

REVISION NO. 3  
 REVIEWED BY  
 MTMC

SIGNED Robert E. Ken  
 MTMC-TEA  
 DATE 22 Sep 1992

# MLRS

## MINIMUM REQUIREMENTS FOR THE HANDLING, STOWAGE, AND BRACING ABOARD SHIPS<sup>⊕</sup> OF ROCKET POD/CONTAINERS (RP/C) FOR THE MULTIPLE LAUNCH ROCKET SYSTEM

⊕ THIS DRAWING ALSO INCLUDES PROCEDURES  
 FOR BARGE LOADING.

U.S. ARMY MATERIEL COMMAND DRAWING					
APPROVED, U.S. ARMY MISSILE COMMAND <i>RK</i>  <i>Carl Honea</i>	DRAFTSMAN	TECHNICIAN	ENGINEER		
	D. WHITMORE	R. HAYNES	W. FRERICHS		
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  <i>William F. Ernst</i>	R. HAYNES	R. HAYNES			
	VALIDATION ENGINEERING DIVISION	TRANSPORTATION ENGINEERING DIVISION	LOGISTICS ENGINEERING OFFICE		
U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	MAY 1982				
	CLASS	DIVISION	DRAWING	FILE	
REVISION NO. 3	MARCH 1993	19	48	5778	GM18RS1
SEE THE REVISION LISTING ON PAGE 2					

DO NOT SCALE

## NOTES

### GENERAL:

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1.
- B. THIS DRAWING DEPICTS MINIMUM PROCEDURES APPLICABLE TO THE HANDLING, STOWAGE, AND BRACING ABOARD SHIPS AND BARGES OF THE ROCKET POD/CONTAINER (RP/C) FOR THE MULTIPLE LAUNCH ROCKET SYSTEM (MLRS).
- C. OTHER TYPES OF CARGO MAY BE STOWED IN THE SAME HOLD OR TWEEN DECK PROVIDING THE ITEMS STOWED ARE COMPATIBLE WITH THE ROCKET POD/CONTAINERS SHOWN HEREIN. PERTINENT REQUIREMENT OF TITLE 49 CODE OF FEDERAL REGULATION, PART 176, MUST BE APPLIED.
- D. FOR DETAILS OF THE ROCKET POD/CONTAINER, SEE US ARMY MISSILE COMMAND DRAWING NO. 13027900.  
  
CONTAINER DIMENSIONS -- 13'-10" LONG BY 41-1/2" WIDE BY 33" HIGH.  
GROSS WEIGHT - - - - - 5,078 POUNDS (APPROX).  
CUBE - - - - - 131.56 CU. FT.

### HANDLING:

- A. PERTINENT PROVISIONS OF TITLE 49 CODE OF FEDERAL REGULATIONS APPLY.
- B. EACH ROCKET POD/CONTAINER WILL BE HANDLED INDIVIDUALLY AND SHOULD BE ACCOMPLISHED BY USING THE LIFT POINTS DESIGNATED HEREIN.
- C. 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 ROCKET POD/CONTAINER IS NOT DAMAGED.
- D. 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 FOUR (4) LAYERS HIGH. UNLESS OPERATIONALLY NECESSARY, IT IS RECOMMENDED NOT TO STOW ROCKET POD/CONTAINERS MORE THAN THREE (3) LAYERS HIGH. ALSO, OTHER CARGO ITEMS MUST NOT BE STACKED OR STOWED ON TOP OF THE DEPICTED ROCKET POD/CONTAINERS.
- B. WHEN STOWING THE ROCKET POD/CONTAINERS WITHIN THE HOLD, OR TWEEN DECK, BRACING SHALL ONLY BE APPLIED AGAINST THE SKIDS AND/OR STRONG POINTS. SEE NOTE "F" BELOW.
- C. ADJACENT ROCKET POD/CONTAINERS MUST BE SEPARATED BY BRACING MEMBERS AND/OR ANTI-CHAFING MATERIAL TO AVOID DAMAGE TO ITEMS BY DIRECT CONTACT WITH EACH OTHER. TO PREVENT DISPLACEMENT OF THE ANTI-CHAFING MATERIAL, 14 GAGE BLACK ANNEALED WIRE OR OTHER SUITABLE MATERIAL WILL BE PASSED AROUND THE FRAMEWORK OF THE RP/C AND AROUND THE ANTI-CHAFING PIECES.
- D. SUPPORT BLOCKS AS SHOWN ON PAGE 7 MUST BE USED UNDER ALL LAYERS OF CONTAINERS EXCEPT FOR THE TOP LAYER, SO AS TO PREVENT DAMAGE TO THE SHOCK ISOLATORS. TWO SUPPORT BLOCKS WILL BE REQUIRED UNDER EACH ROCKET POD/CONTAINER.
- 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 SIZES DEPICTED IN THIS DRAWING ARE CONSIDERED MINIMUM AND ARE NOT INTENDED TO CONFLICT WITH CONTRACT REQUIREMENTS.
- F. CAUTION: CARE MUST BE EXERCISED TO INSURE THAT PRESSURE IS NOT APPLIED AGAINST THE TUBES (ENDS AND SIDES) OF THE CONTAINERS OR THE UPPER RAIL NEAR THE CROSSMEMBER MARKED "NO STEP" DURING HANDLING OPERATIONS OR WHEN BRACED. ALSO, PERSONNEL SHALL NOT STAND OR WALK ON THE FIBERGLASS TUBES OR THE CROSSMEMBERS SO MARKED.
- G. IT IS RECOMMENDED THAT THE ROCKET POD/CONTAINERS BE STOWED LENGTHWISE IN THE SHIP AS SHOWN, HOWEVER, CROSSWISE STOWAGE IS ACCEPTABLE. STACKED CONTAINERS SHALL BE STOWED WITH THE FORWARD END OF AN UPPER CONTAINER DIRECTLY ABOVE THE FORWARD END OF A LOWER CONTAINER.

