

APPROVED BY
MTMTS

Frank L. Paris MTT-GDP
TEA MTMTS

DATE 8 SEPT 1972

REVISION NO 1

SIGNED *Frank L. Paris*
DATE 11 MAY 1973

HAWK

MINIMUM REQUIREMENTS FOR THE HANDLING, STOWAGE, AND BRACING ABOARD SHIPS OF COMPLETE ROUND IN XM430 OR XM611 CONTAINER

REVISIONS		APPROVED BY	DATE	FOR USE BY
1	MAR 73	<i>Wesley E. Gilliland</i> <i>Paul S. Barretto</i>	<i>10/15/72</i>	<i>J. R. Baker</i> <i>E. A. Baker</i>
		<i>Wesley E. Gilliland</i> <i>Paul S. Barretto</i>		
		APPROVED BY HEAD OF DRAWING OFFICE U. S. ARMY MATERIEL COMMAND DRAWING AND CENTER		
		U. S. ARMY MATERIEL COMMAND		
		OCTOBER 1972		
		CLASS	DIVISION	DRAWING
		19	48	5773
				FILE
				GM 18HAI

DO NOT SCALE

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 COMPLETE ROUND IN THE XM430 OR XM611 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 ITEM SHOWN HEREIN. REFERENCE: COMPATIBILITY CHART, AND CLASSIFICATION, HANDLING AND STOWAGE CHART, "RULES AND REGULATIONS FOR MILITARY EXPLOSIVES AND HAZARDOUS MUNITIONS", COAST GUARD REGULATION NO. CG 108.
- D. FOR DETAILS OF XM430 CONTAINER, SEE DRAWING NO. 9073970.
FOR DETAILS OF XM611 CONTAINER, SEE DRAWING NO. 8035841.
CONTAINER DIMENSIONS --- 216" LONG X 28-3/4" WIDE X 41-1/2" HIGH.
GROSS WEIGHT (MAX) ----- 3,225 POUNDS (APPROX).
TARE WEIGHT ----- 1,950 POUNDS (APPROX).
CUBE ----- 149 CU. FT.

- E. THIS COMPLETE ROUND IS A DOT CLASS "A" EXPLOSIVE.

HANDLING:

- A. PERTINENT PROVISIONS OF TITLE 46 CODE OF FEDERAL REGULATIONS APPLY.
- B. HANDLING OF ONE (1) CONTAINER SHOULD BE ACCOMPLISHED BY USING THE LIFT POINTS DESIGNATED HEREIN.
- C. HANDLING OF TWO (2) CONTAINERS SHOULD BE ACCOMPLISHED BY USING THE LIFT POINTS OF THE LOWER CONTAINER, AS DESIGNATED HEREIN.
- D. HANDLING OF THREE (3) CONTAINERS SHOULD BE ACCOMPLISHED BY USING SLING EXTENSIONS SECURELY POSITIONED UNDER THE OUTER ENDS OF THE SKIDS OF THE MIDDLE CONTAINER AND AGAINST THE STACKING PADS OF THE LOWER CONTAINER, AS DESIGNATED HEREIN.
- E. 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 AGAINST THE BODY OF THE CONTAINER, WHICH MAY DAMAGE THE CONTAINER.
- F. ALTHOUGH DESIRABLE, 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.

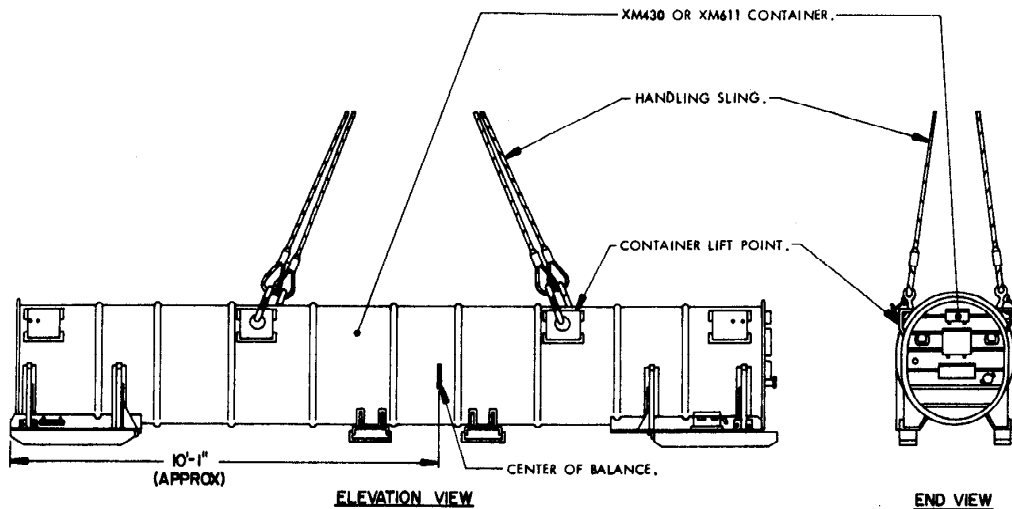
STOWAGE AND BRACING:

- A. STOWAGE OF THIS ITEM IS RESTRICTED TO THREE (3) LAYERS HIGH. TIE BARS MUST BE UTILIZED BETWEEN LAYERS AS SHOWN. ALSO, OTHER CARGO ITEMS SHALL NOT BE STACKED OR STOWED ON TOP OF THE DEPICTED CONTAINERS.
- B. WHEN STOWING THE XM430 CONTAINERS WITHIN THE HOLD, TWEEN DECK, OR ON THE WEATHER DECK, BRACING SHALL ONLY BE APPLIED AGAINST THE CONTAINER SKIDS AND/OR CONTAINER STRONG POINTS.
- 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. TO PREVENT DISPLACEMENT OF THE ANTI-CHAFING ASSEMBLY, 14 GAGE BLACK ANNEALED WIRE OR OTHER SUITABLE MATERIAL WILL BE PASSED THRU OPENING OF STACKING PAD AND AROUND ANTI-CHAFING ASSEMBLY.
- D. THE TYPICAL TOMMING PROCEDURES SHOWN ON PAGE 10 ARE DELINEATED FOR GUIDANCE PURPOSES. AS A MINIMUM, IT OR A COMPARABLE TOMMING METHOD IS TO BE USED IN ADDITION TO THE LATERAL AND LONGITUDINAL BRACING METHODS DEPICTED HEREIN TO PROVIDE TOMMING FOR THE LOAD. THIS TOMMING PROCEDURE IS NOT REQUIRED WHEN STOWING ITEMS ON THE WEATHER DECK AS SHOWN ON PAGE 11.
- E. THE TYPICAL STOWAGE ON WEATHER DECK PROCEDURES SHOWN ON PAGE 11 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 2-HIGH CONTAINER STACKS.
- F. 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

