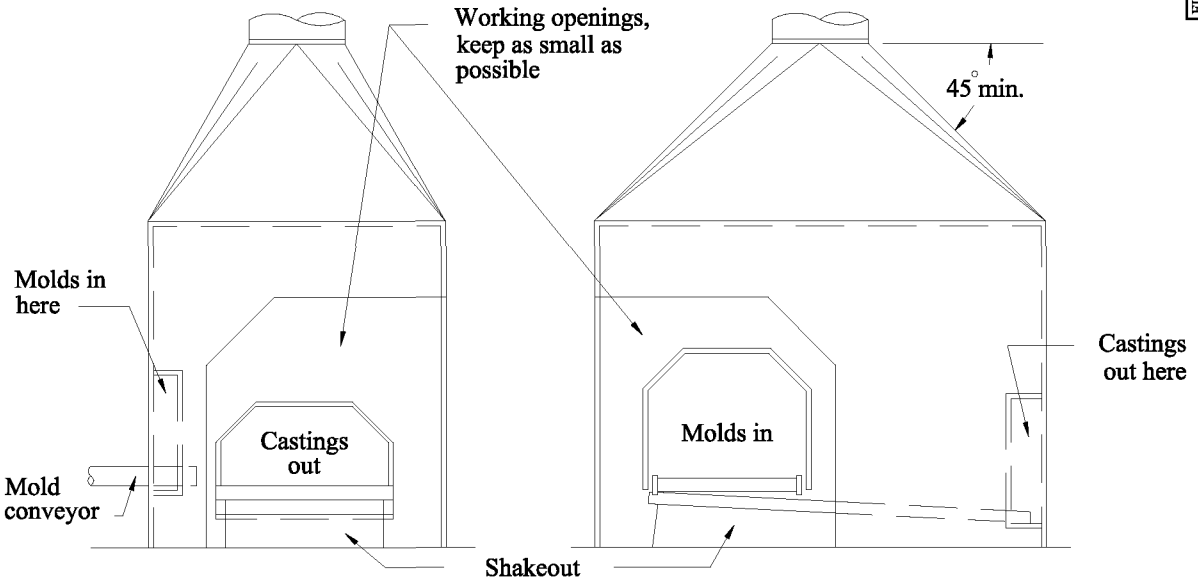
FIGURE VS-20-01

ENCLOSING HOOD

Provides best control with least flow rate
Minimum duct velocity = 4000 fpm
$h_e = 0.25\ VP_d$



Shakeout exhaust, minimum *

Type of hood	Hot castings	Cool castings
Enclosing ** VS-20-01	200 cfm/ft^2 opening At least 200 cfm/ft^2 grate area	200 cfm/ft^2 opening At least 150 cfm/ft^2 grate area
Two sides and 1/3 top area enclosed ** VS-20-02	300 cfm/ft^2 grate area	275 cfm/ft^2 grate area
Side hood (as shown or equivalent) ** VS-20-02	400-500 cfm/ft^2 grate area	350-400 cfm/ft^2 grate area
Double side hood ** VS-20-02	400 cfm/ft^2 grate area	300 cfm/ft^2 grate area

* Choose higher values when
(1) Castings are quite hot
(2) Sand to metal ratio is low
(3) Cross-drafts are high

