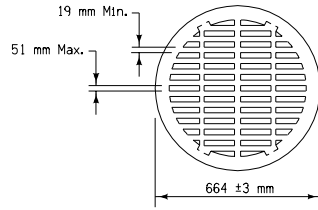
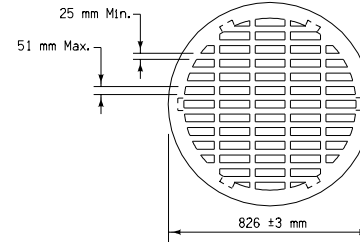


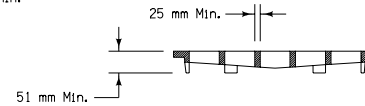
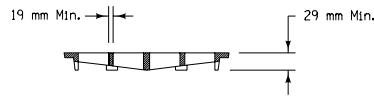
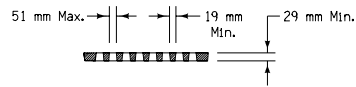
TYPE 4A GRATE ①
Minimum Mass = 29 kg



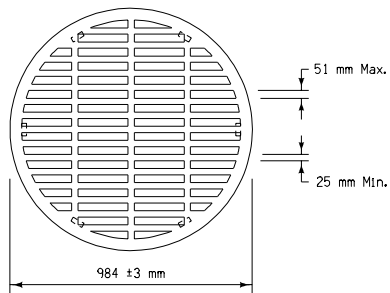
TYPE 4B GRATE ①
Minimum Mass = 45 kg



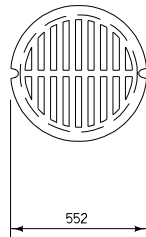
TYPE 4C GRATE ①
Minimum Mass = 73 kg



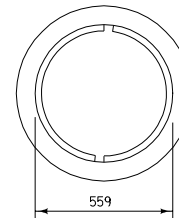
- ① For Type 4 grates, a frame is required only when specified in detailed plans. Frames shall be of adequate and proper dimensions to satisfactorily accommodate the grates.
- ② Unless otherwise specified, Type 9 grate shall be cast without locking lugs so that it may be used in an inverted position when so desired.



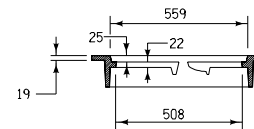
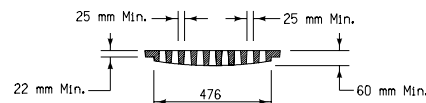
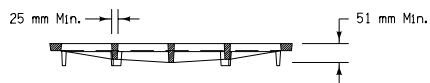
TYPE 4D GRATE ①
Minimum Mass = 109 kg



TYPE 9 GRATE ②
Minimum Mass = 39 kg



TYPE 9 FRAME
Minimum Mass = 34 kg



TYPE 4 FRAME REQUIREMENTS		
TYPE	D - PIPE DIAMETER	MIN. MASS
4A	450	23 kg
4B	600	36 kg
4C	750	57 kg
4D	900	91 kg

All dimensions given in millimeters unless noted.

METRIC VERSION	Iowa Department of Transportation Highway Division	
	STANDARD ROAD PLAN RA-66C	
	REVISION: Revised General Notes.	REVISION NO. 2
	APPROVED BY <i>William J. Steen</i> DESIGN METHODS ENGINEER	REVISION DATE 10-21-03
INTAKE GRATES TYPES 4A, 4B, 4C, AND 4D AND GRATE AND FRAME TYPE 9		