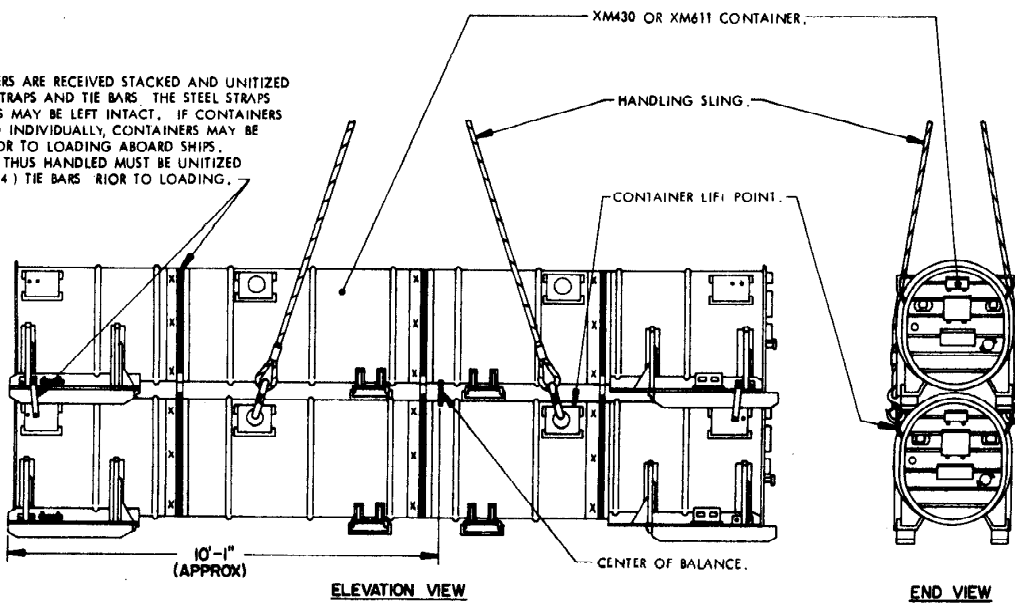
REVISION NO. 1 DATED MARCH 1973, CONSISTS OF:

1. REPOSITION, INCREASE LENGTH AND SECURE THE ANTI-CHAFING ASSEMBLY.
2. ADDING PROCEDURES FOR TOMMING THE CARGO.
3. ADDING PROCEDURES FOR STOWAGE ON THE WEATHER DECK.
4. ADDITIONAL STOWAGE AND BRACING NOTES.
5. ADDING XM611 CONTAINER.



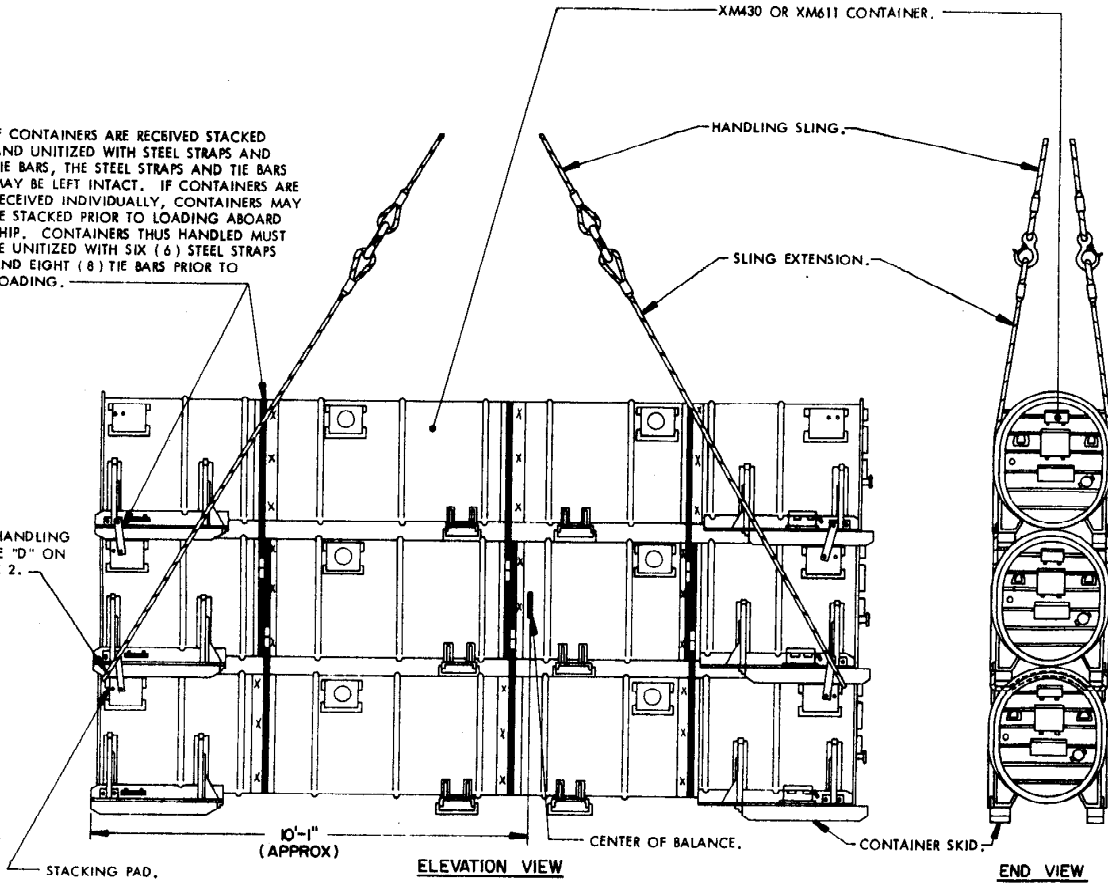
PRECAUTIONARY PROVISIONS FOR HANDLING, STORAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.

IF CONTAINERS ARE RECEIVED STACKED AND UNITIZED WITH STEEL STRAPS AND TIE BARS THE STEEL STRAPS AND TIE BARS MAY BE LEFT INTACT. IF CONTAINERS ARE RECEIVED INDIVIDUALLY, CONTAINERS MAY BE STACKED PRIOR TO LOADING ABOARD SHIPS. CONTAINERS THUS HANDLED MUST BE UNITIZED WITH FOUR (4) TIE BARS PRIOR TO LOADING.