** Shakeout hoppers require an additional 10% exhaust.

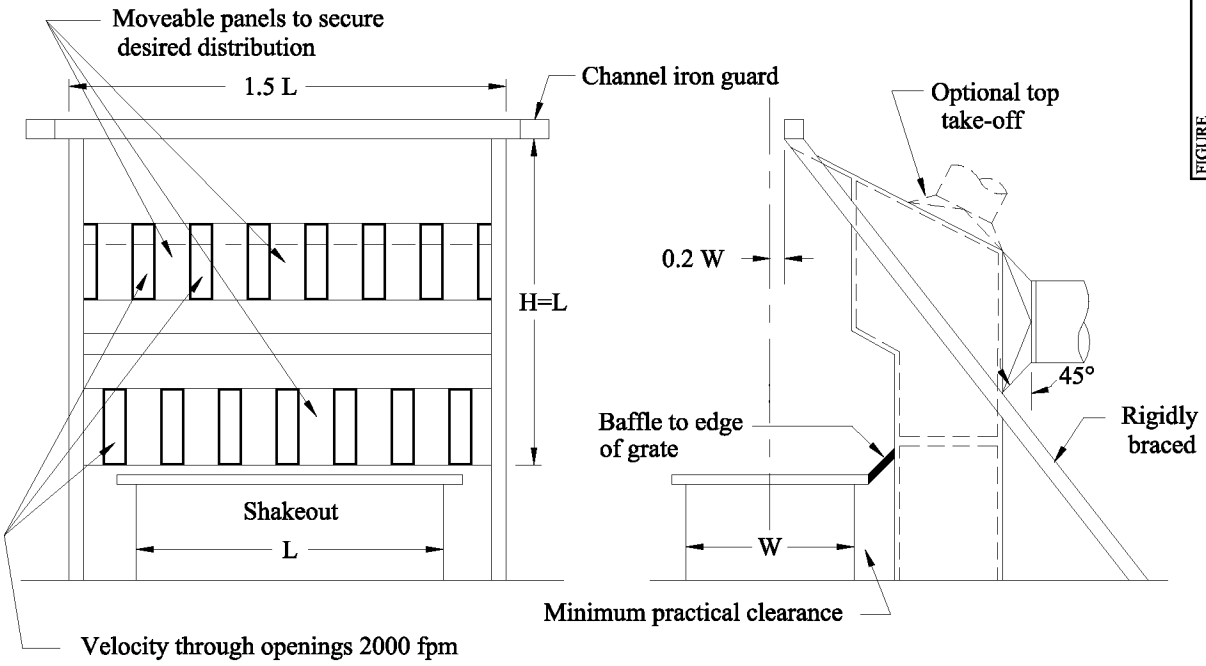
ACGIH® WORLDWIDE

TITLE
FOUNDRY SHAKEOUT ENCLOSURE

FIGURE
VS-20-01

DATE
10-90

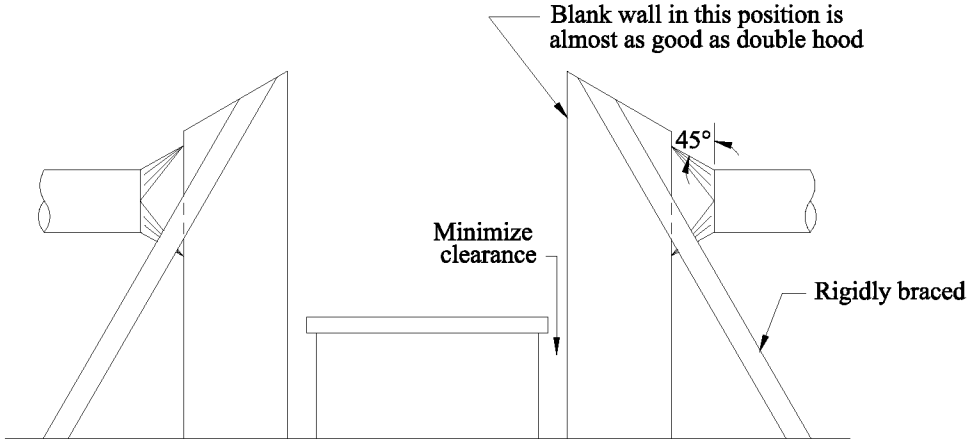
FIGURE VS-20-02



SIDE-DRAFT HOOD

Minimum duct velocity = 4000 fpm

$h_e = 1.78\ VP_s + 0.25\ VP_d$



DOUBLE SIDE-DRAFT

Proportions same as single side-draft hood except for overhang

Minimum duct velocity = 4000 fpm

Slots sized for 2000 fpm

$h_e = 1.78\ VP_s + 0.25\ VP_d$

See VS-20-01 for exhaust rates

	TITLE	FIGURE
ACGIH® WORLDWIDE	FOUNDRY SHAKEOUT SIDE DRAFT	VS-20-02
		DATE 10-90

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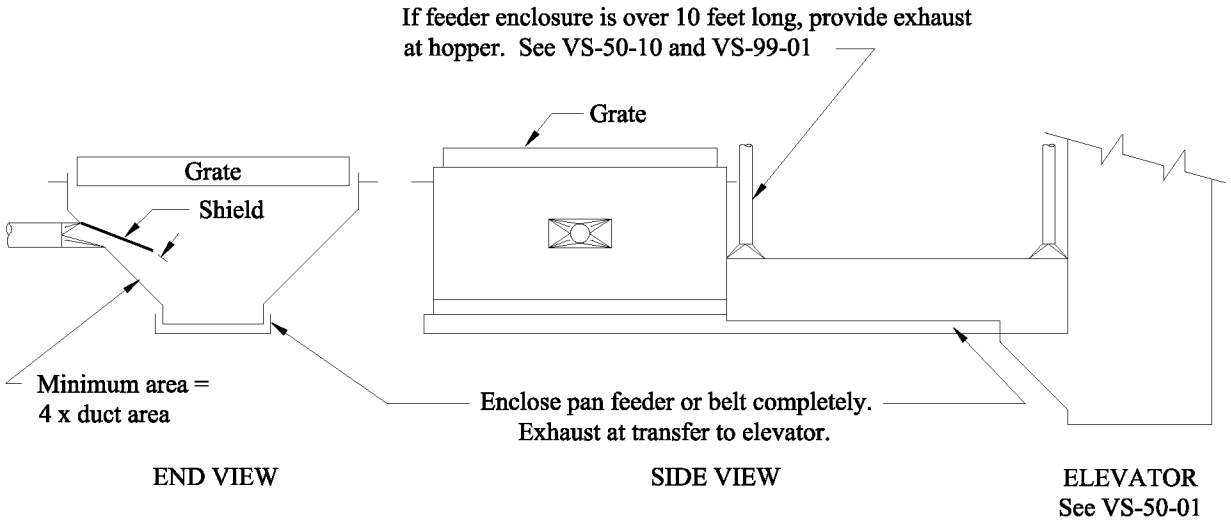
FIGURE VS-20-03



HOPPER EXHAUST DETAIL

ACGIH® WORLDWIDE	TITLE FOUNDRY SHAKEOUT HOPPER EXHAUST	FIGURE VS-20-03 DATE 11-90

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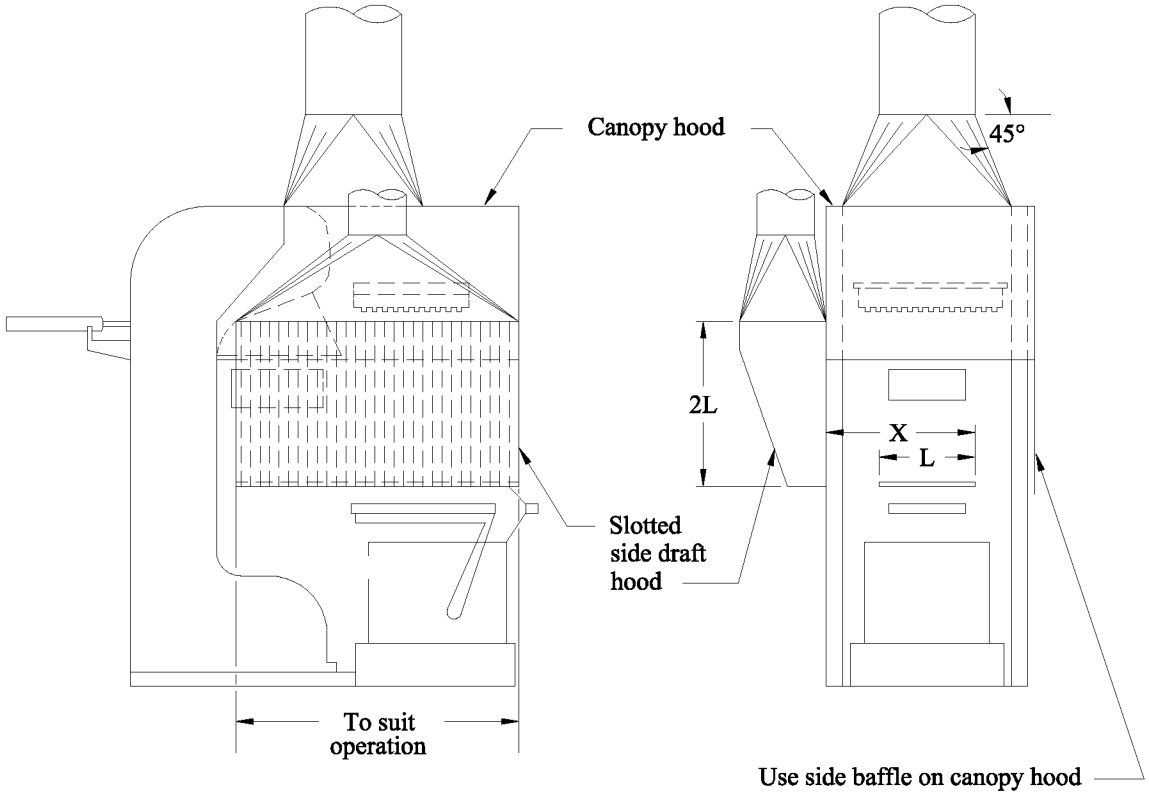
FIGURE VS-20-10



