

APPROVED BY
MTMTS

Frank L. Paus - MTT-GDP
TEA, MTMTS

DATE 8 SEPT 1972

REVISION NO. 1

SIGNED *Frank L. Paus*
DATE 5 DEC 1973

HAWK

MINIMUM REQUIREMENTS FOR THE HANDLING, STOWAGE, AND BRACING ABOARD SHIPS OF ROCKET MOTOR, XM22E8 AND/OR XM112, IN WOODEN CRATE[⊗]

⊗ CAUTION:
THE WOODEN CRATE CONTAINING THE XM22E8 MOTOR DESIGNATED HEREIN MUST BE MODIFIED IN ACCORDANCE WITH DRAWING NUMBER 19-48-AMXAC-4103, REV 1, DATED SEPTEMBER 1971. THE CRATE CONTAINING THE XM112 MOTOR DESIGNATED HEREIN MUST BE MODIFIED IN ACCORDANCE WITH DRAWING NUMBER 19-48-AMXAC-4321.

THIS DRAWING, INCLUDING REVISION 1, SUPERSEDES DRAWING 19-48-5774-GM 18A17, DATED OCTOBER 1972.

DO NOT SCALE

REVISIONS				DRAFTSMAN	PROJ ENG
				<i>D.L.P./MTR</i>	<i>J.H.W./MTR</i>
				CHECKER	LDG CHRG OFFICE
				<i>W.S./B.B.</i>	<i>John Syri</i>
1	AUG 73	<i>J.H.W.</i>	<i>Wesley C. Gilliland</i> <i>John S. Syri</i>	APPROVED	<i>J.D. Barber</i>
				U. S. ARMY MISSILE COMMAND	
				APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND	
				<i>Paul S. Barretto</i>	
				USAMC AMMO CENTER	
				U. S. ARMY MATERIEL COMMAND	
				AUGUST 1973	
				CLASS	DIVISION
				DRAWING	FILE
				19	48
				5774	GM 18HA2

NOTES

GENERAL:

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THIS DRAWING DEPICTS MINIMUM PROCEDURES APPLICABLE TO THE HANDLING, STOWAGE AND BRACING ABOARD SHIPS OF THE ROCKET MOTOR, XM22E8 AND/OR XM112 IN A WOODEN CONTAINER, FOR THE HAWK MISSILE SYSTEM.
- C. OTHER TYPES OF CARGO MAY BE STOWED IN THE SAME HOLD OR TWEEN DECK, PROVIDING THE ITEMS STOWED ARE COMPATIBLE WITH THE MOTORS SHOWN HEREIN. REFERENCE: COMPATIBILITY CHART, AND CLASSIFICATION, HANDLING AND STOWAGE CHART, "RULES AND REGULATIONS FOR MILITARY EXPLOSIVES AND HAZARDOUS MUNITION", COAST GUARD REGULATION NO. CG 108.
- D. LADING DATA:
1. FOR DETAILS OF CONTAINER, FOR XM22E8 ROCKET MOTOR, SEE DRAWING NO. 9070094, AND DRAWING NO. 19-48-AMXAC-4103, REV. 1.
CONTAINER DIMENSIONS ----- 113-1/2" LONG X 20-3/4" WIDE X 23-3/8" HIGH.
GROSS WEIGHT ----- 1,091 LBS (APPROX).
TARE WEIGHT ----- 241 LBS (APPROX).
CUBE ----- 31.86 CU. FT.
 2. FOR DETAILS OF CONTAINER, FOR XM112 ROCKET MOTOR, SEE DRAWING NO. 10242897, AND DRAWING NO. 19-48-AMXAC-4321.
CONTAINER DIMENSIONS ----- 118" LONG X 20-1/4" WIDE X 22-7/8" HIGH.
GROSS WEIGHT ----- 1,128 LBS (APPROX).
TARE WEIGHT ----- 258 LBS (APPROX).
CUBE ----- 31.63 CU. FT.
- E. THESE MOTORS ARE DOT CLASS "B" EXPLOSIVES.

HANDLING:

- A. PERTINENT PROVISIONS OF TITLE 46 CODE OF FEDERAL REGULATIONS APPLY.
- B. HANDLING OF THE XM22E8 AND/OR XM112 ROCKET MOTOR SHOULD BE ACCOMPLISHED BY USING SLING EXTENSIONS SECURELY POSITIONED AGAINST THE SKIDS UNDER THE WOODEN CONTAINER AS SHOWN.
- C. CONTAINERS MAY BE HANDLED INDIVIDUALLY, OR MAY BE STACKED TWO (2), THREE (3), OR FOUR (4) HIGH. CONTAINERS STACKED MUST BE UNITIZED AS TYPICALLY SHOWN ON PAGE 3. CONTAINERS SHOULD NOT BE STACKED MORE THAN FOUR (4) HIGH.
- D. THE HANDLING SLING SHOULD BE EQUIPPED WITH SAFETY TYPE HOOKS AND SHALL BE OF A DESIGN AND CONFIGURATION TO LIFT THE ITEM IN SUCH A MANNER THAT THE CABLE LEGS DO NOT APPLY EXCESSIVE PRESSURE WHICH MAY DAMAGE THE WOODEN CONTAINER.
- E. ALTHOUGH DESIREABLE, A LEVEL LIFT IS NOT MANDATORY. THE CENTER OF BALANCE OF THIS ITEM IS SHOWN TO ASSIST IN DETERMINING CABLE LENGTHS TO ASSURE A SAFE LIFT.