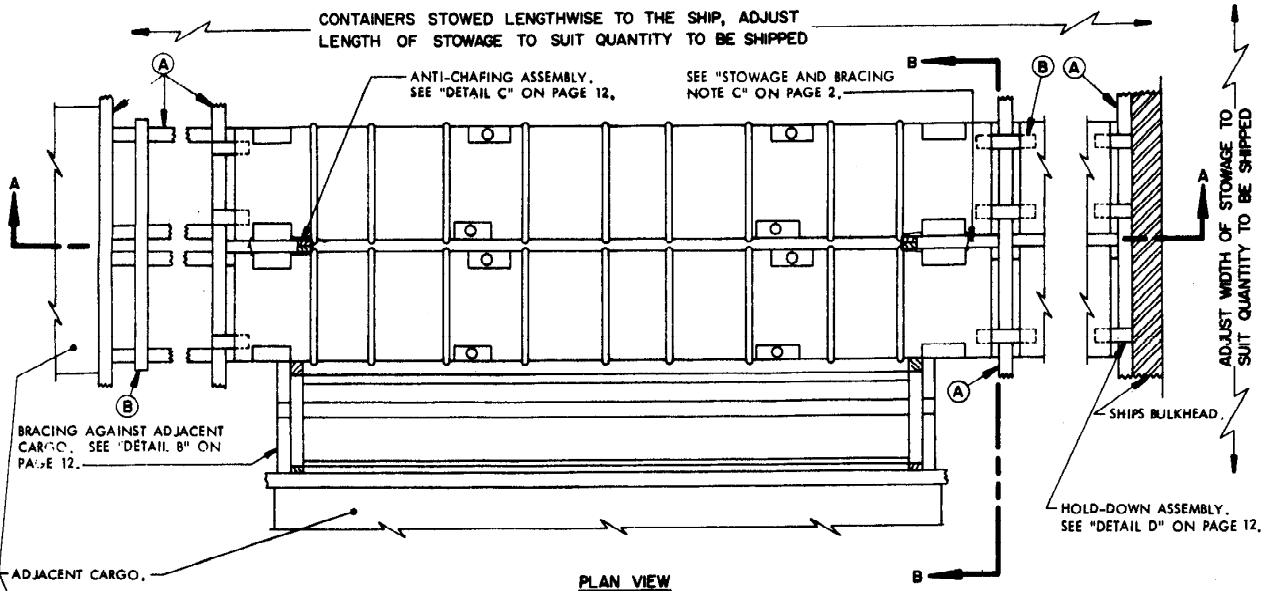


IF CONTAINERS ARE RECEIVED STACKED AND UNITIZED WITH STEEL STRAPS AND TIE BARS, THE STEEL STRAPS AND TIE BARS MAY BE LEFT INTACT. IF CONTAINERS ARE RECEIVED INDIVIDUALLY, CONTAINERS MAY BE STACKED PRIOR TO LOADING ABOARD SHIP. CONTAINERS THUS HANDLED MUST BE UNITIZED WITH SIX (6) STEEL STRAPS AND EIGHT (8) TIE BARS PRIOR TO LOADING.

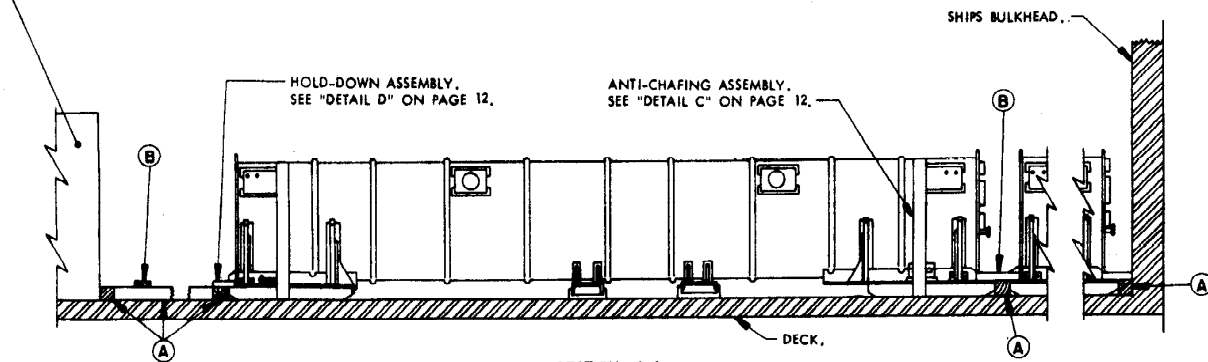
SEE HANDLING NOTE "D" ON PAGE 2.



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



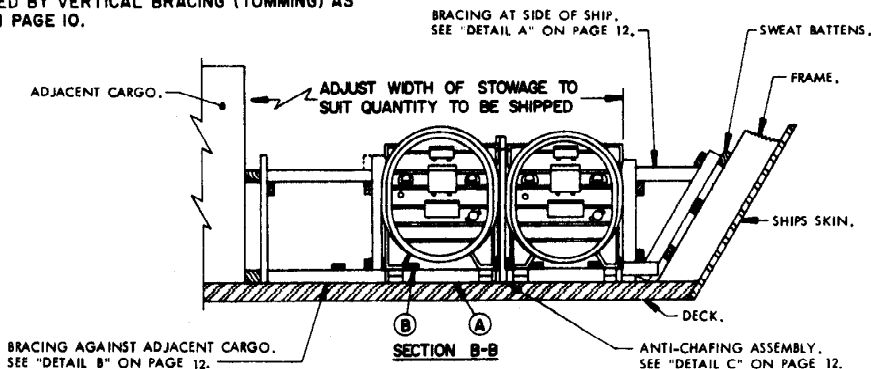
PLAN VIEW



SECTION A-A

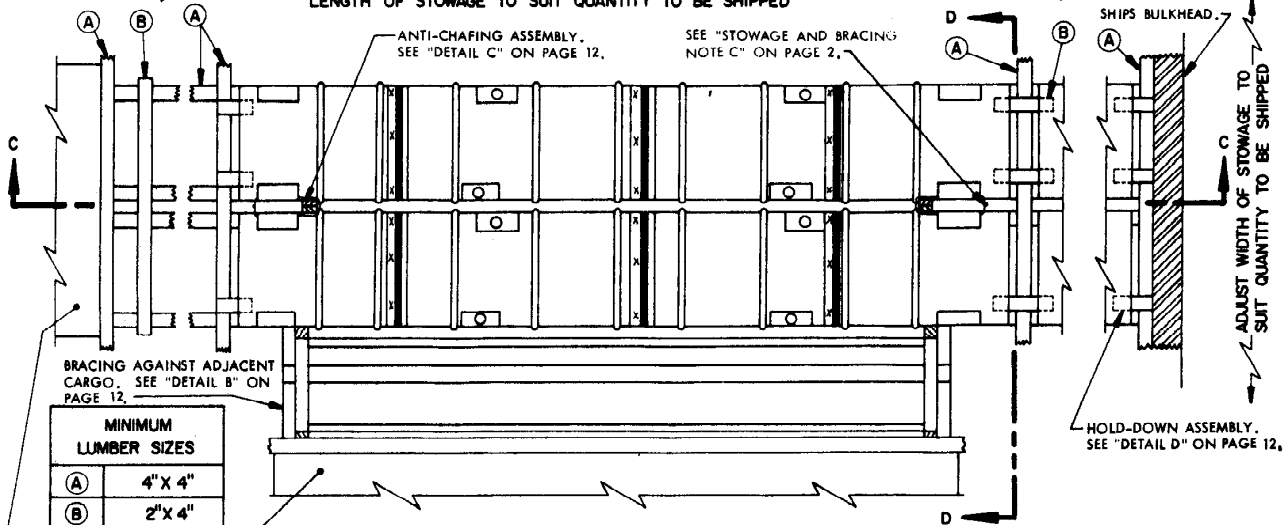
PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED. ONLY LATERAL AND LONGITUDINAL BRACING ARE DEPICTED ON THIS PAGE. THIS BRACING MUST BE AUGMENTED BY VERTICAL BRACING (TOMMING) AS SHOWN ON PAGE 10.