Canopy hood: $Q = 250$ cfm/ft^2 canopy - single unit
150 cfm/ft^2 canopy - double unit
$h_e = 0.25\ VP_d$

Note: Slotted side draft hoods required to remove smoke as hot cores emerge from machine.
Minimum capture velocity = 150 fpm

Side draft hood: $Q = 150(10X^2 + A)$ where A equals hood area
$h_e = 1.78\ VP_s + 0.25\ VP_d$

Note: Conveyor or cooling area require ventilation for large cores. Scrap conveyor or tote boxes may also require additional ventilation.
Minimum duct velocity = 3500 fpm

	TITLE	FIGURE
ACGIH® WORLDWIDE	SHELL CORE MAKING	VS-20-10
		DATE 10-90

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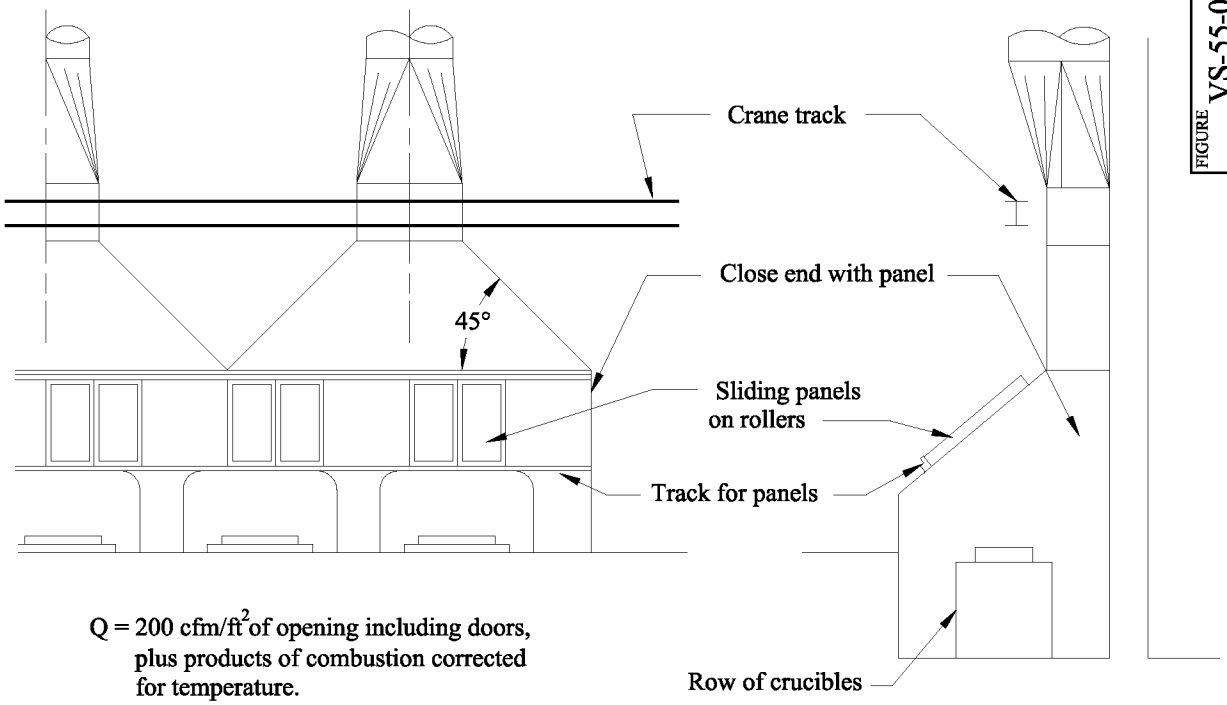
FIGURE VS-55-01

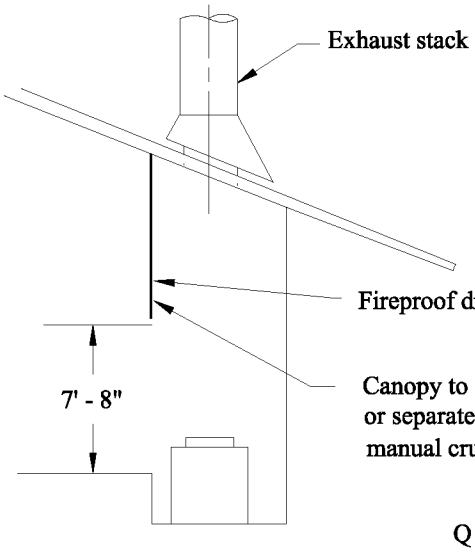


Q = 200 cfm/ft^2 of opening including doors, plus products of combustion corrected for temperature.

Minimum duct velocity = 3500 fpm

$h_e = 0.5\ VP_d$

Note: Same principle of sliding or swinging doors is applied to individual furnace enclosures.



Q = 200 cfm/ft^2 of total opening, minimum, plus products of combustion corrected for temperature.