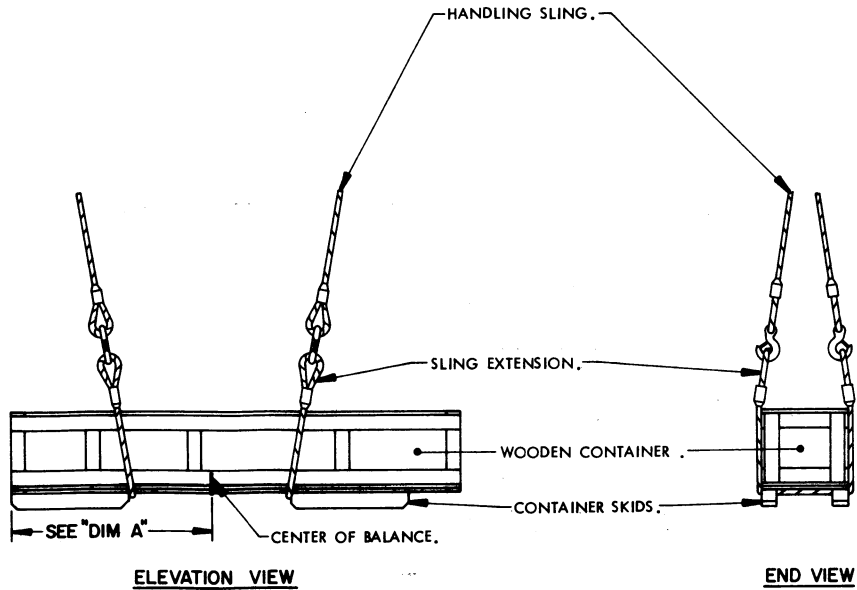
STOWAGE AND BRACING:

- A. OTHER CARGO ITEMS MAY BE OVER-STOWED ON THE DEPICTED CONTAINERS. CAUTION: THE WEIGHT OF OVER-STOWED CARGO MUST NOT CRUSH OR OTHERWISE DAMAGE THE CONTAINERS OF THE ROCKET MOTORS.
- B. IF HEIGHT CLEARANCE IN HOLD, TWEEN DECK OR HATCH OPENING PERMITS, CONTAINERS MAY BE STOWED A MAXIMUM OF FOUR (4) LAYERS HIGH.
- C. ADJACENT CONTAINERS MUST BE SEPARATED BY BRACING MEMBERS AND/OR ANTI-CHAFING ASSEMBLIES TO AVOID DAMAGE TO CONTAINERS BY DIRECT CONTACT WITH EACH OTHER.
- D. THE TYPICAL STOWAGE ON WEATHER DECK PROCEDURES SHOWN ON PAGE 9 IS ONLY FOR GUIDANCE PURPOSES. AS A MINIMUM, IT OR A COMPARABLE STOWAGE METHOD WILL BE USED. NOTE: WEATHER DECK STOWAGE WILL ONLY BE UTILIZED WHEN CONDITIONS WARRANT SUCH STOWAGE AND CONCURRENCE OF THE U.S. ARMY MISSILE COMMAND HAS BEEN ACQUIRED. ALSO, STOWAGE ON THE WEATHER DECK IS RESTRICTED TO A MAXIMUM OF 3-HIGH CONTAINER STACKS.
- E. SPECIES, GRADE AND SIZE OF LUMBER TO BE USED WILL COMPLY WITH REQUIREMENTS OF CURRENT SHIPWRIGHT-CARPENTRY AND RELATED SERVICES CONTRACTS. BRACING METHODS AND LUMBER SIZE DEPICTED IN THIS DRAWING ARE CONSIDERED MINIMUM AND ARE NOT INTENDED TO CONFLICT WITH CONTRACT REQUIREMENTS.

REVISIONS

REVISION NO. 1, DATED AUGUST 1973, CONSISTS OF:

1. ADDING PROCEDURES FOR STOWAGE ON THE WEATHER DECK.
2. AN ADDITIONAL STOWAGE AND BRACING NOTE HAS BEEN ADDED.
3. CHANGING DRAWING FILE NO. FROM GM18A7 TO GM18HA2.

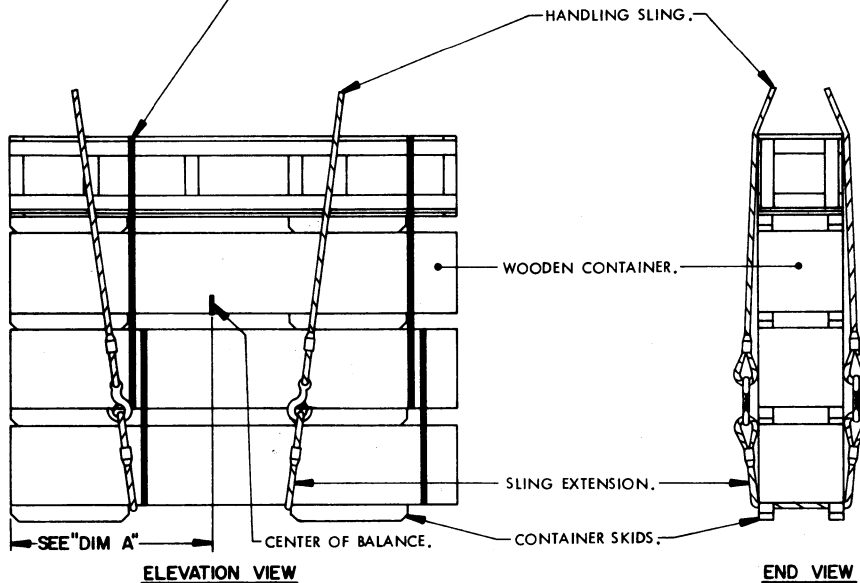


DIMENSION A:

50" (APPROX) FOR XM22E8 MOTOR CONTAINER.
 54" (APPROX) FOR XM112 MOTOR CONTAINER.