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



SECTION B-B

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



PLAN VIEW

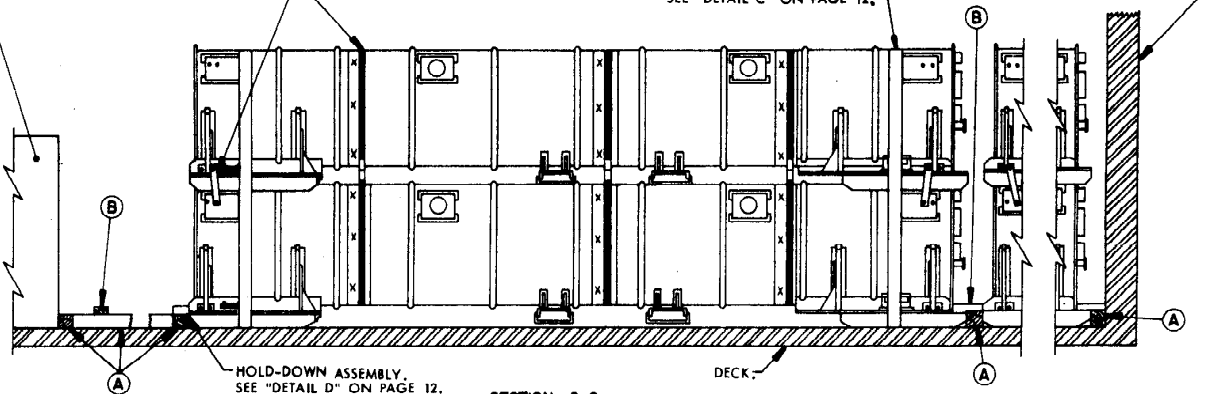
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IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, FOUR (4) TIE BARS MUST BE INSTALLED WHEN THE CONTAINERS ARE STACKED. IF CONTAINERS ARE LOADED ABOARD SHIP STACKED AND UNITIZED WITH TIE BARS AND STEEL STRAPS, THE STEEL STRAPS NEED NOT BE REMOVED.

ANTI-CHAFING ASSEMBLY. SEE "DETAIL C" ON PAGE 12.

SHIPS BULKHEAD.

ADJACENT CARGO.



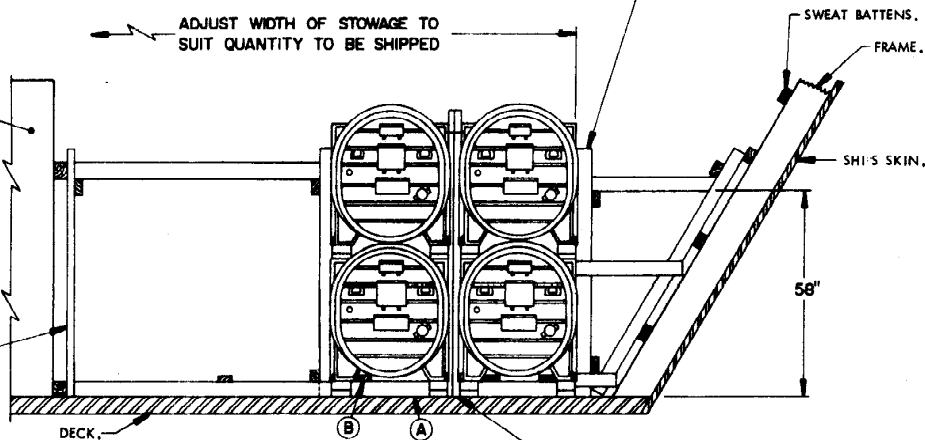
SECTION C-C

BRACING AT SIDE OF SHIP. SEE "DETAIL A" ON PAGE 12.

ADJUST WIDTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED

ADJACENT CARGO.

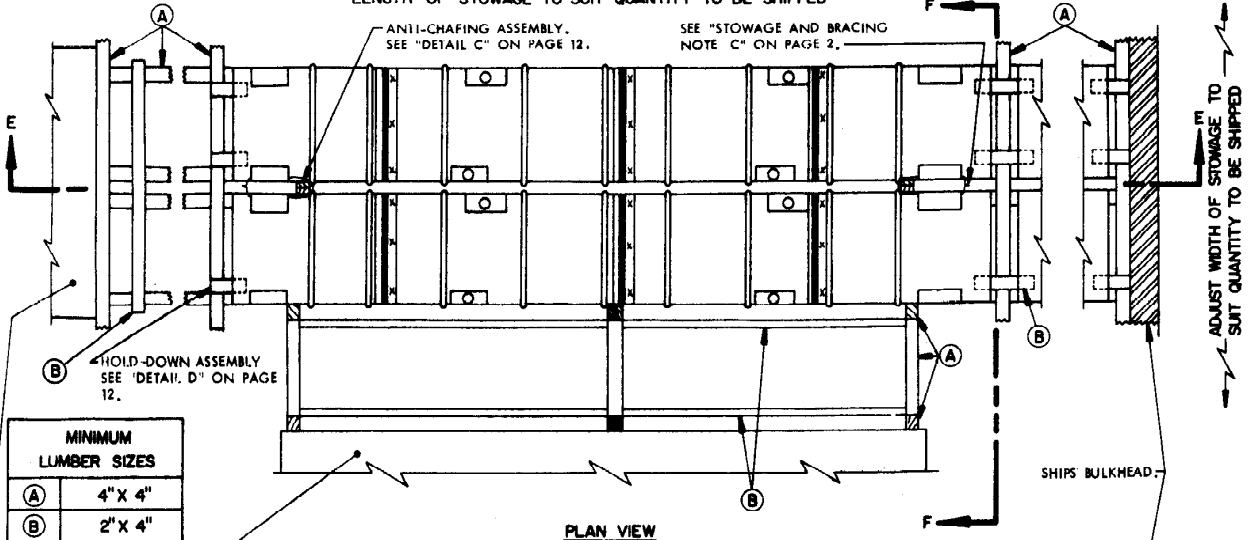
BRACING AGAINST ADJACENT CARGO. SEE "DETAIL B" ON PAGE 12.