	TITLE	FIGURE
ACGIH® WORLDWIDE	MELTING FURNACE CRUCIBLE NON-TILT	VS-55-01
		DATE 2-91

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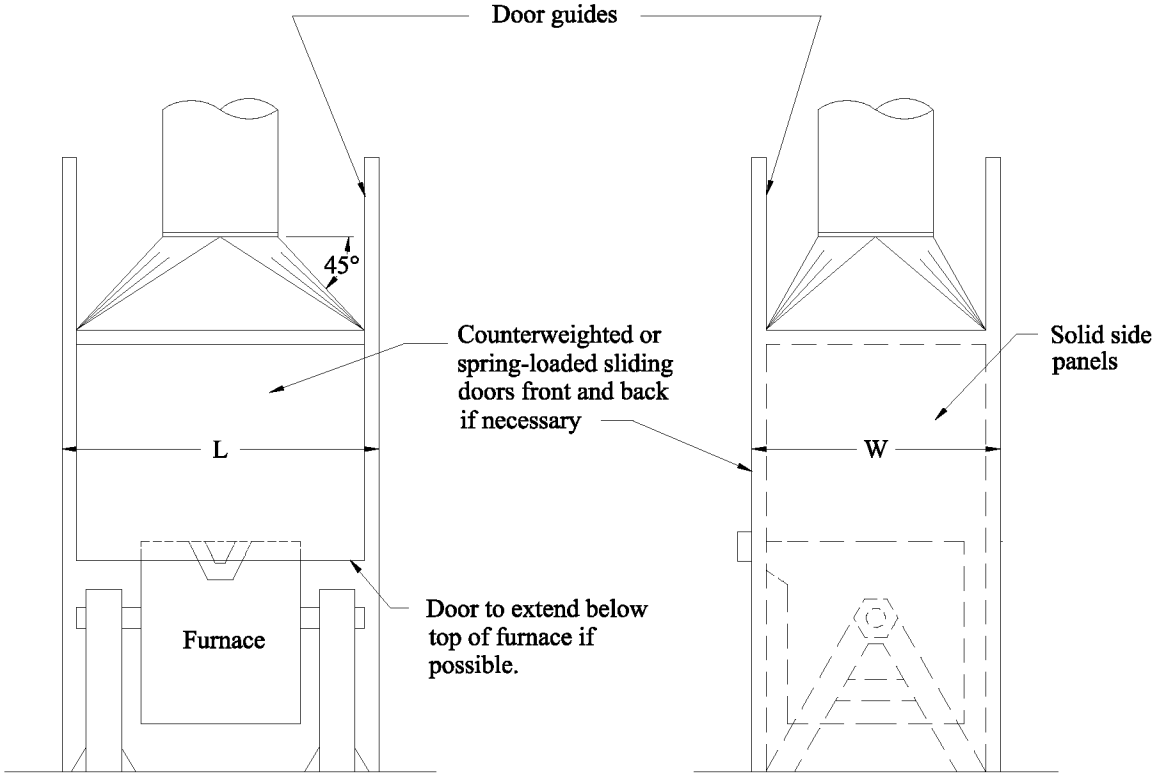
FIGURE VS-55-02



Q = 200 LW; but not less than
200 cfm/ft^2 of all openings
with doors open. Correct for products
of combustion and temperature.
Minimum duct velocity = 3500 fpm
$h_e = 0.25\ VP_d$

	TITLE	FIGURE
ACGIH® WORLDWIDE	MELTING FURNACE TILTING	VS-55-02
		DATE 2-91

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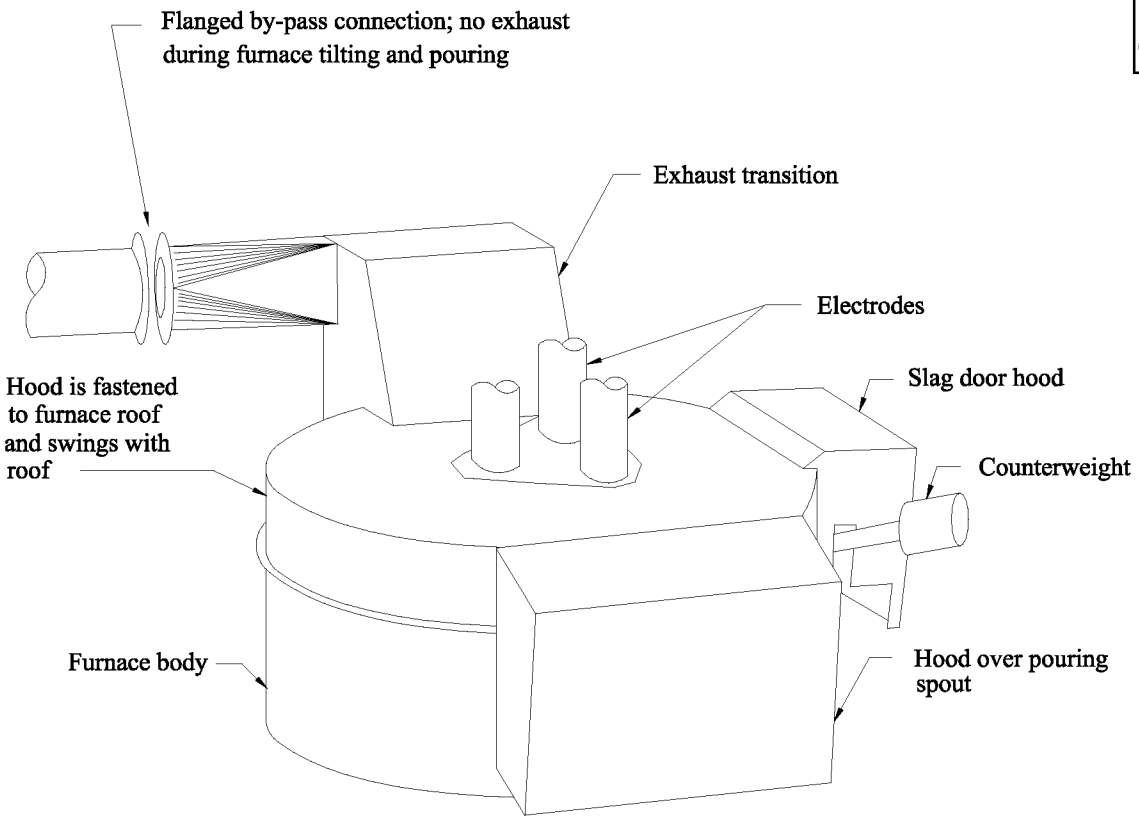
FIGURE VS-55-03



Close Capture:

For Q, SP and operating temperature, consult manufacturer
Approximate exhaust rate = 2500 scfm/ton of charge

Alternate designs:

1. Some exhaust designs utilize direct furnace roof tap. For details consult manufacturer.

2. Canopy hoods require large exhaust and are not recommended Canopy hoods can be used as secondary hoods to capture fugitive emissions.