## REVISIONS

REVISION NO. 1, DATED NOV 1988 CONSISTS OF:

1. ALLOWING FOUR (4) HIGH STACKING OF CONTAINERS.
2. REMOVING PROCEDURES FOR STOWAGE ON WEATHER DECK.

REVISION NO. 2, DATED SEP 1990 CONSISTS OF:

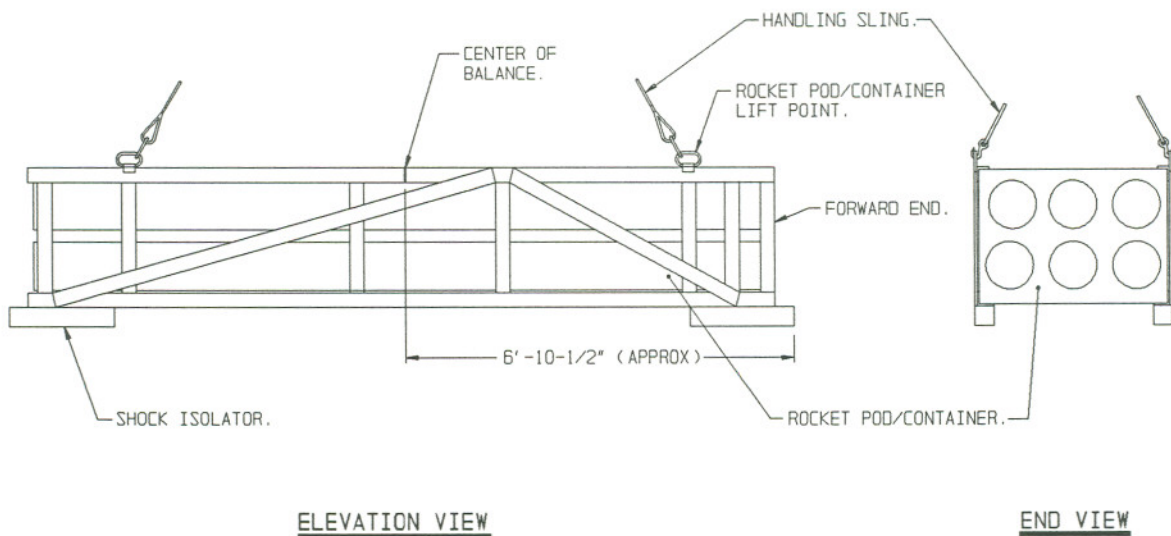
1. REDESIGNING BLOCKING TO BE USED WITHIN THE SHIP HOLD.
2. REMOVING THE TOMMING PROCEDURES.
3. CHANGING NOMENCLATURE OF ITEM FROM LAUNCH POD/CONTAINER TO ROCKET POD/CONTAINER.
4. REMOVING UNITIZATION PROCEDURES.
5. ADDING SUPPORT BLOCKS FOR USE WITH ALL LAYERS.

REVISION NO. 3, DATED MARCH 1993, CONSISTS OF:

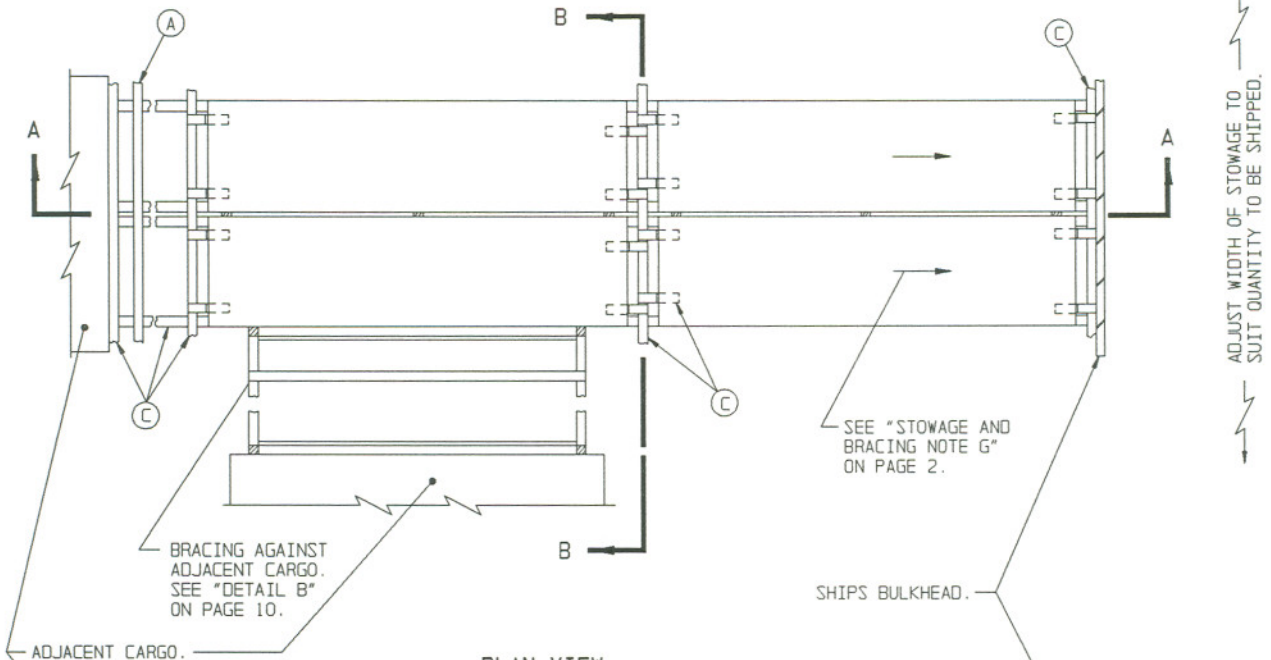
1. ADDING PROCEDURES TO INCLUDE BARGE LOADING

CAUTION: ROCKET POD/CONTAINERS MUST BE SLING HANDLED INDIVIDUALLY. SLINGING OF MORE THAN ONE RP/C IN ONE LIFT WILL NOT BE ACCOMPLISHED. SEE "HANDLING NOTE B" ON PAGE 2.

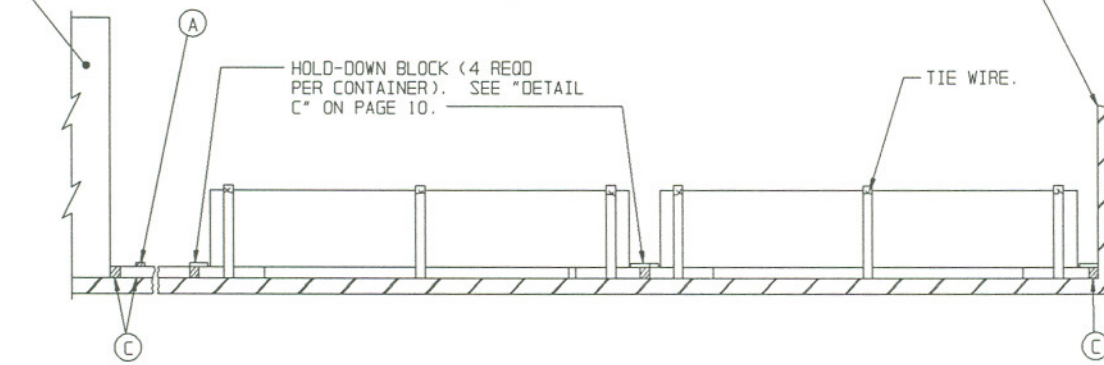
PRECAUTIONARY PROVISIONS FOR HANDLING, STOWAGE AND BRACING AS SPECIFIED IN THE NOTES ON PAGE 2 MUST BE OBSERVED.