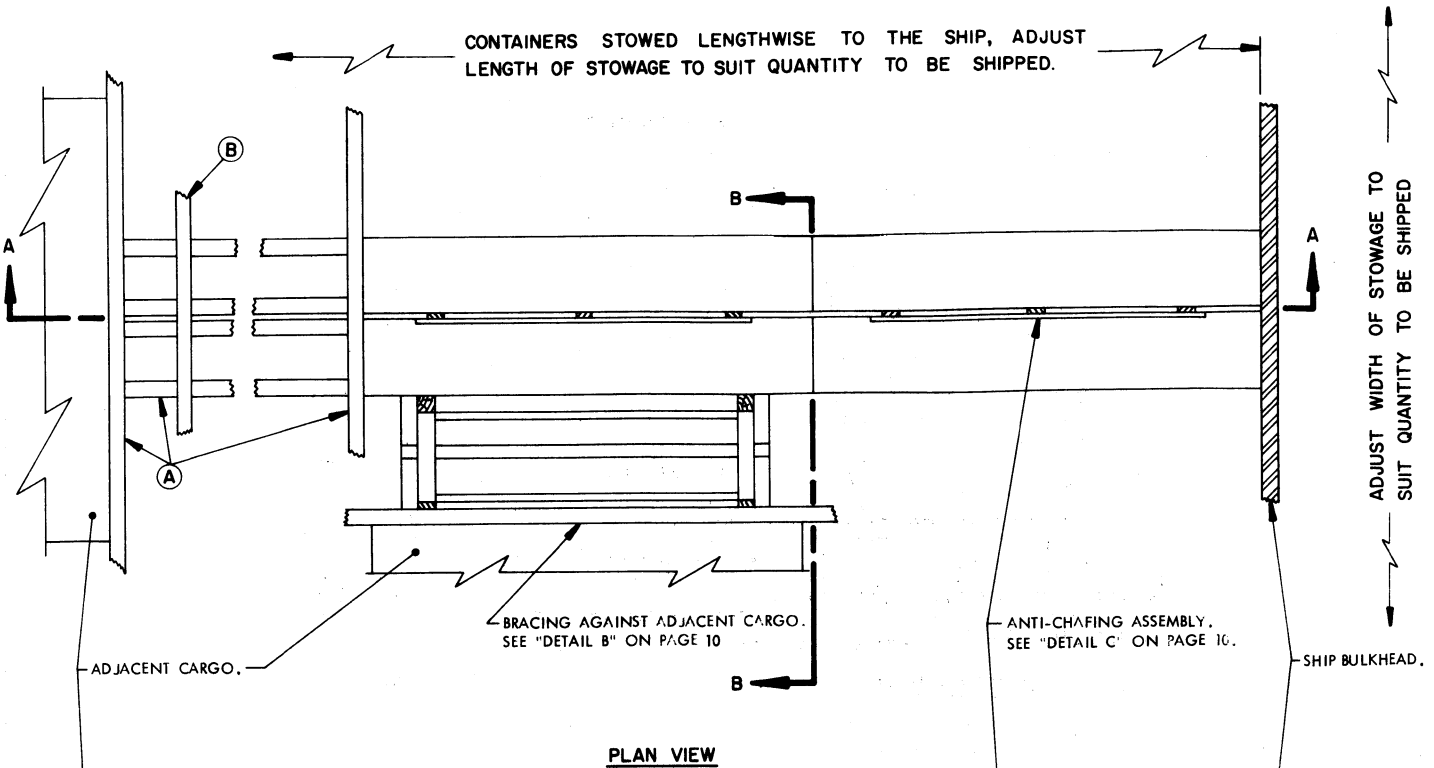
CONTAINERS MAY BE HANDLED INDIVIDUALLY, OR MAY BE STACKED TWO (2), THREE (3), OR FOUR (4) HIGH AS TYPICALLY SHOWN. IF CONTAINERS ARE HANDLED IN A STACKED CONFIGURATION, THE STACK SHOULD BE UNITIZED W/4-1-1/4" X .035" STEEL STRAPS, AS SHOWN, OR SECURED IN SOME OTHER APPROVED METHOD TO PREVENT SLIPPAGE OF THE UPPER UNITS. IF CONTAINERS ARE RECEIVED UNITIZED, EXISTING UNITIZING STRAPS MAY BE LEFT INTACT.

PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.

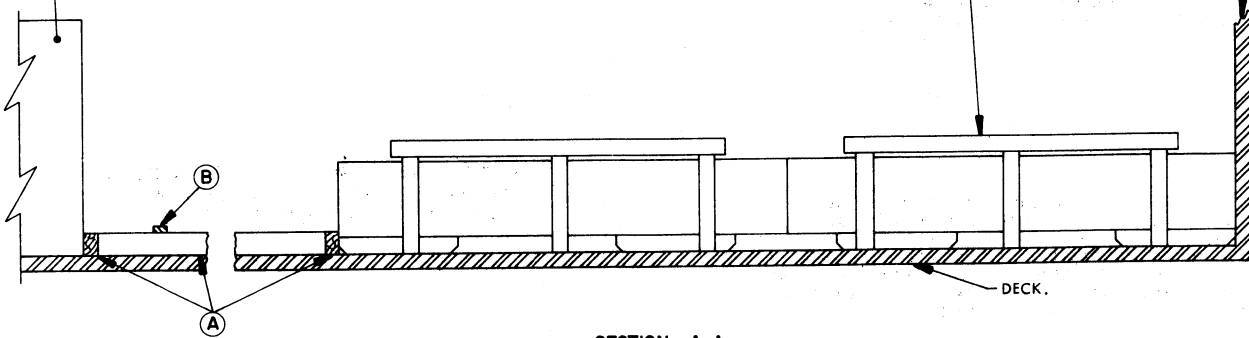


CONTAINERS STOWED LENGTHWISE TO THE SHIP, ADJUST LENGTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED.

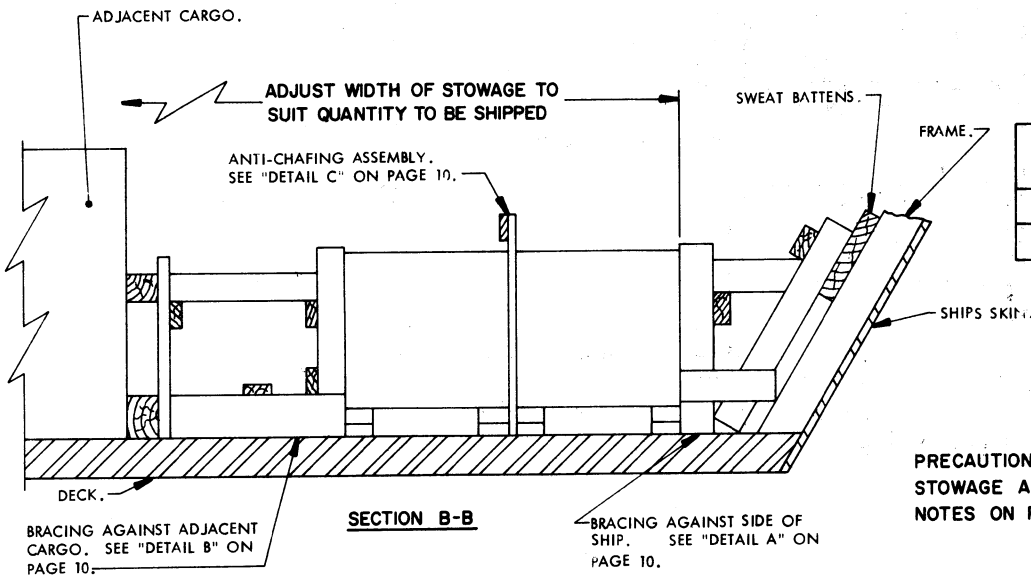
ADJUST WIDTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED



PLAN VIEW



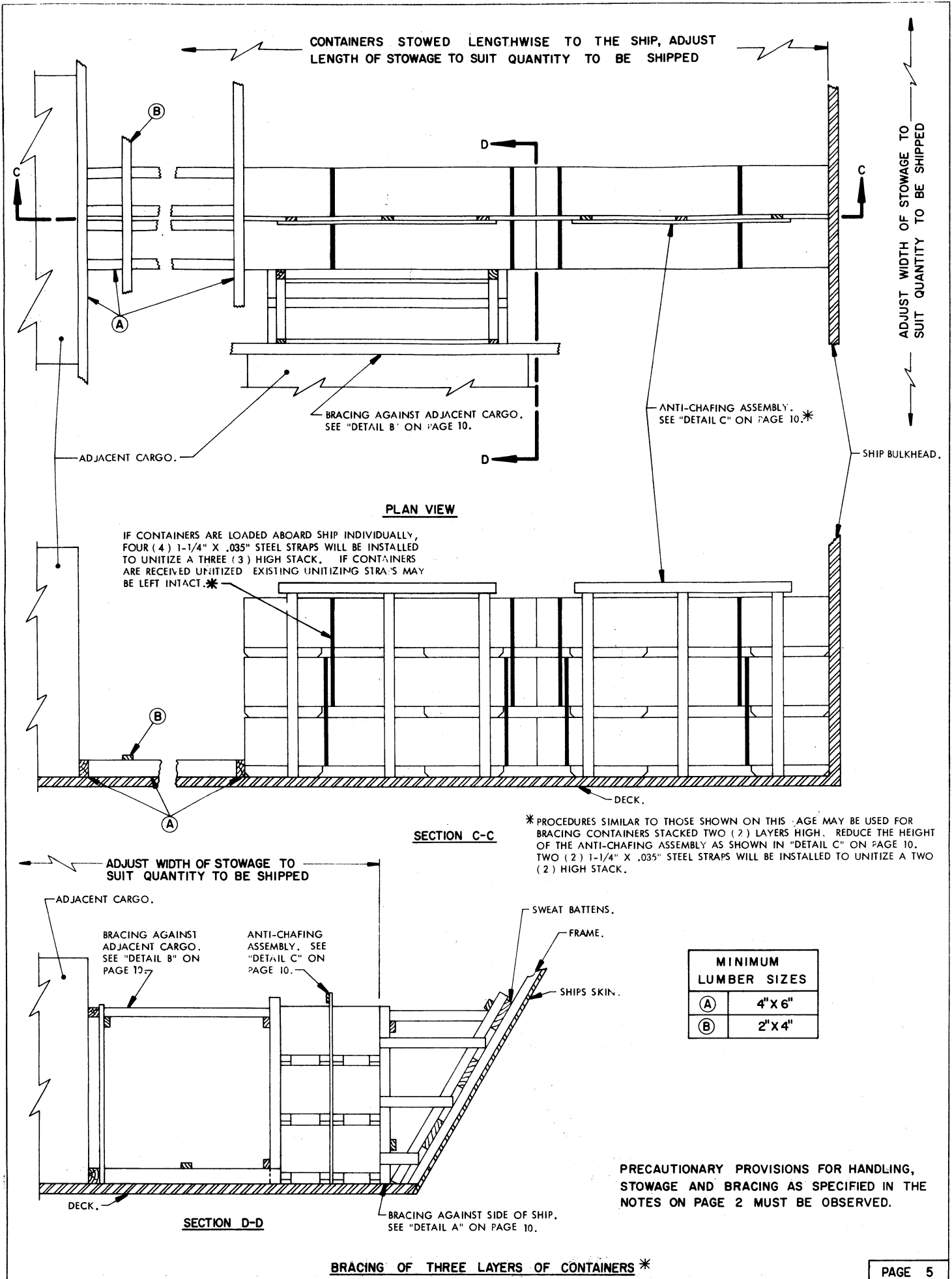
SECTION A-A



SECTION B-B

MINIMUM LUMBER SIZES	
(A)	4" X 6"
(B)	2" X 4"

PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.



ADJACENT CARGO.

BRACING AGAINST ADJACENT CARGO. SEE "DETAIL B" ON PAGE 10.

ANTI-CHAFING ASSEMBLY. SEE "DETAIL C" ON PAGE 10.*

SHIP BULKHEAD.

IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, FOUR (4) 1-1/4" X .035" STEEL STRAPS WILL BE INSTALLED TO UNITIZE A THREE (3) HIGH STACK. IF CONTAINERS ARE RECEIVED UNITIZED EXISTING UNITIZING STRAPS MAY BE LEFT INTACT.*

* PROCEDURES SIMILAR TO THOSE SHOWN ON THIS PAGE MAY BE USED FOR BRACING CONTAINERS STACKED TWO (2) LAYERS HIGH. REDUCE THE HEIGHT OF THE ANTI-CHAFING ASSEMBLY AS SHOWN IN "DETAIL C" ON PAGE 10. TWO (2) 1-1/4" X .035" STEEL STRAPS WILL BE INSTALLED TO UNITIZE A TWO (2) HIGH STACK.