References 10.55.1, 10.55.2, 10.55.3

	TITLE	FIGURE
ACGIH® WORLDWIDE	MELTING FURNACE ELECTRIC, TOP ELECTRODE	VS-55-03
		DATE 2-91

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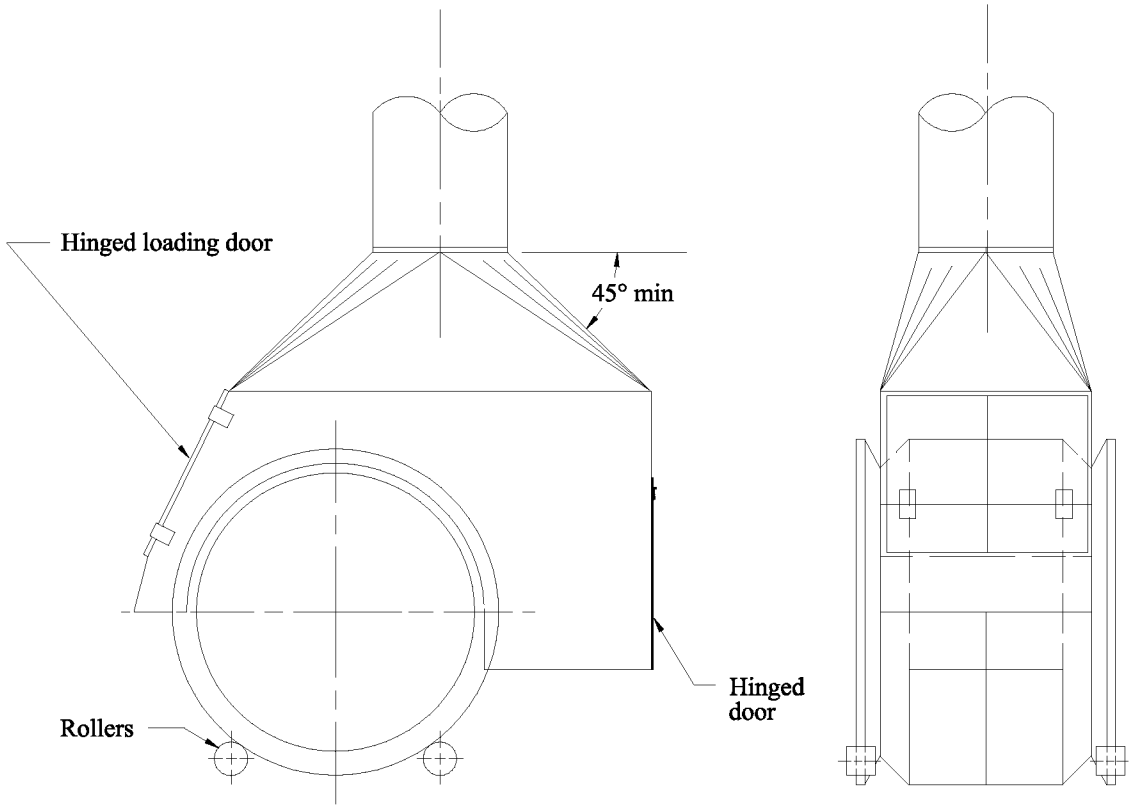
FIGURE VS-55-04



Q = 400 cfm/ft^2 of opening
Minimum duct velocity = 3500 fpm
$h_e = 1.78\ VP_s + 0.25\ VP_d$