SECTION D-D

ANTI-CHAFING ASSEMBLY. SEE "DETAIL C" ON PAGE 12.

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



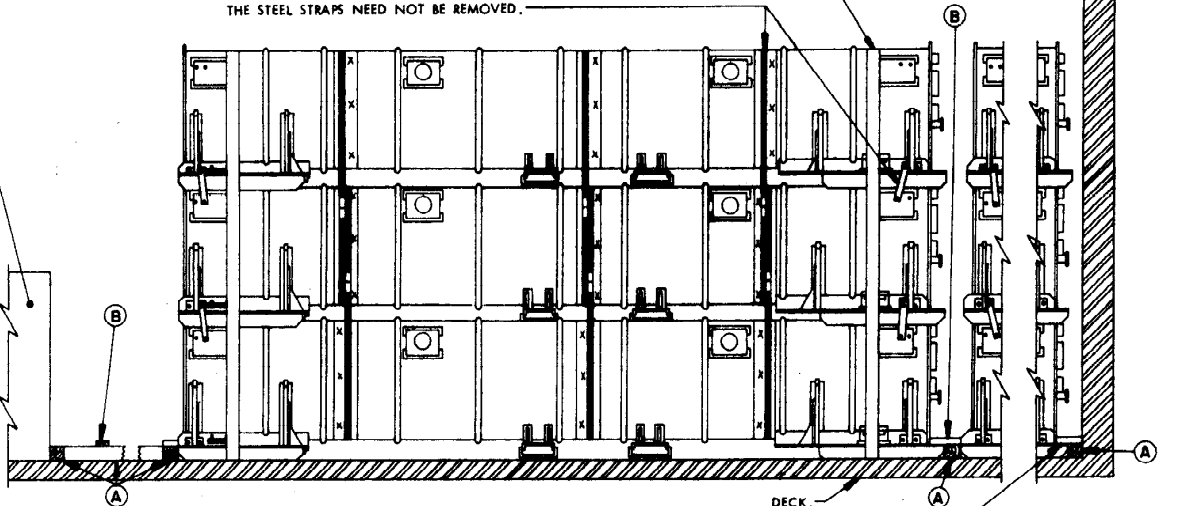
MINIMUM LUMBER SIZES	
(A)	4" X 4"
(B)	2" X 4"

PLAN VIEW

IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, EIGHT (8) TIE BARS MUST BE INSTALLED WHEN THE CONTAINERS ARE STACKED. IF CONTAINERS ARE LOADED ABOARD SHIP STACKED AND UNITIZED WITH TIE BARS AND STEEL STRAPS, THE STEEL STRAPS NEED NOT BE REMOVED.

ANTI-CHAFING ASSEMBLY. SEE "DETAIL C" ON PAGE 12.

ADJACENT CARGO.



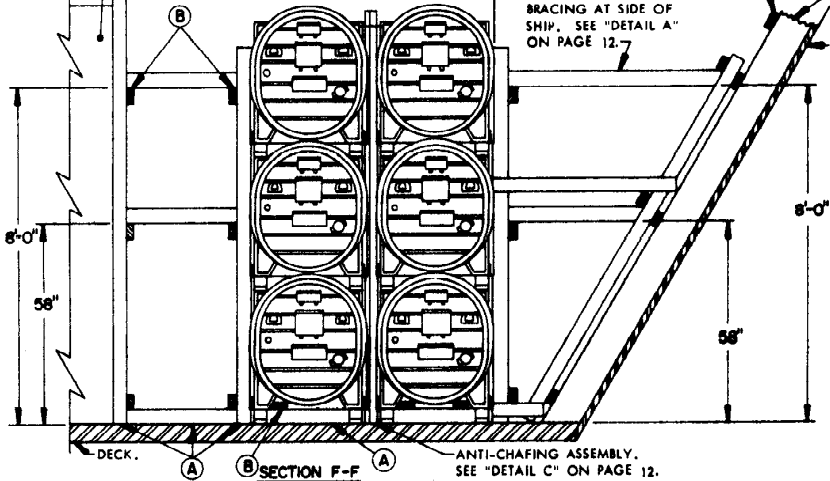
SECTION E-E

BRACING AT SIDE OF SHIP. SEE "DETAIL A" ON PAGE 12.

ADJACENT CARGO.

ADJUST WIDTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED

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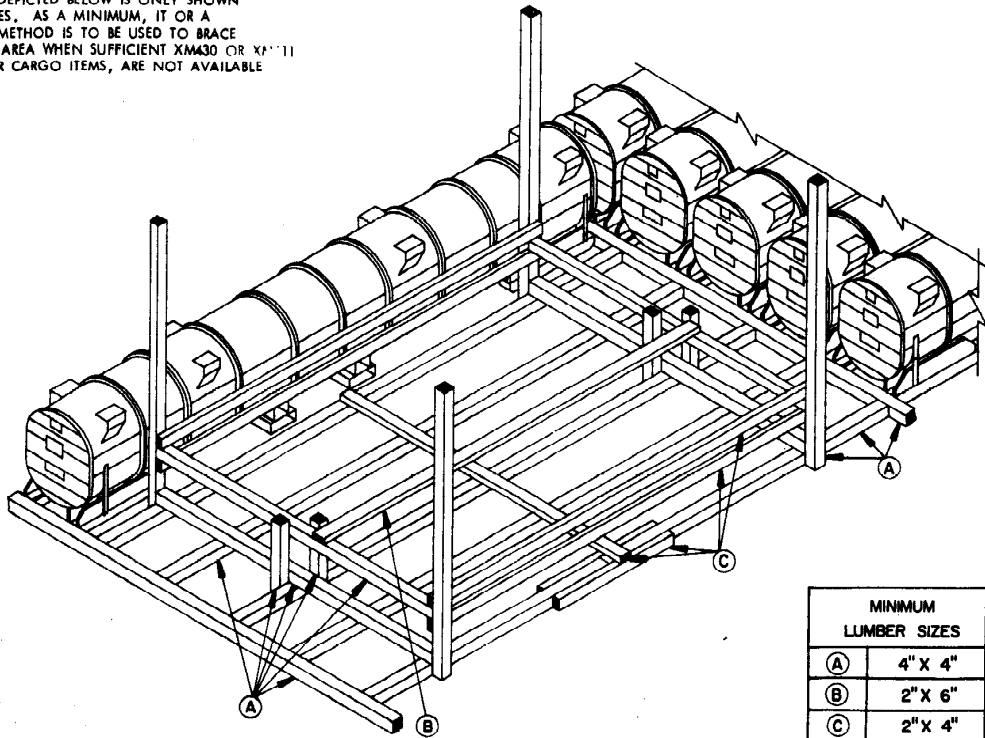


SECTION F-F

BRACING OF THREE LAYERS OF CONTAINERS

NOTE ⊕

THE BRACING METHOD DEPICTED BELOW IS ONLY SHOWN FOR GUIDANCE PURPOSES. AS A MINIMUM, IT OR A COMPARABLE BRACING METHOD IS TO BE USED TO BRACE ACROSS A LARGE VOID AREA WHEN SUFFICIENT X4430 OR X1111 CONTAINERS, OR OTHER CARGO ITEMS, ARE NOT AVAILABLE TO FILL THE VOID.