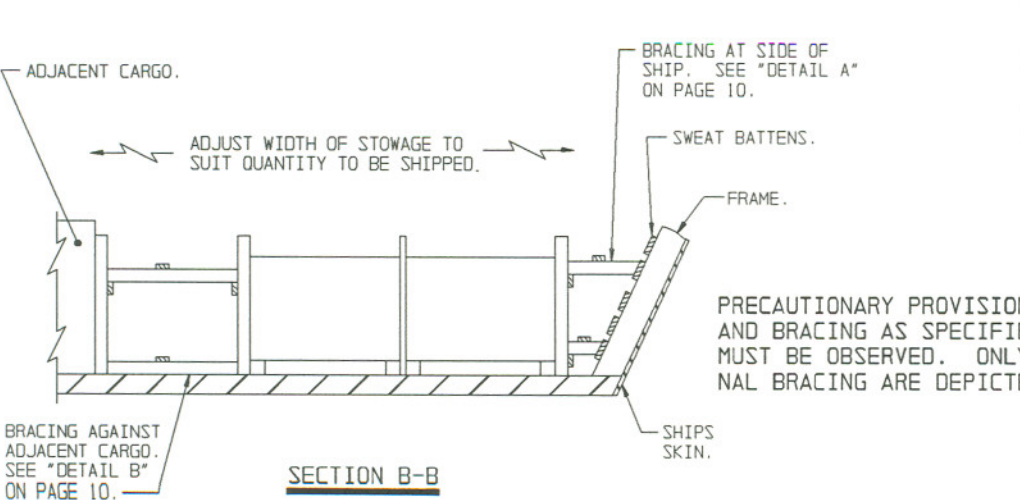
CONTAINERS STOWED LENGTHWISE TO THE SHIP. ADJUST LENGTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED.



**PLAN VIEW**



**SECTION A-A**

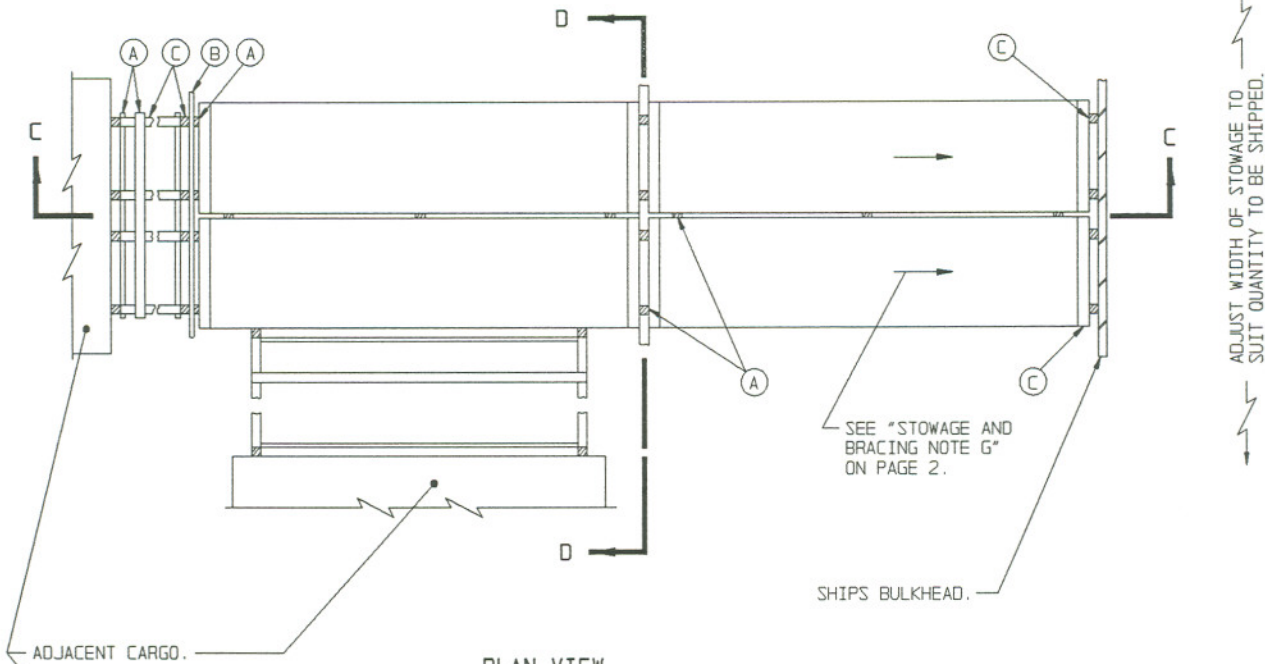


**SECTION B-B**

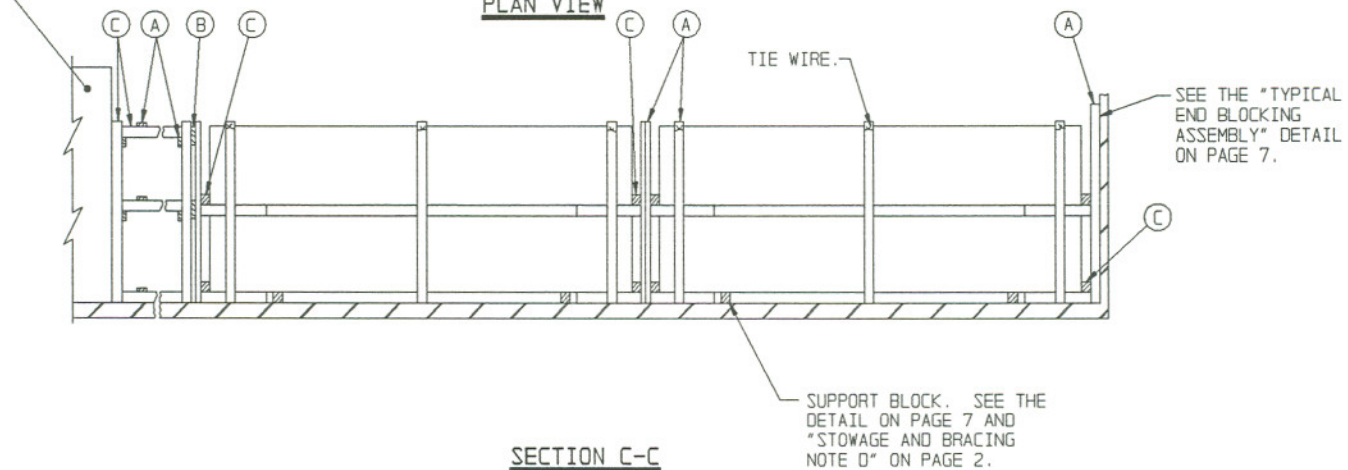
MINIMUM LUMBER SIZES	
(A)	2" X 4"
(C)	4" X 4"