	TITLE	FIGURE
ACGIH® WORLDWIDE	MELTING FURNACE ELECTRIC ROCKING	VS-55-04
		DATE 2-91

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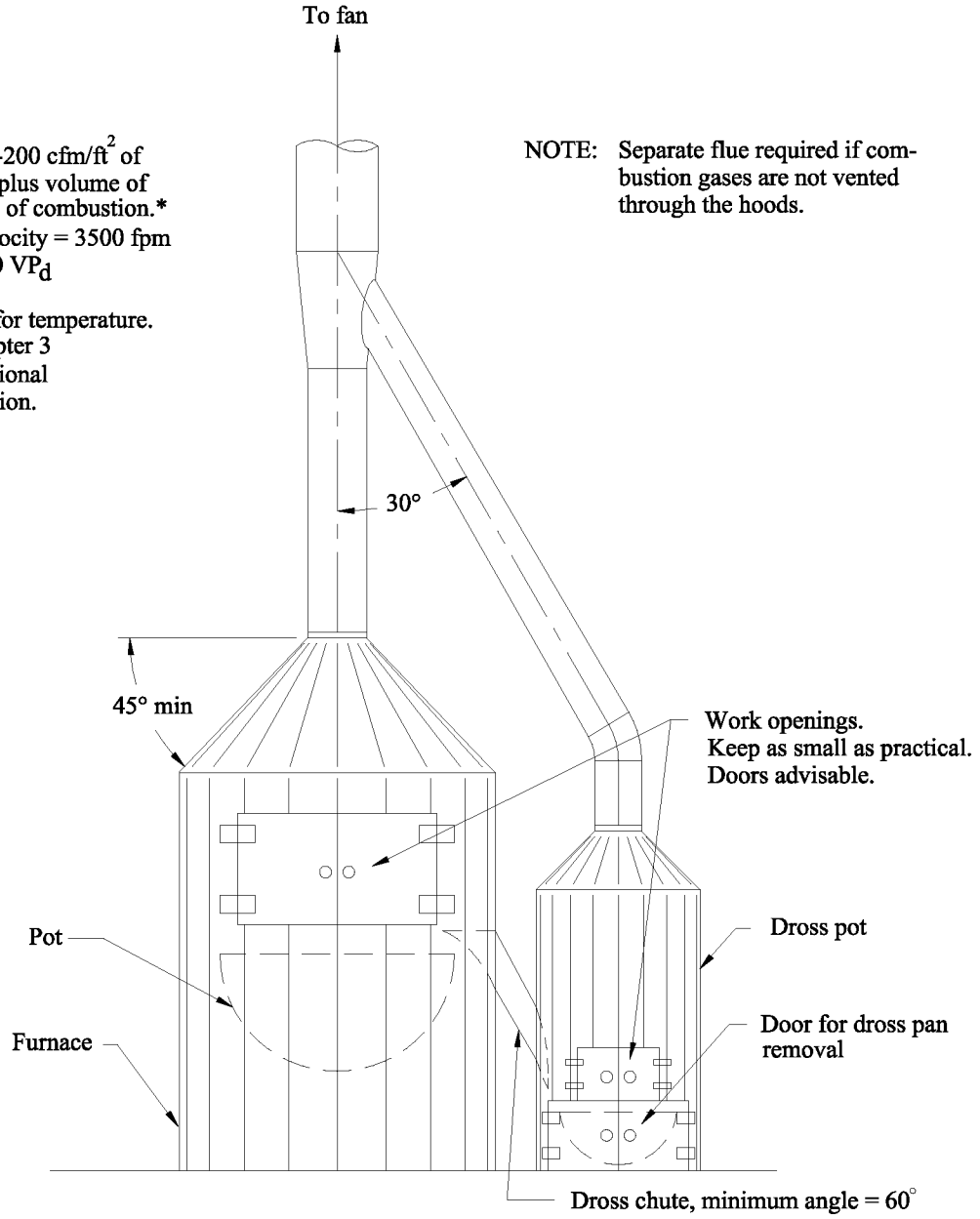
FIGURE VS-55-05



STATIONARY FURNACE OR MELTING POT

	TITLE	FIGURE
ACGIH® WORLDWIDE	MELTING POT AND FURNACE	VS-55-05
		DATE 2-91

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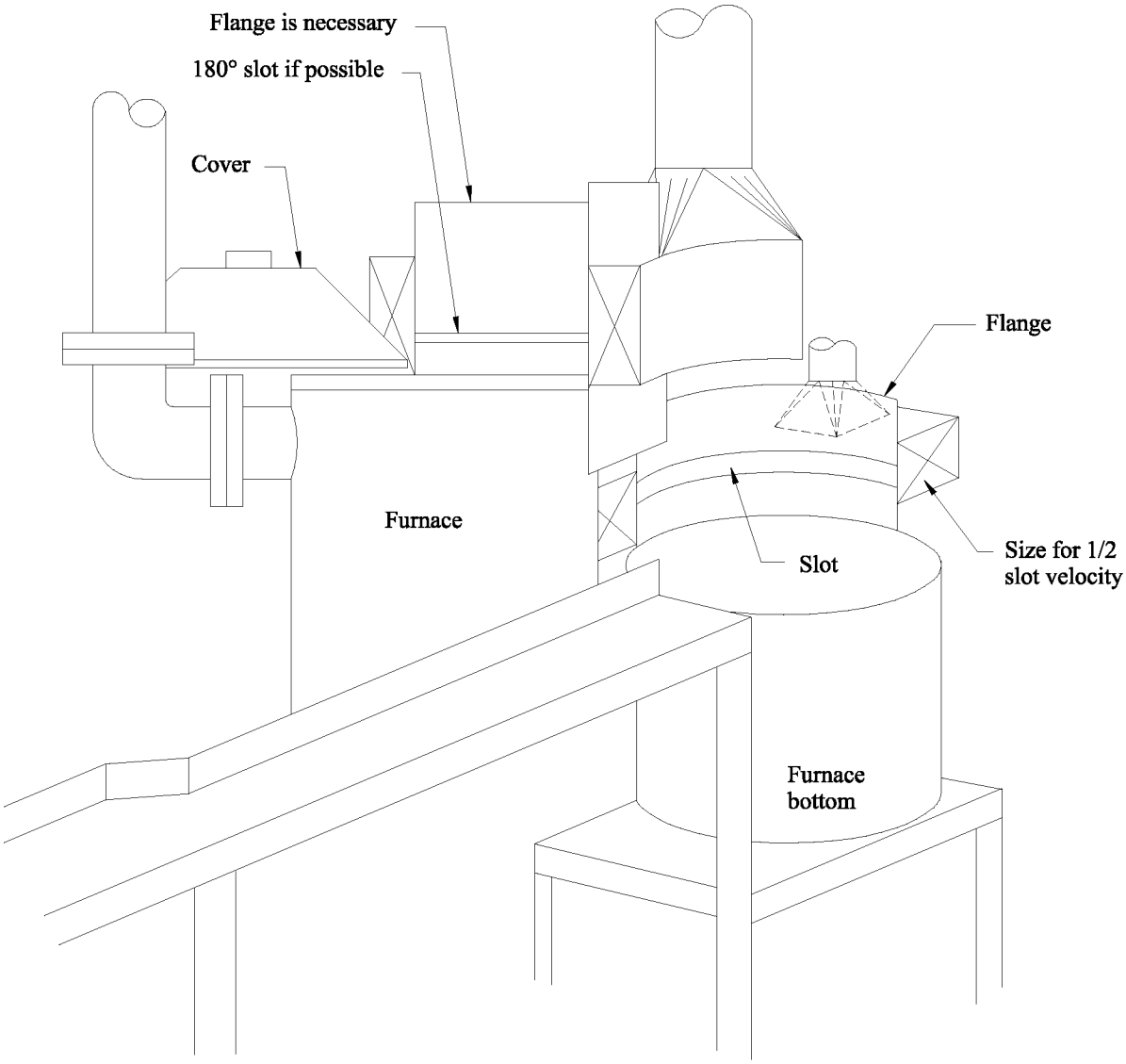
FIGURE VS-55-06