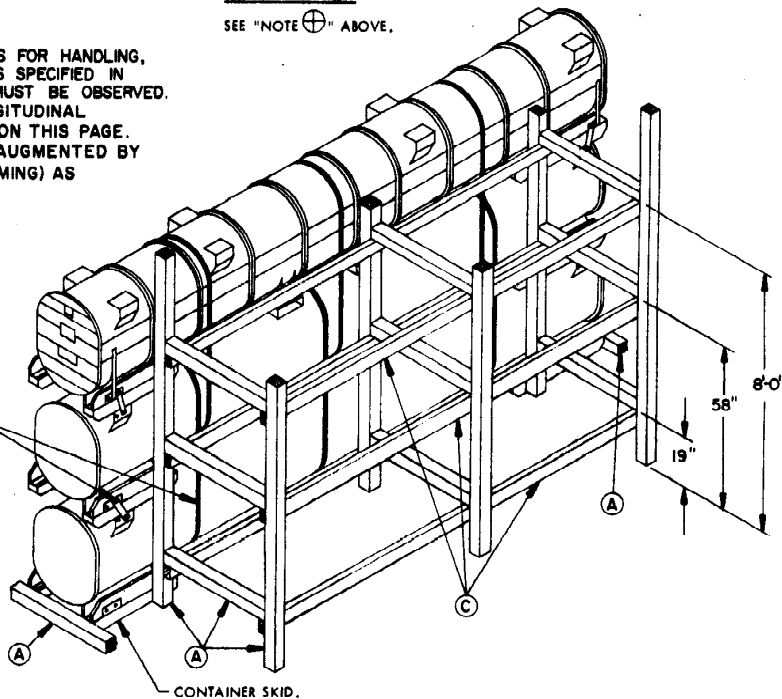


ISOMETRIC VIEW

SEE "NOTE ⊕" ABOVE.

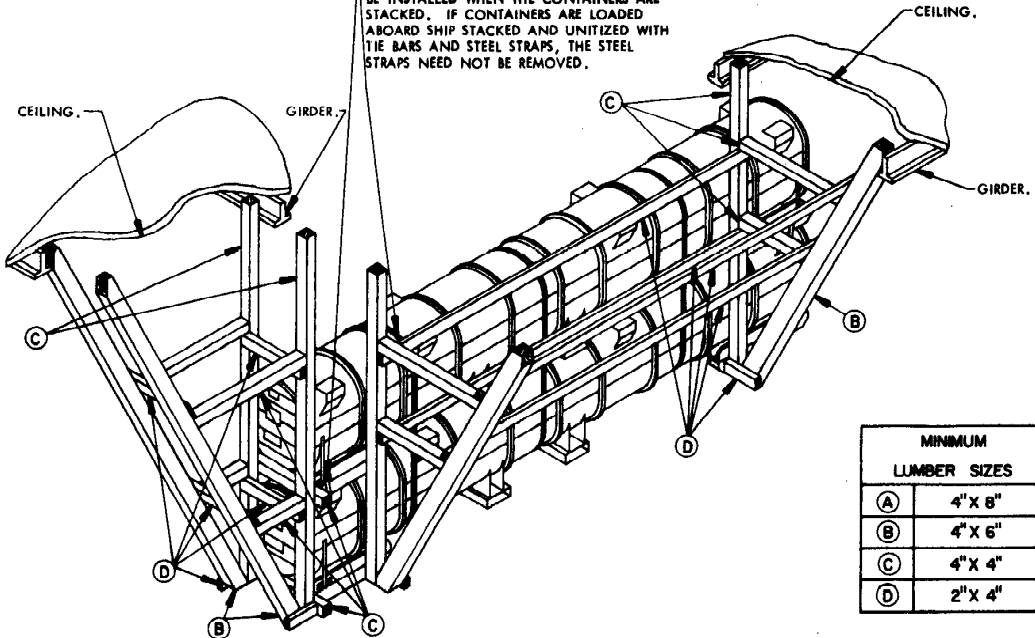
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ISOMETRIC VIEW

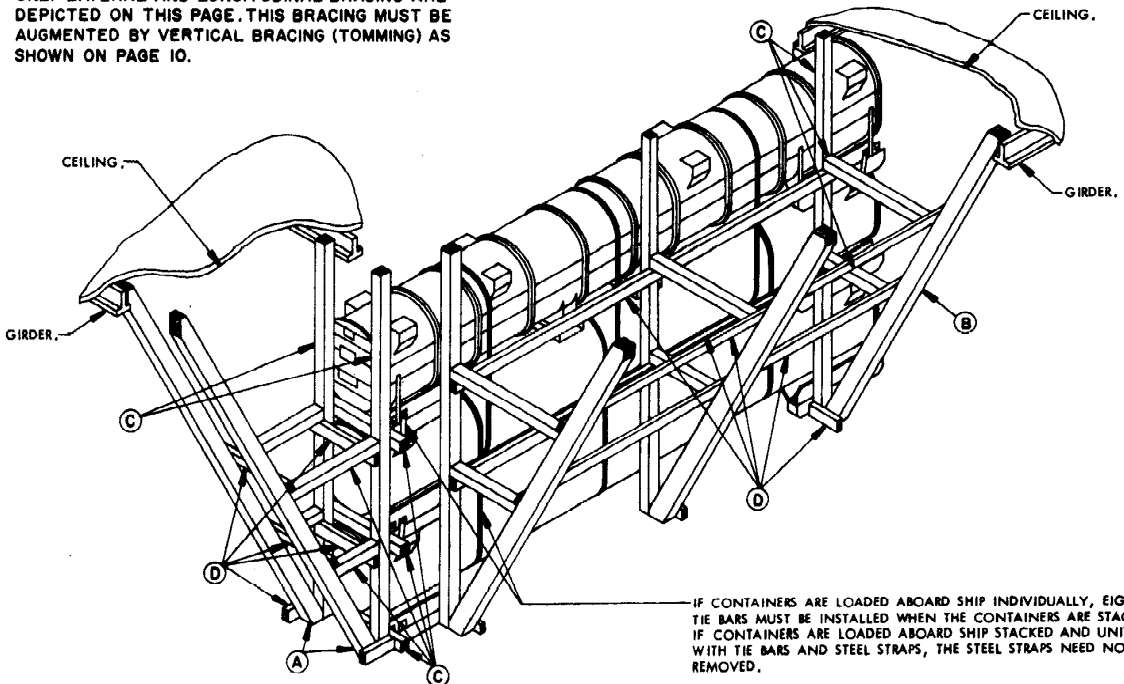
IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, FOUR (4) TIE BARS MUST BE INSTALLED WHEN THE CONTAINERS ARE STACKED. IF CONTAINERS ARE LOADED ABOARD SHIP STACKED AND UNITIZED WITH TIE BARS AND STEEL STRAPS, THE STEEL STRAPS NEED NOT BE REMOVED.