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.

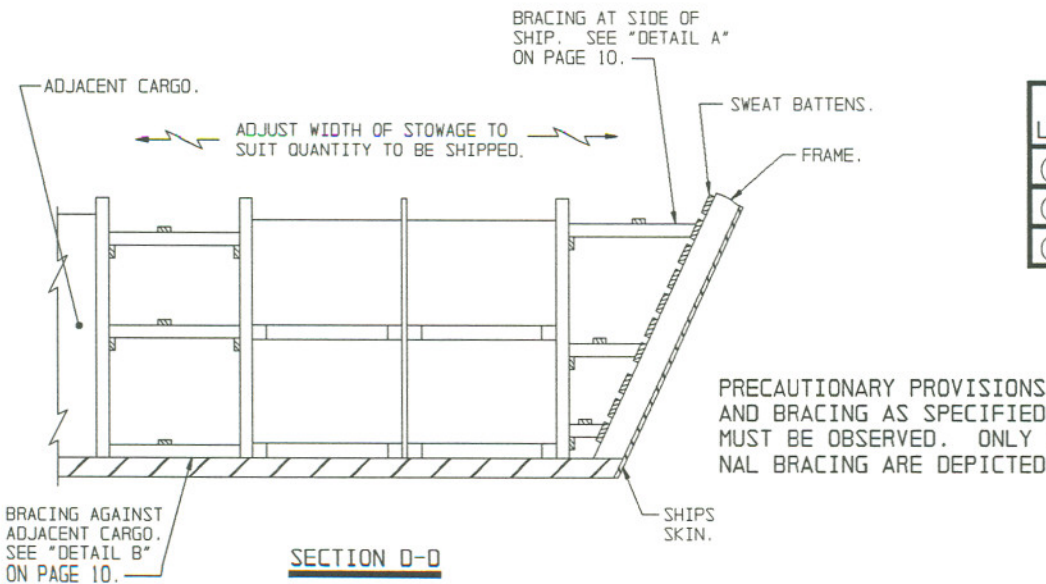
CONTAINERS STOWED LENGTHWISE TO THE SHIP. ADJUST LENGTH OF STOWAGE TO SUIT QUANTITY TO BE SHIPPED.



**PLAN VIEW**



**SECTION C-C**

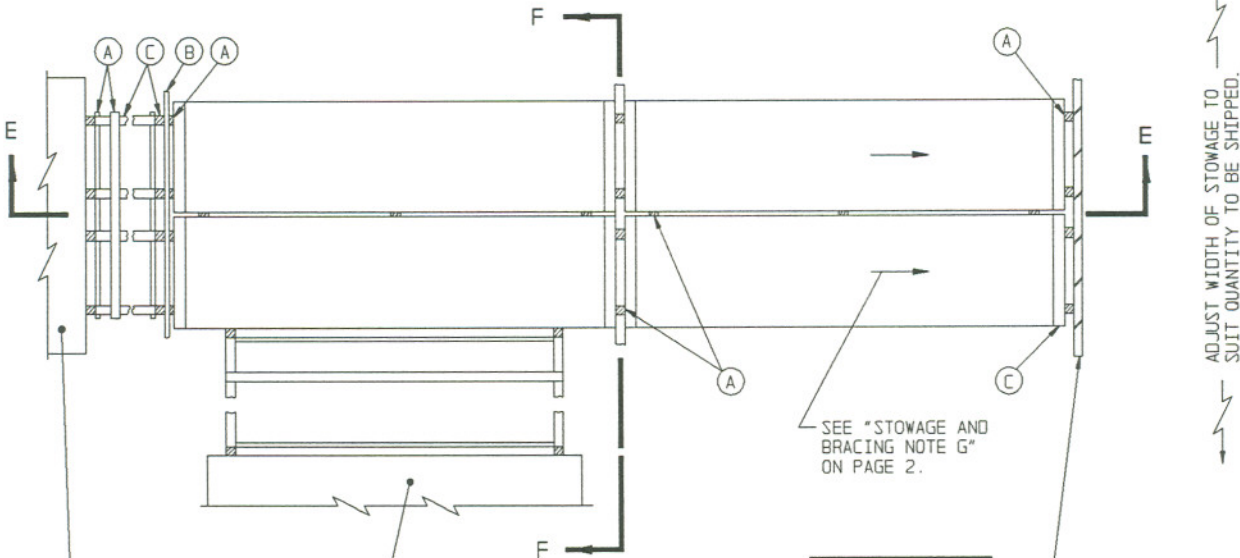


**SECTION D-D**

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

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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.