ADJUST WIDTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED

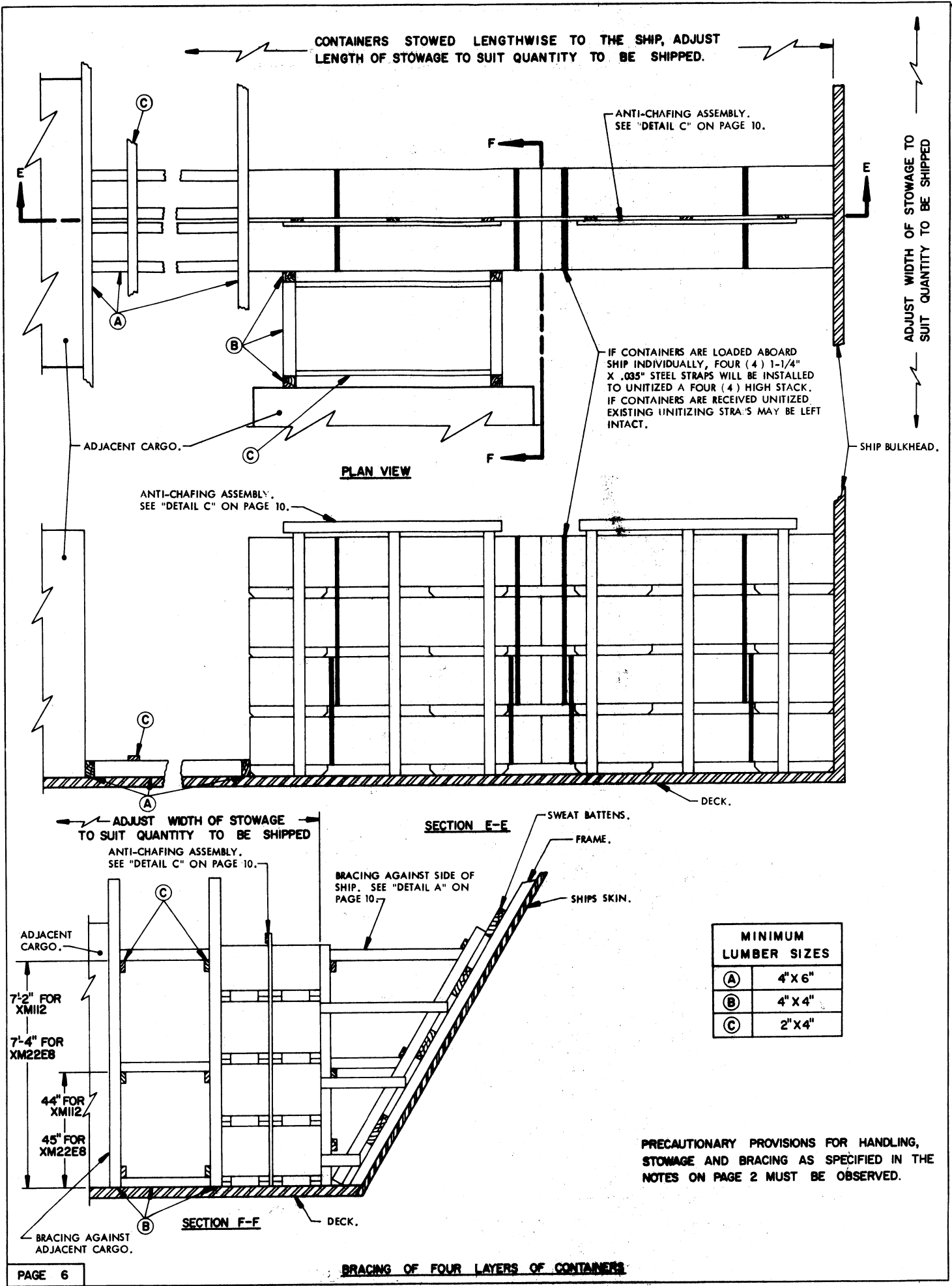
BRACING AGAINST ADJACENT CARGO. SEE "DETAIL B" ON PAGE 10.

ANTI-CHAFING ASSEMBLY. SEE "DETAIL C" ON PAGE 10.

SWEAT BATTENS.
FRAME.
SHIPS SKIN.

MINIMUM LUMBER SIZES	
(A)	4" X 6"
(B)	2" X 4"

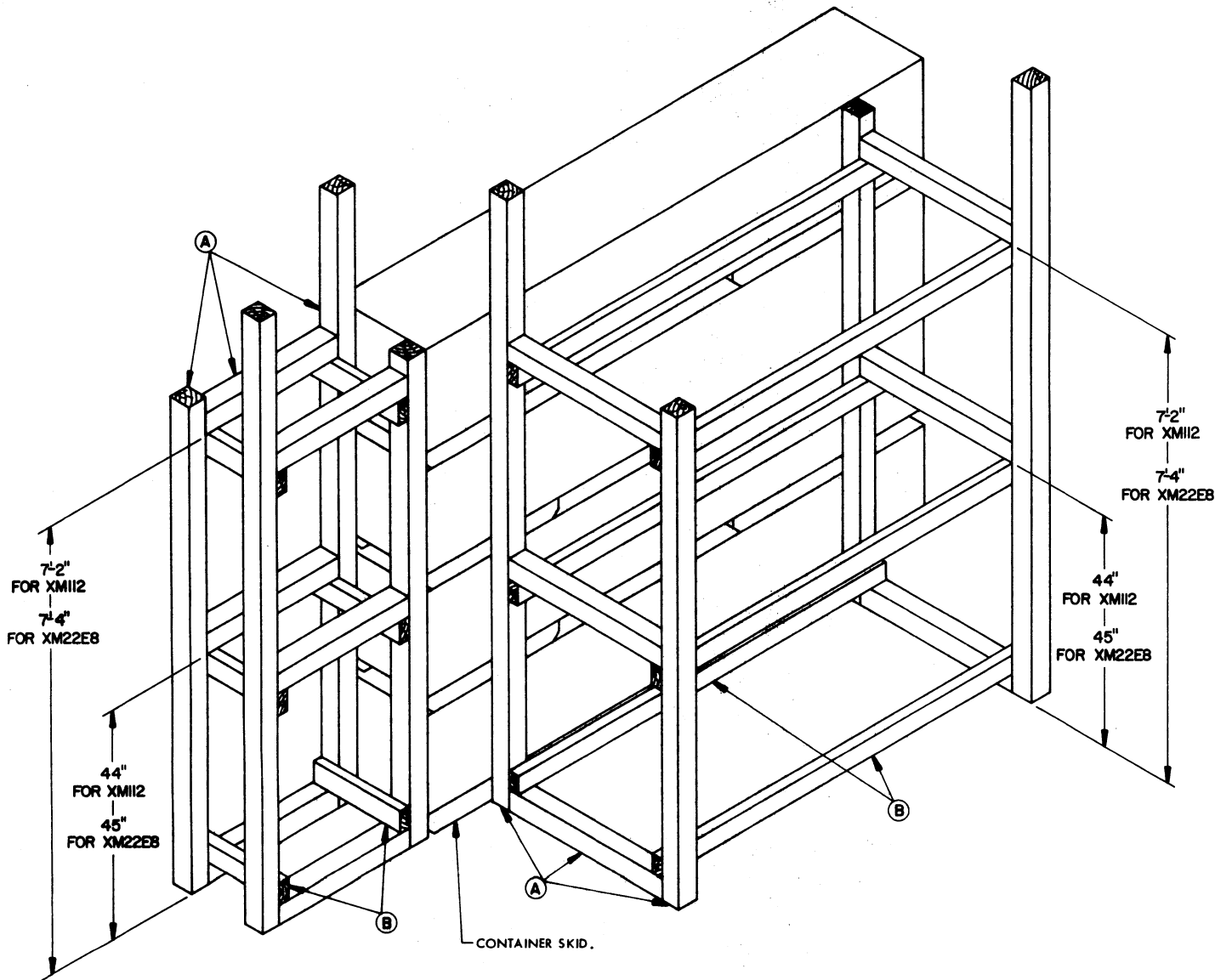
PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.



IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, FOUR (4) 1-1/4" X .035" STEEL STRAPS WILL BE INSTALLED TO UNITIZED A FOUR (4) HIGH STACK. IF CONTAINERS ARE RECEIVED UNITIZED EXISTING UNITIZING STRAPS MAY BE LEFT INTACT.

MINIMUM LUMBER SIZES	
(A)	4" X 6"
(B)	4" X 4"
(C)	2" X 4"

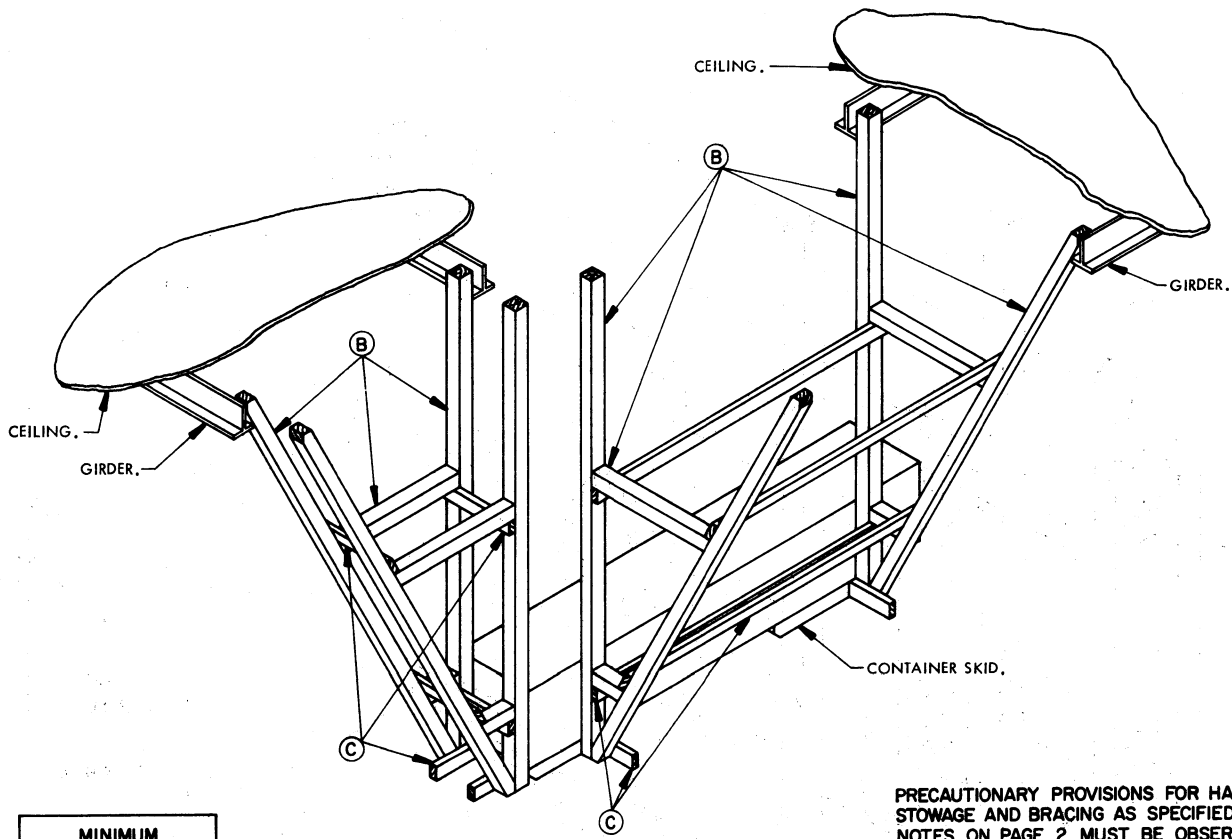
PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.



ISOMETRIC VIEW

MINIMUM LUMBER SIZES	
(A)	4" X 4"
(B)	2" X 4"