MINIMUM LUMBER SIZES	
(A)	4" X 8"
(B)	4" X 6"
(C)	4" X 4"
(D)	2" X 4"

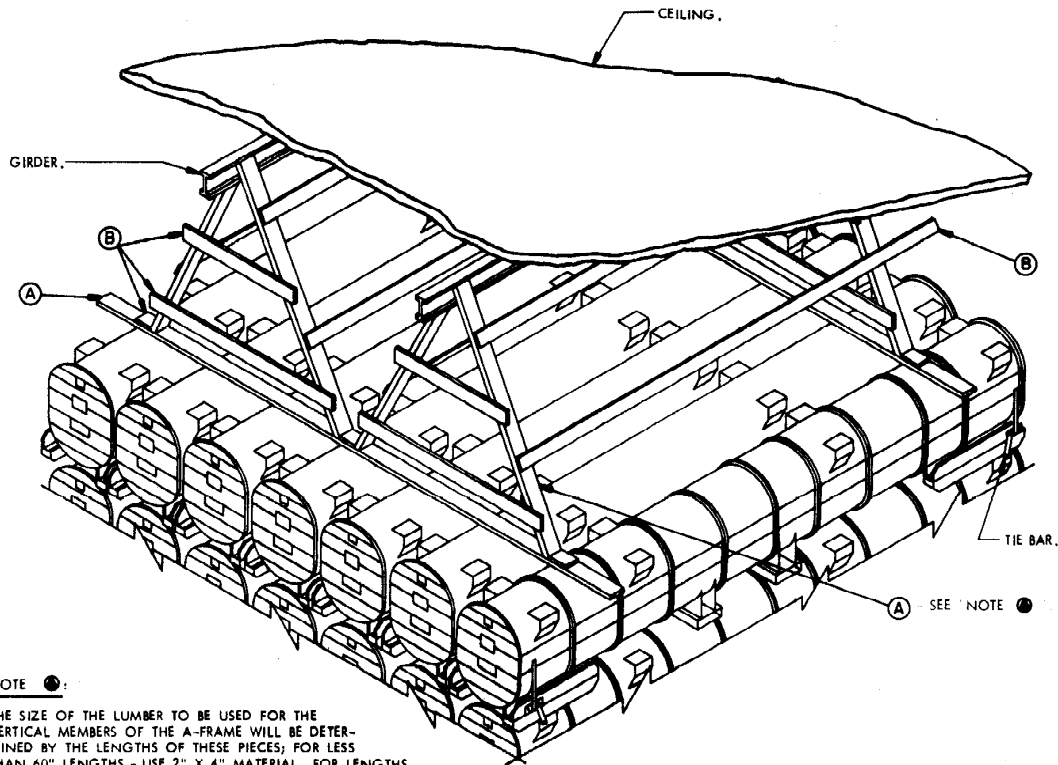
ISOMETRIC VIEW

PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED. ONLY LATERAL AND LONGITUDINAL BRACING ARE DEPICTED ON THIS PAGE. THIS BRACING MUST BE AUGMENTED BY VERTICAL BRACING (TOMMING) AS SHOWN ON PAGE 10.



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ISOMETRIC VIEW



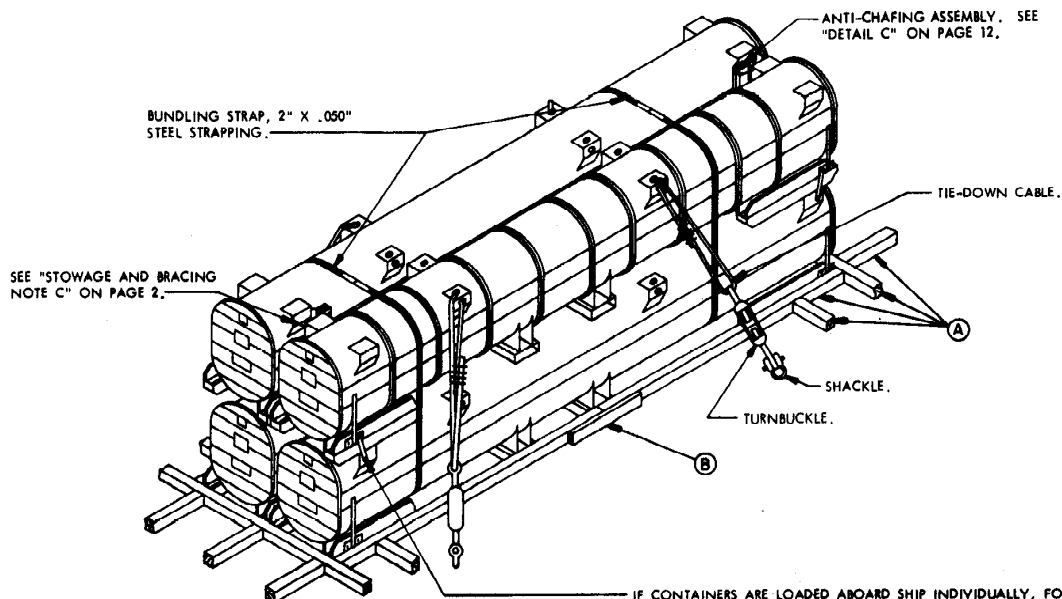
NOTE 1

THE SIZE OF THE LUMBER TO BE USED FOR THE VERTICAL MEMBERS OF THE A-FRAME WILL BE DETERMINED BY THE LENGTHS OF THESE PIECES; FOR LESS THAN 60" LENGTHS - USE 2" X 4" MATERIAL, FOR LENGTHS FROM 60" TO 10'-0" - USE 2" X 6" MATERIAL, FOR LENGTHS GREATER THAN 10'-0" - USE 4" X 4" MATERIAL.