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

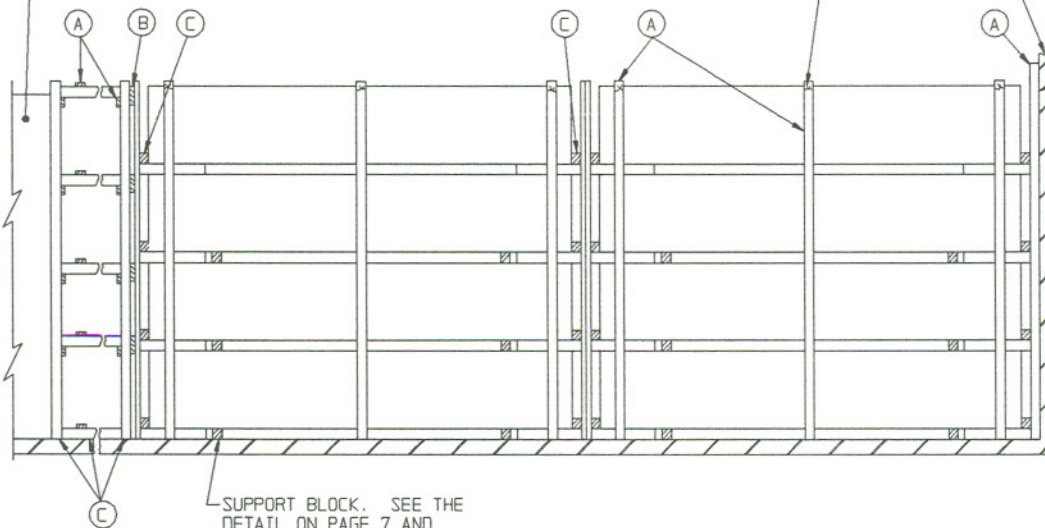
PLAN VIEW

ADJACENT CARGO.

SHIPS BULKHEAD.

TIE WIRE.

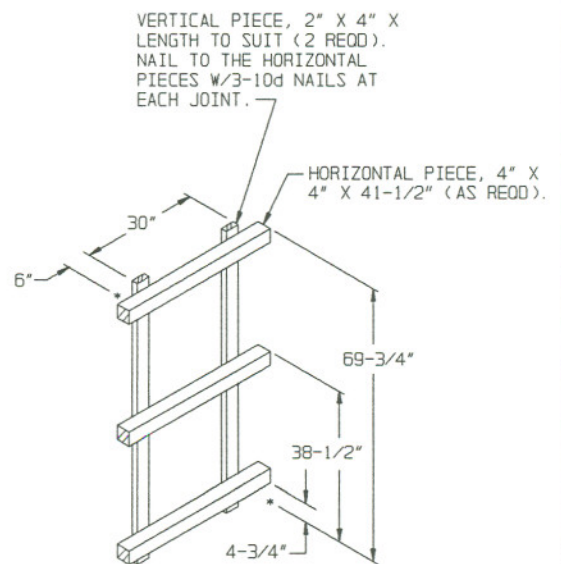
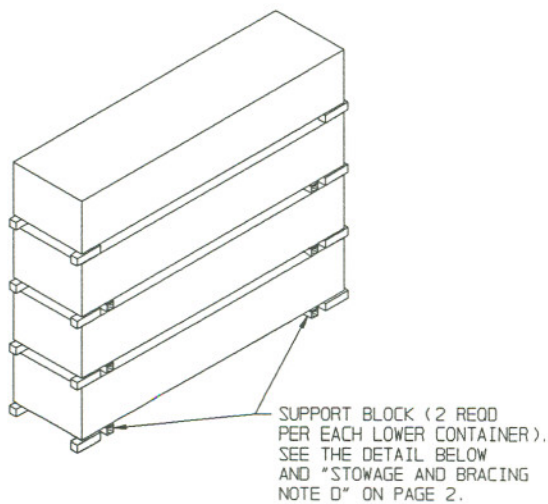
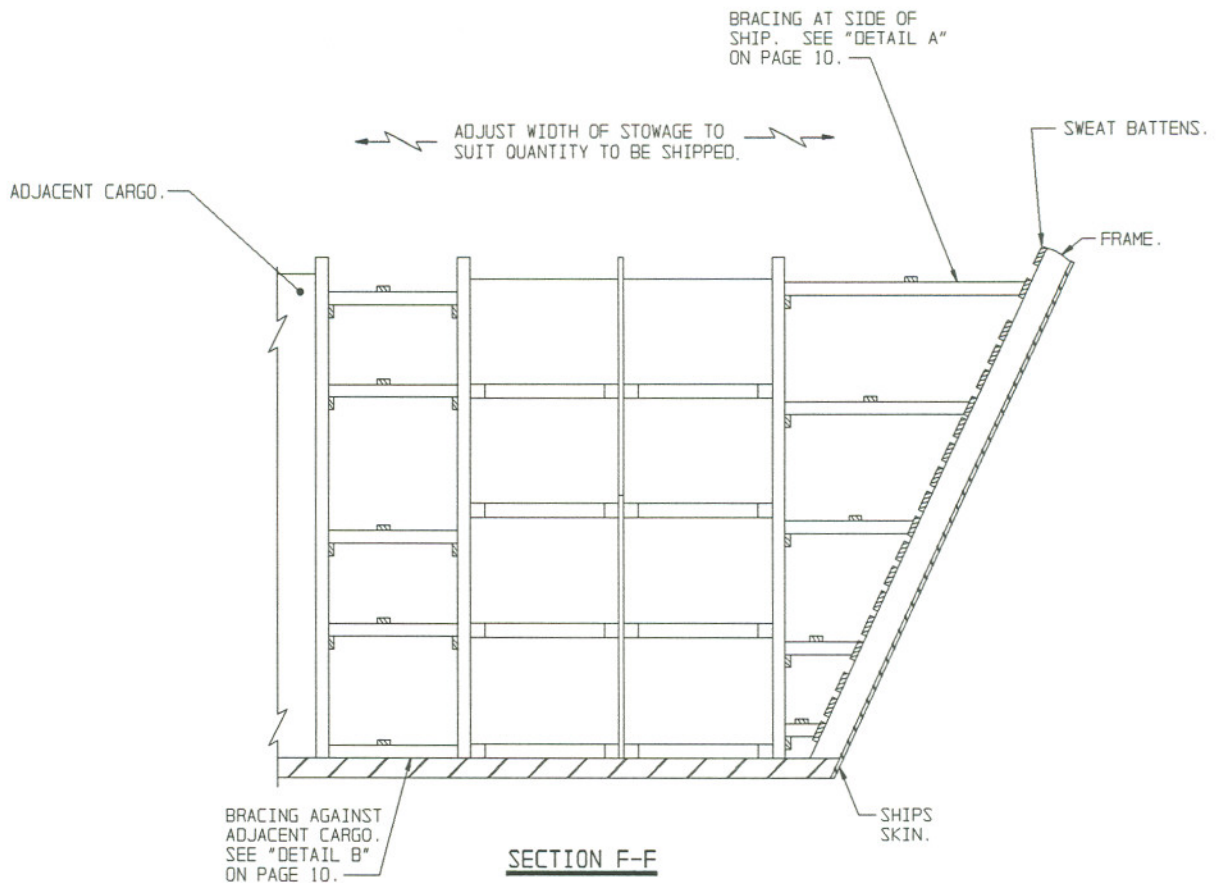
SEE THE "TYPICAL END BLOCKING ASSEMBLY" DETAIL ON PAGE 7.