Q= 175 cfm/ft^2 of furnace top with curved slot and flanges.
Slot velocity= 2000 fpm
Minimum duct velocity= 3500 fpm
Entry losses= 1.78 VP_s + 0.25 VP_d

	TITLE	FIGURE
ACGIH® WORLDWIDE	CRUCIBLE MELTING FURNACE, HIGH TOXICITY MATERIAL	VS-55-06
		DATE 2-91

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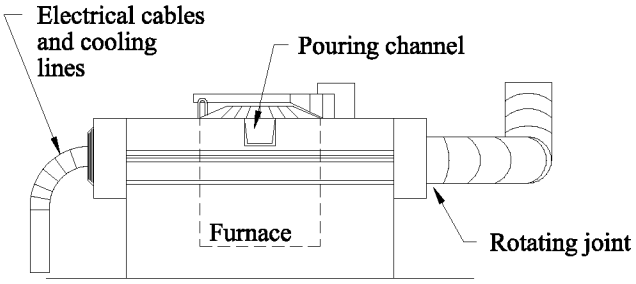
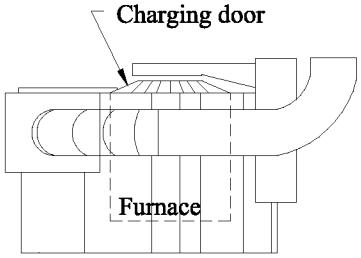
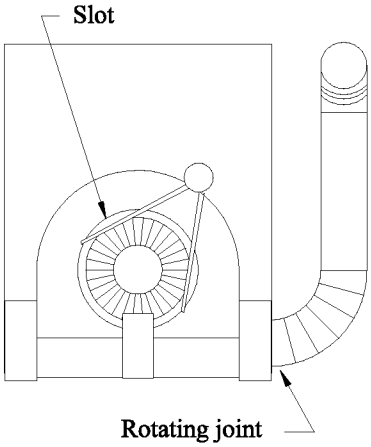
FIGURE VS-55-07



FRONT VIEW



SIDE VIEW



TOP VIEW

Q = 350 cfm/ft.^{2} open area. Correct for temperature and combustion products.

Entry loss = 1.78 VP_s + 0.5 VP_d

Slot velocity = 2000 fpm

Minimum duct velocity = 3500 fpm

	TITLE	FIGURE
ACGIH® WORLDWIDE	INDUCTION MELTING FURNACE TILTING	VS-55-07
		DATE 2-91

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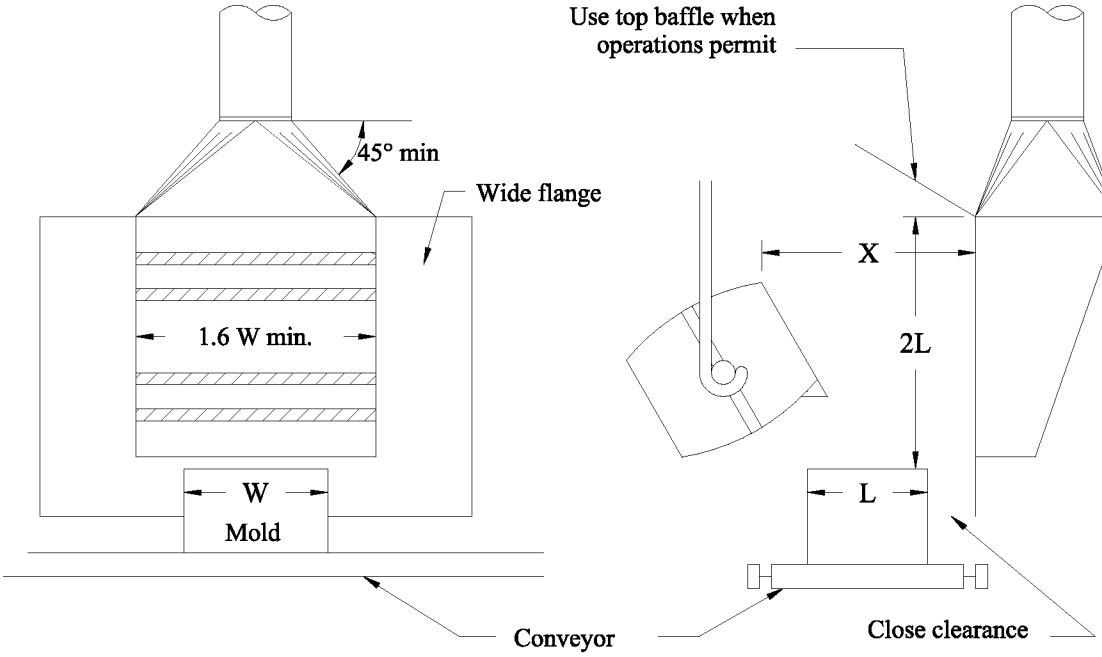
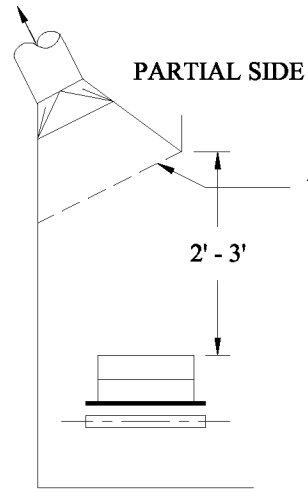
FIGURE VS-55-10



SMALL MOLDS

$Q = 200 (10 X^2 + A)$ where A equals hood area.
Minimum duct velocity = 3500 fpm
$h_e = 1.78 VP_s + 0.25 VP_d$
Use slots for uniform distribution, size slots for 2000 fpm



Q = 200 - 300 cfm/ft of hood length

Note:
For large molds and ladles provide large - draft hood similar to shakeout.
$Q = 400$ cfm/ft^2 working area