ISOMETRIC VIEW

MINIMUM LUMBER SIZES	
(A)	2" X 6"
(B)	1" X 6"

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



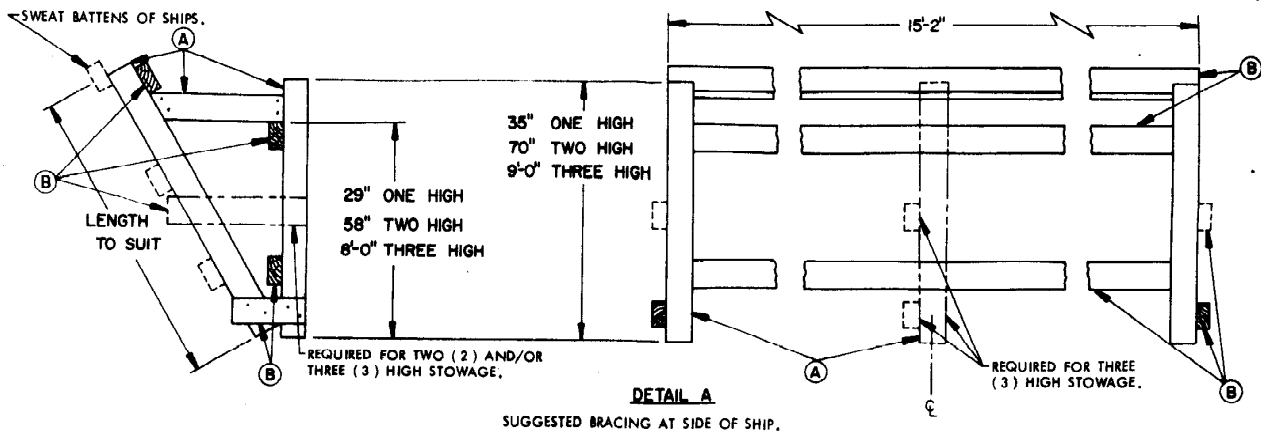
ISOMETRIC VIEW

NOTE: SPECIFIC ATTENTION IS DIRECTED TO "STOWAGE AND BRACING NOTE E" ON PAGE 2.

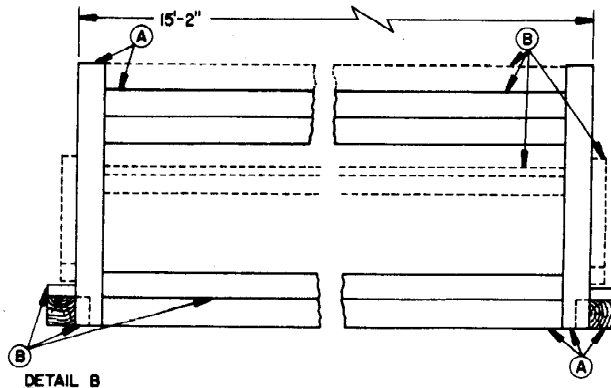
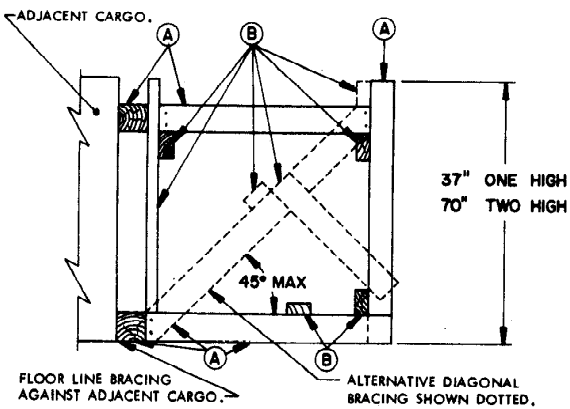
IF CONTAINERS ARE LOADED ABOARD SHIP INDIVIDUALLY, FOUR (4) TIE BARS PER STACK OF TWO (2) CONTAINERS MUST BE INSTALLED. IF CONTAINERS ARE LOADED ABOARD SHIP STACKED AND UNITIZED WITH TIE BARS AND STEEL STRAPS, THE STEEL UNITIZING STRAPS NEED NOT BE REMOVED. THE BUNDLING STRAP IDENTIFIED ABOVE WILL BE APPLIED IN ADDITION TO ANY OTHER STRAPPING WHICH MAY BE ON THE CONTAINERS. NOTE: STOWAGE ON THE WEATHER DECK IS RESTRICTED TO A MAXIMUM OF 2-HIGH CONTAINER STACKS.

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.



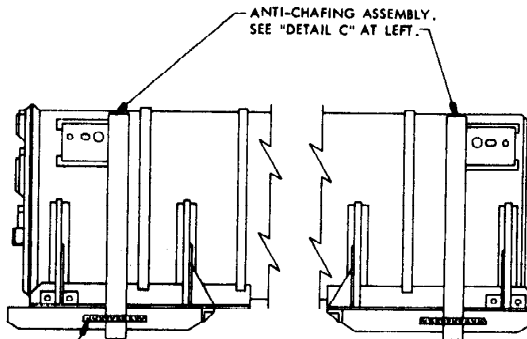
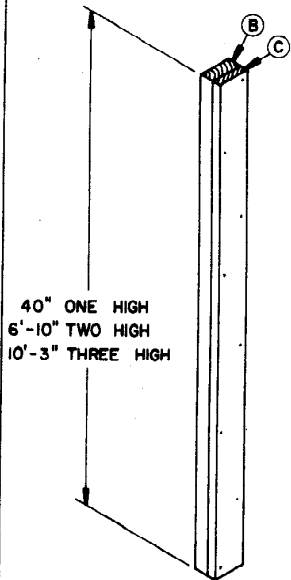
DETAIL A
SUGGESTED BRACING AT SIDE OF SHIP.



SUGGESTED BRACING AGAINST ADJACENT CARGO.
SEE "SECTION F-F" ON PAGE 7 FOR BRACING FOR
A THREE (3) HIGH STACK.

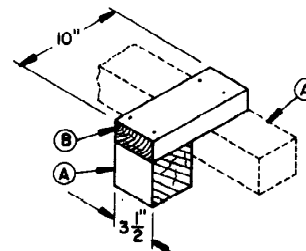
PRECAUTIONARY PROVISIONS FOR HANDLING,
STOWAGE AND BRACING AS SPECIFIED IN
THE NOTES ON PAGE 2 MUST BE OBSERVED.

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



ANTI-CHAFING ASSEMBLY PLACEMENT

TO PREVENT DISPLACEMENT DURING LOADING
OPERATIONS, ANTI-CHAFING ASSEMBLY MAY BE
TAPED TO AN UPPER CONTAINER SKID AS SHOWN.
TO PREVENT DISPLACEMENT OF ANTI-CHAFING
ASSEMBLY DURING SHIPMENT, WIRE TIE THE ASSEM-
BLY TO CONTAINER STACKING PAD. SEE "STOWAGE
AND BRACING NOTE C" ON PAGE 2.



DETAIL D
HOLD-DOWN ASSEMBLY.

DETAIL C
ANTI-CHAFING ASSEMBLY. SEE "ANTI-
CHAFING ASSEMBLY PLACEMENT" AT RIGHT.

DETAILS