SUPPORT BLOCK. SEE THE DETAIL ON PAGE 7 AND "STOWAGE AND BRACING NOTE D" ON PAGE 2.

SECTION E-E

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.



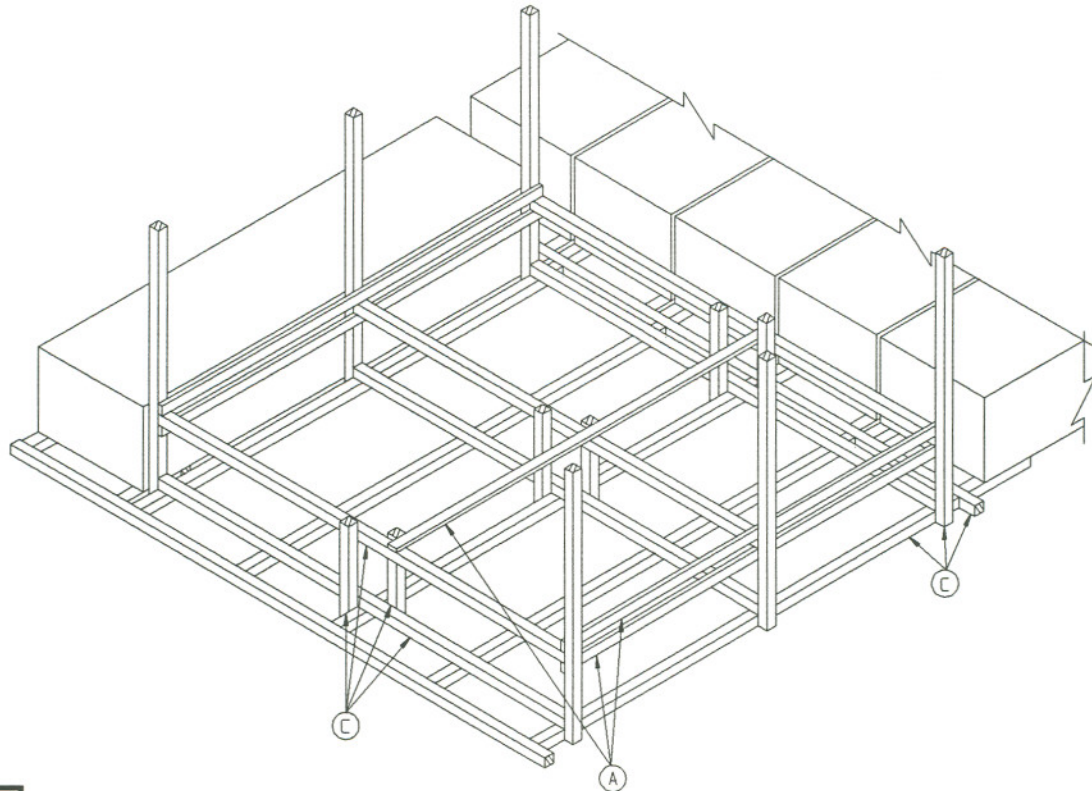
POD SUPPORT DUNNAGE,  
1" X 4" X 41" AND 4" X 4"  
X 41" (1 EACH REED).  
LAMINATE W/4-6d NAILS.



**SUPPORT BLOCK**

ALT: USE 2 THICKNESSES OF 2" X 4" X 41" AND  
1-1" X 4" X 41" IN LIEU OF THE DEPICTED  
MATERIAL. LAMINATE APPROPRIATELY.

THE ASSEMBLY DEPICTED ABOVE IS DESIGNED FOR A 3-LAYER LOAD. FOR A 2-LAYER LOAD, OMIT THE HORIZONTAL PIECE AT THE 69-3/4" LEVEL AND FOR A 4-LAYER LOAD, AN ADDITIONAL HORIZONTAL PIECE WILL BE ADDED AT 8'-5". THE LENGTH OF THE VERTICAL PIECES WILL BE ADJUSTED AS APPROPRIATE. THIS ASSEMBLY IS FOR USE ABOARD SHIPS AND/OR IN BARGES. SEE THE "ALTERNATIVE END BLOCKING ASSEMBLY" DETAIL ON PAGE 12.

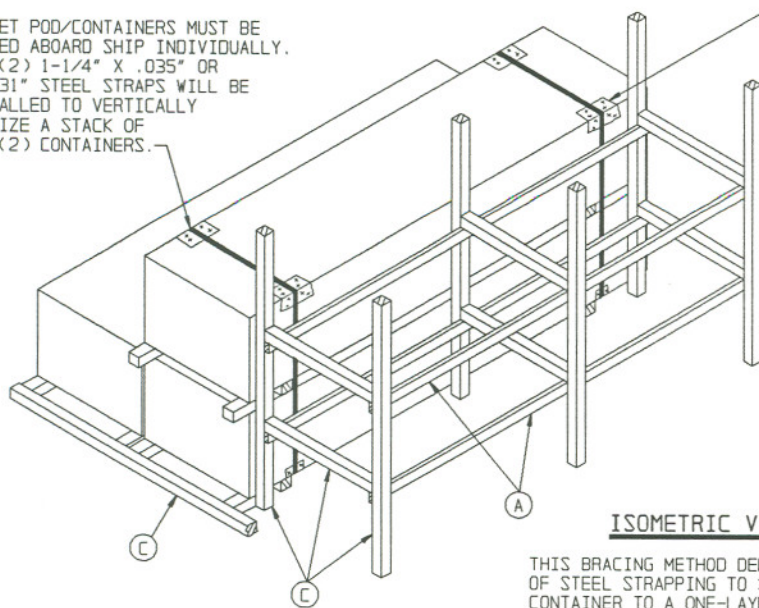


MINIMUM LUMBER SIZES	
(A)	2" X 4"
(C)	4" X 4"

**ISOMETRIC VIEW**

THE BRACING METHOD DEPICTED ABOVE IS ONLY SHOWN FOR GUIDANCE PURPOSES. AS A MINIMUM, IT OR A COMPARABLE METHOD IS TO BE USED TO BRACE ACROSS A LARGE VOID AREA WHEN SUFFICIENT ROCKET POD/CONTAINERS, OR OTHER CARGO ITEMS, ARE NOT AVAILABLE TO FILL THE VOID. SEE "STOWAGE AND BRACING NOTE F" ON PAGE 2.