	TITLE	FIGURE
ACGIH® WORLDWIDE	POURING STATION	VS-55-10
		DATE 2-91

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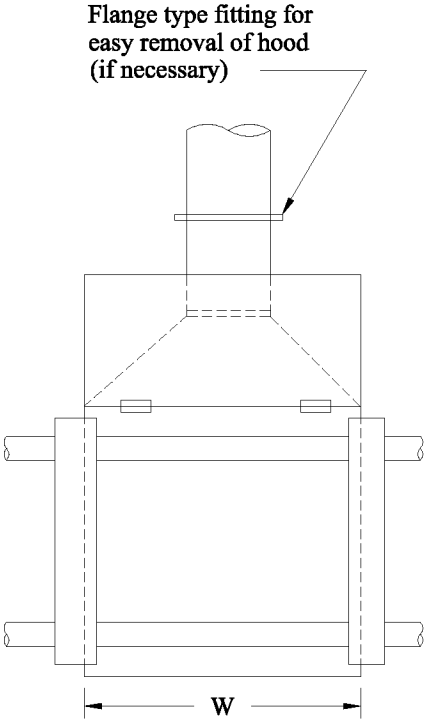
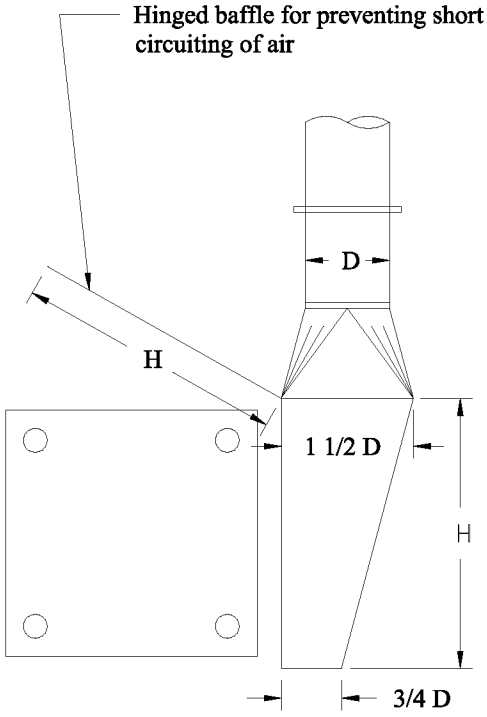
FIGURE VS-55-20





Note: Place hood as close to machine as possible. If more than 4 inches from back of machine, hinged side baffles should be used.

Note: Products of combustion require separate flue or may be vented into hood.

$Q = 300WH$
$h_e = 0.25\ VP_d$
Minimum duct velocity = 2000 fpm.

	TITLE	FIGURE
ACGIH® WORLDWIDE	FIXE POSITION DIE CASTING HOOD	VS-55-20
		DATE 2-91

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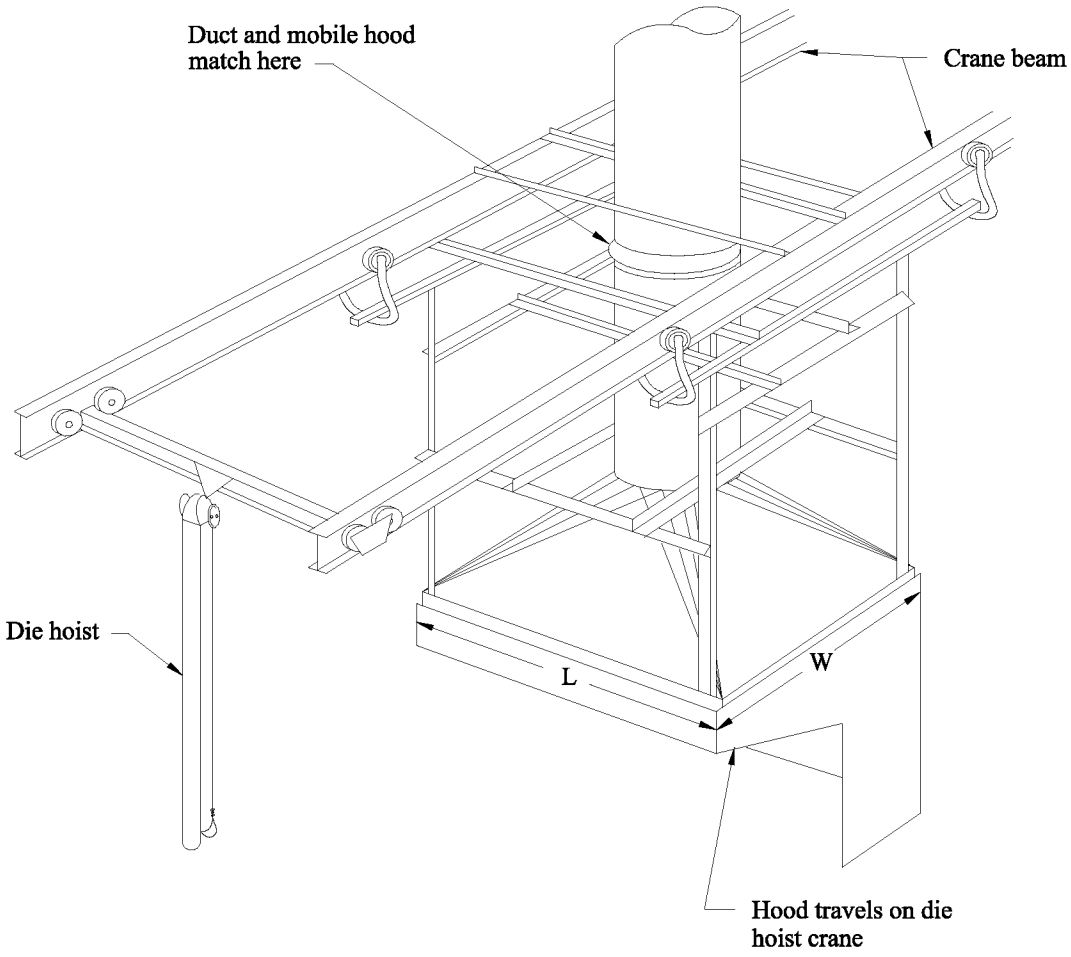
FIGURE VS-55-21



Q = 300 WL
Minimum duct velocity = 2000 fpm
$h_e = 0.25\ VP_d$

	TITLE	FIGURE
ACGIH® WORLDWIDE	MOBILE HOOD DIE CASTING	VS-55-21
		DATE 2-91

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