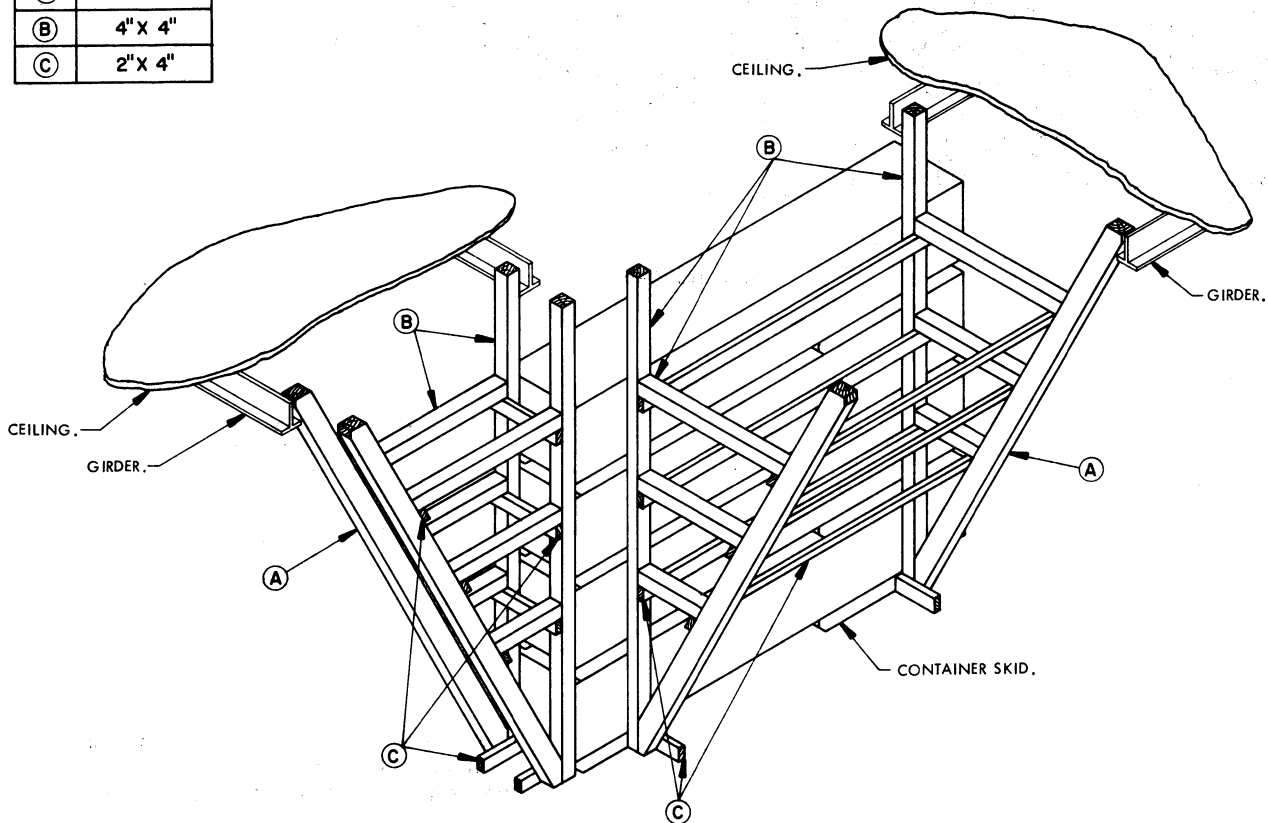
PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.



ISOMETRIC VIEW

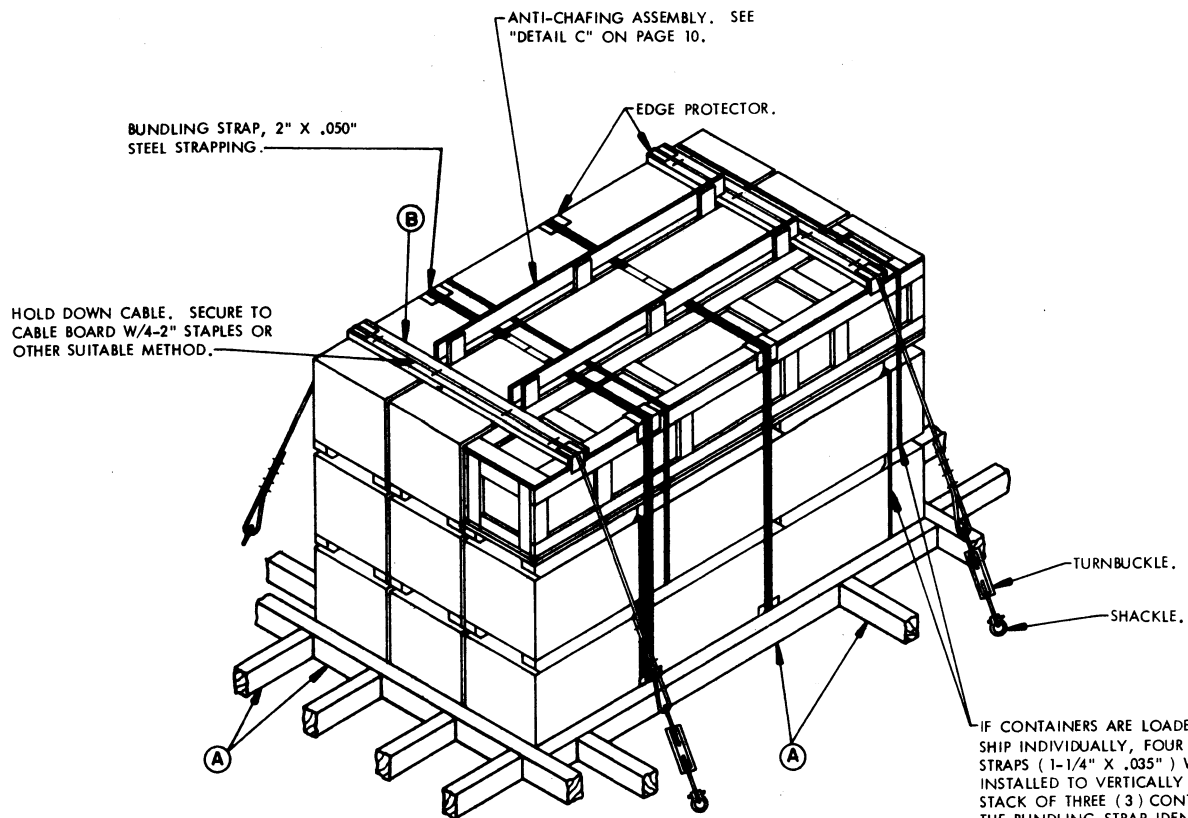
PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.