ROCKET POD/CONTAINERS MUST BE LOADED ABOARD SHIP INDIVIDUALLY. TWO (2) 1-1/4" X .035" OR X .031" STEEL STRAPS WILL BE INSTALLED TO VERTICALLY UNITIZE A STACK OF TWO (2) CONTAINERS.



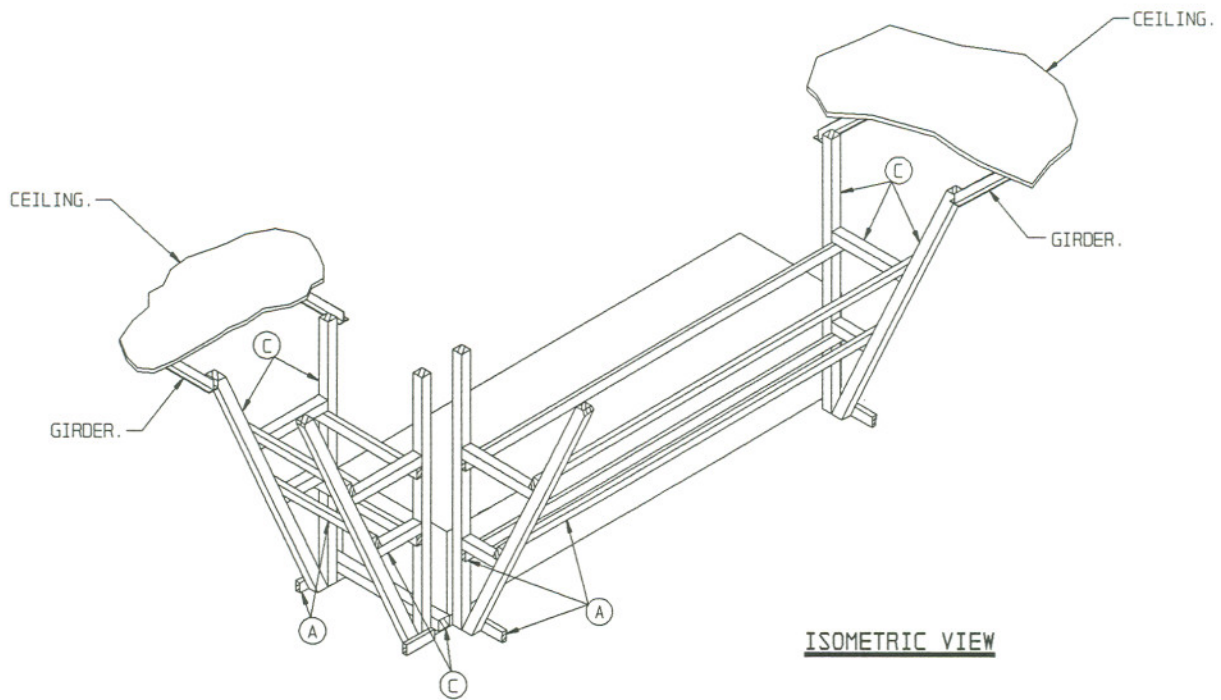
PROVIDE SUITABLE ANTI-CHAFING MATERIAL, SUCH AS BURLAP OR HEAVY PAPER, AT ALL POINTS WHERE STEEL STRAPPING IS IN CONTACT WITH THE CONTAINER.

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.

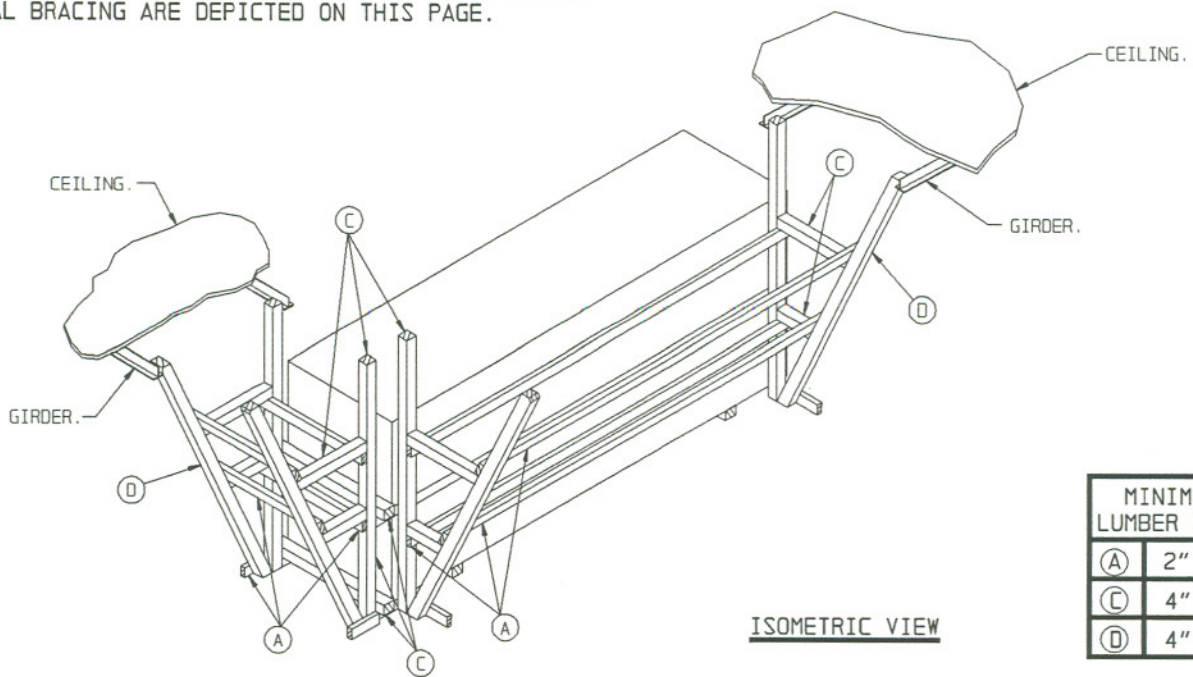
**ISOMETRIC VIEW**

THIS BRACING METHOD DEPICTS THE USE OF STEEL STRAPPING TO SECURE A SINGLE CONTAINER TO A ONE-LAYER LOAD.

