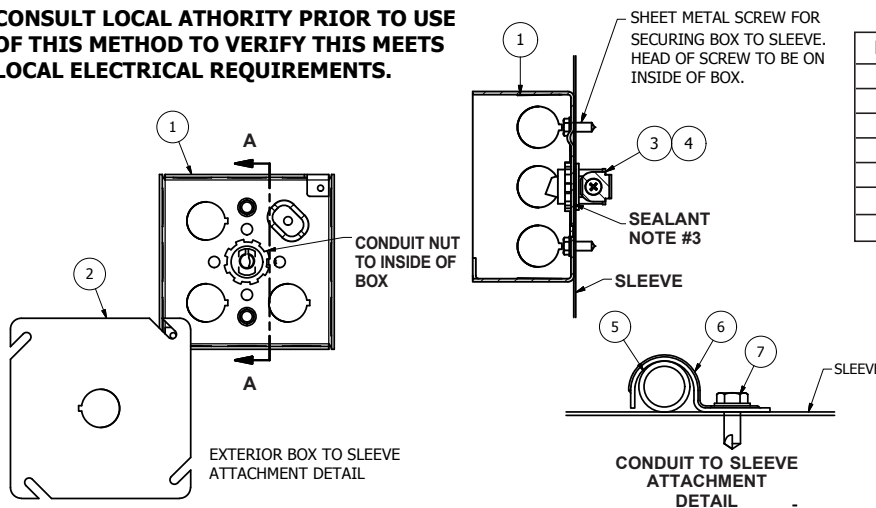
# CROSS-OVER LINKAGE DETAIL



NOTE: Damper assemblies two sections high require crossover linkage per the detail below.

# RECOMMENDED SLEEVE PENETRATION DETAIL

CONSULT LOCAL AUTHORITY PRIOR TO USE OF THIS METHOD TO VERIFY THIS MEETS LOCAL ELECTRICAL REQUIREMENTS.



ITEM	DESCRIPTION
1	JUNCTION BOX NOTE #2
2	COVER PLATE
3	METALIC CONDUIT FITTING
4	ANTI-SHORT BUSHING
5	CONDUIT
6	CONDUIT STRAP: 1/2" FASTENAL #44564 OR EQUAL
7	TEK SCREW 10-16 HWH TEK

**NOTES:**

1. DETAIL INDICATES METHOD FOR PENETRATING DUCT & SLEEVE FOR ROUTING ELECTRICAL POWER TO DAMPER OPERATORS.
2. 4 X 4 JUNCTION BOX SHOWN. JUNCTION BOX SIZE AS REQUIRED BY ELECTRICAL CODE.
3. KNOCKOUT HOLE IN SLEEVE MAY BE SEALED. SEE INSTALLATION INSTRUCTION SUPPLEMENT FOR OPTIONAL SEALANTS TO BE USED.



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