MINIMUM LUMBER SIZES	
(A)	4" X 6"
(B)	4" X 4"
(C)	2" X 4"



ISOMETRIC VIEW

ALTERNATIVE METHODS OF BRACING CONTAINER(S)

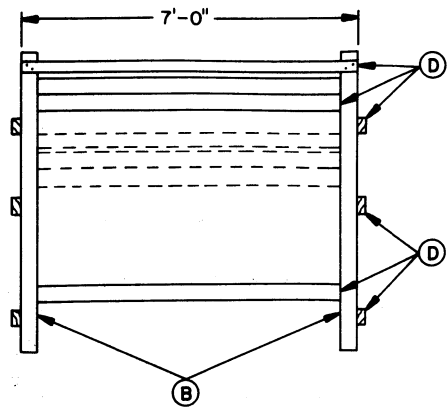
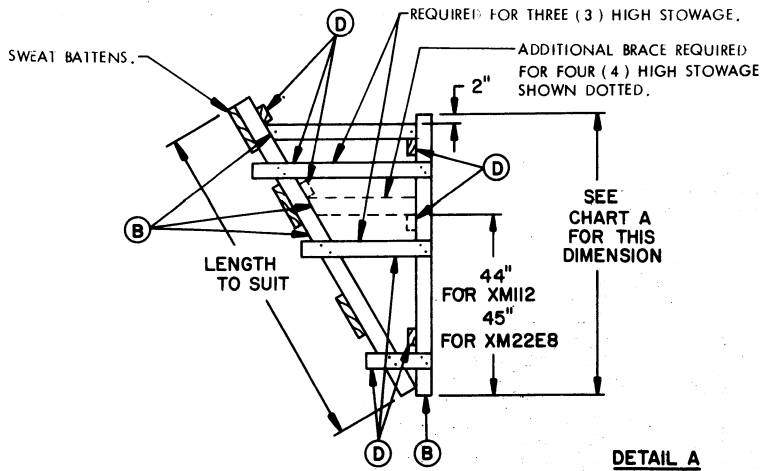


ISOMETRIC VIEW

IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, FOUR (4) STEEL STRAPS (1-1/4" X .035") WILL BE INSTALLED TO VERTICALLY UNITIZE A STACK OF THREE (3) CONTAINERS. THE BUNDLING STRAP IDENTIFIED ABOVE WILL BE APPLIED IN ADDITION TO THE VERTICAL UNITIZING STRAP. **NOTE:** STOWAGE ON THE WEATHER DECK IS RESTRICTED TO A MAXIMUM OF 3-HIGH CONTAINER STACKS.

MINIMUM LUMBER SIZES	
(A)	4" X 6"
(B)	2" X 6"

PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.

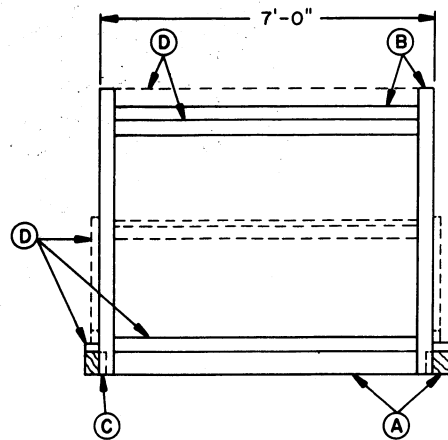
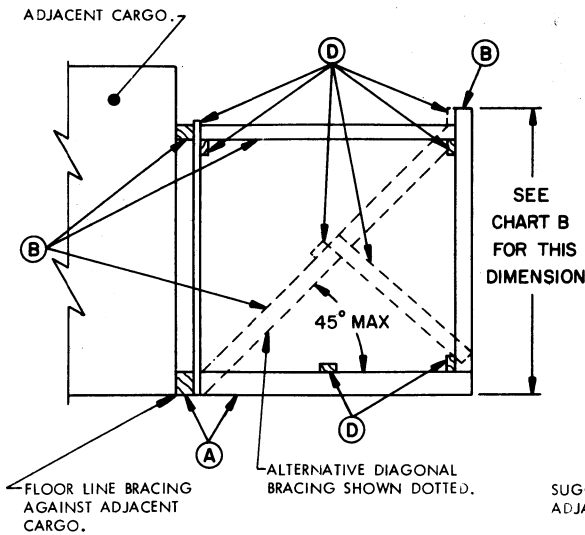


DETAIL A

SUGGESTED BRACING AT SIDE OF SHIP.

CHART A				
ITEM	1 HIGH STACK	2 HIGH STACK	3 HIGH STACK	4 HIGH STACK
XM112	22-1/2"	45"	68"	7'-7"
XM22E8	23"	46"	70"	7'-9"

MINIMUM LUMBER SIZES	
(A)	4" X 6"
(B)	4" X 4"
(C)	2" X 6"
(D)	2" X 4"
(E)	1" X 4"

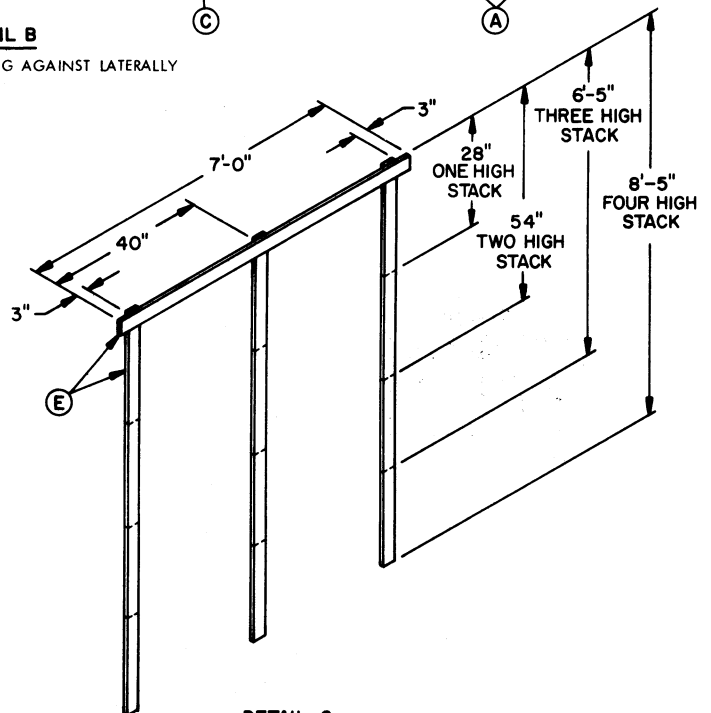


DETAIL B

SUGGESTED BRACING AGAINST LATERALLY ADJACENT CARGO.

CHART B*			
ITEM	1 HIGH STACK	2 HIGH STACK	3 HIGH STACK
XM112	24-1/2"	47"	70"
XM22E8	25"	48"	72"

* SEE "SECTION F-F" ON PAGE 6 FOR BRACING REQUIREMENTS FOR A 4-HIGH STACK.



DETAIL C

ANTI-CHAFING ASSEMBLY.

PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.