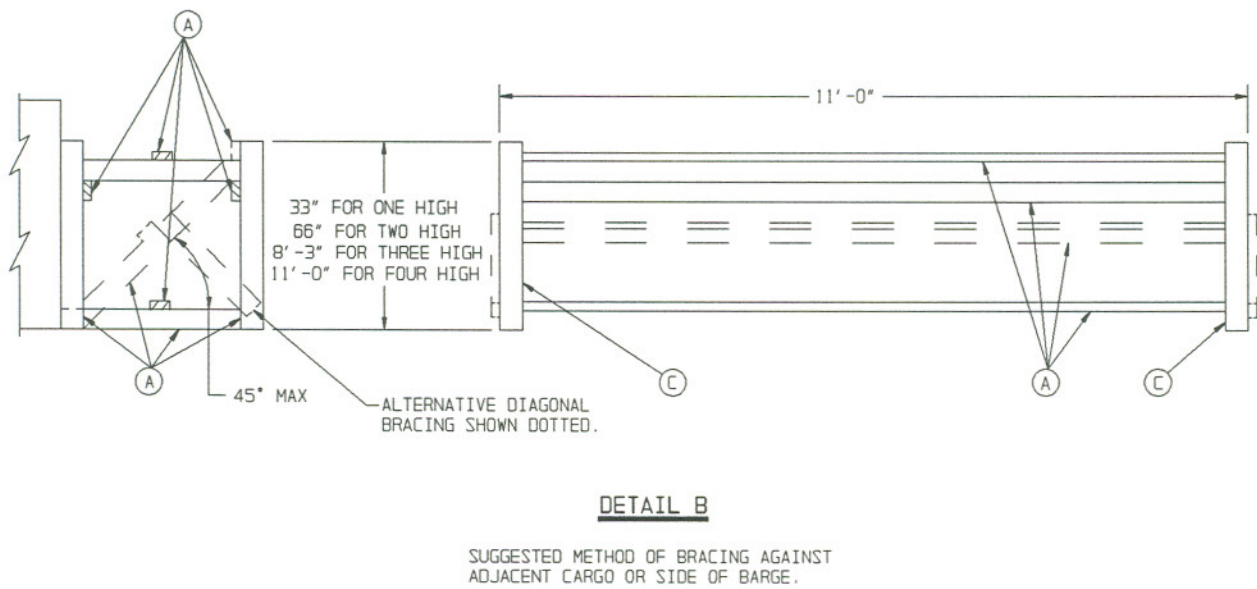
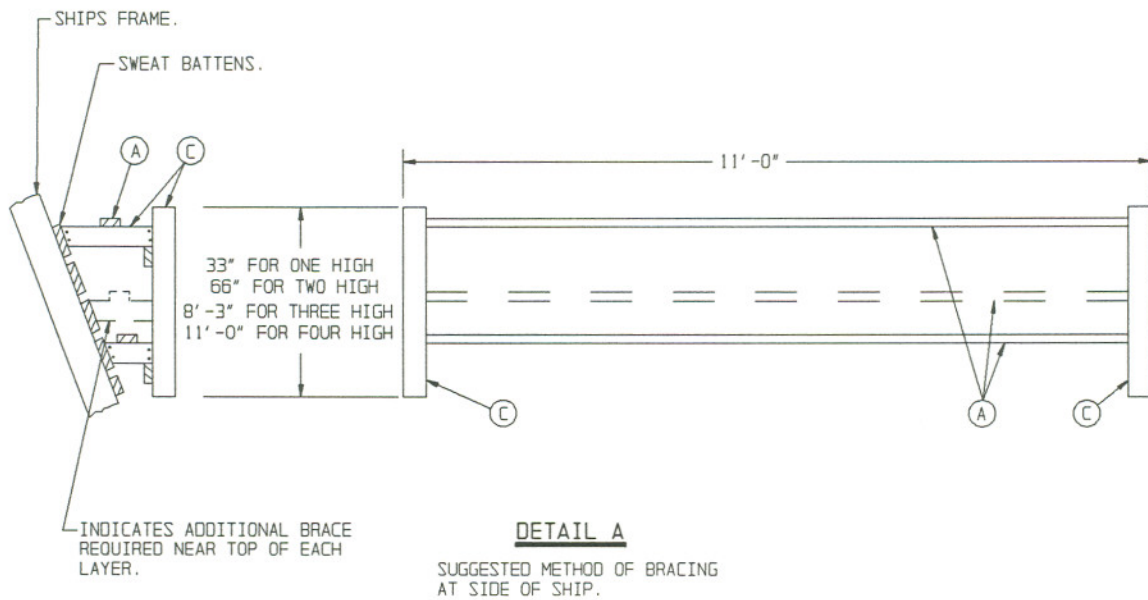




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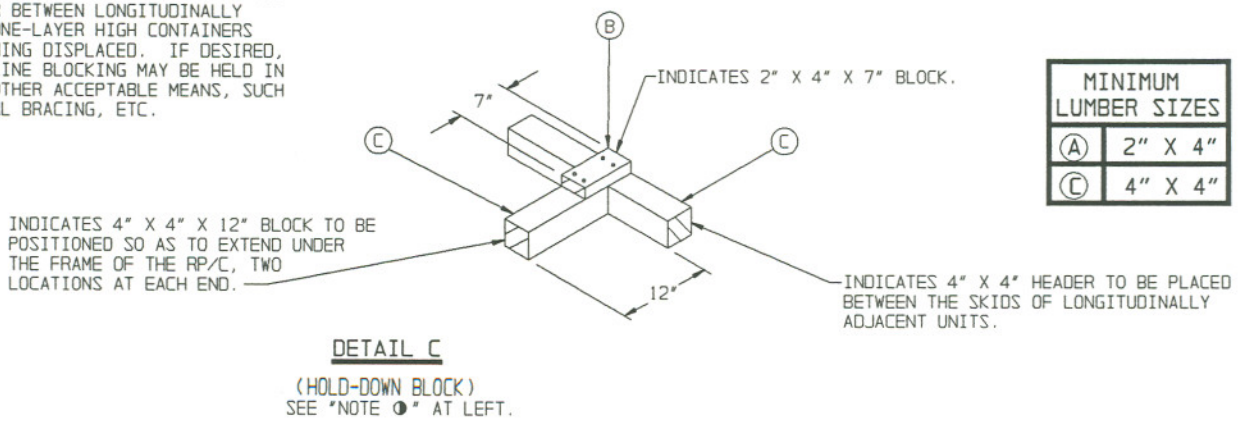
MINIMUM LUMBER SIZES	
(A)	2" X 4"
(C)	4" X 4"
(D)	4" X 6"

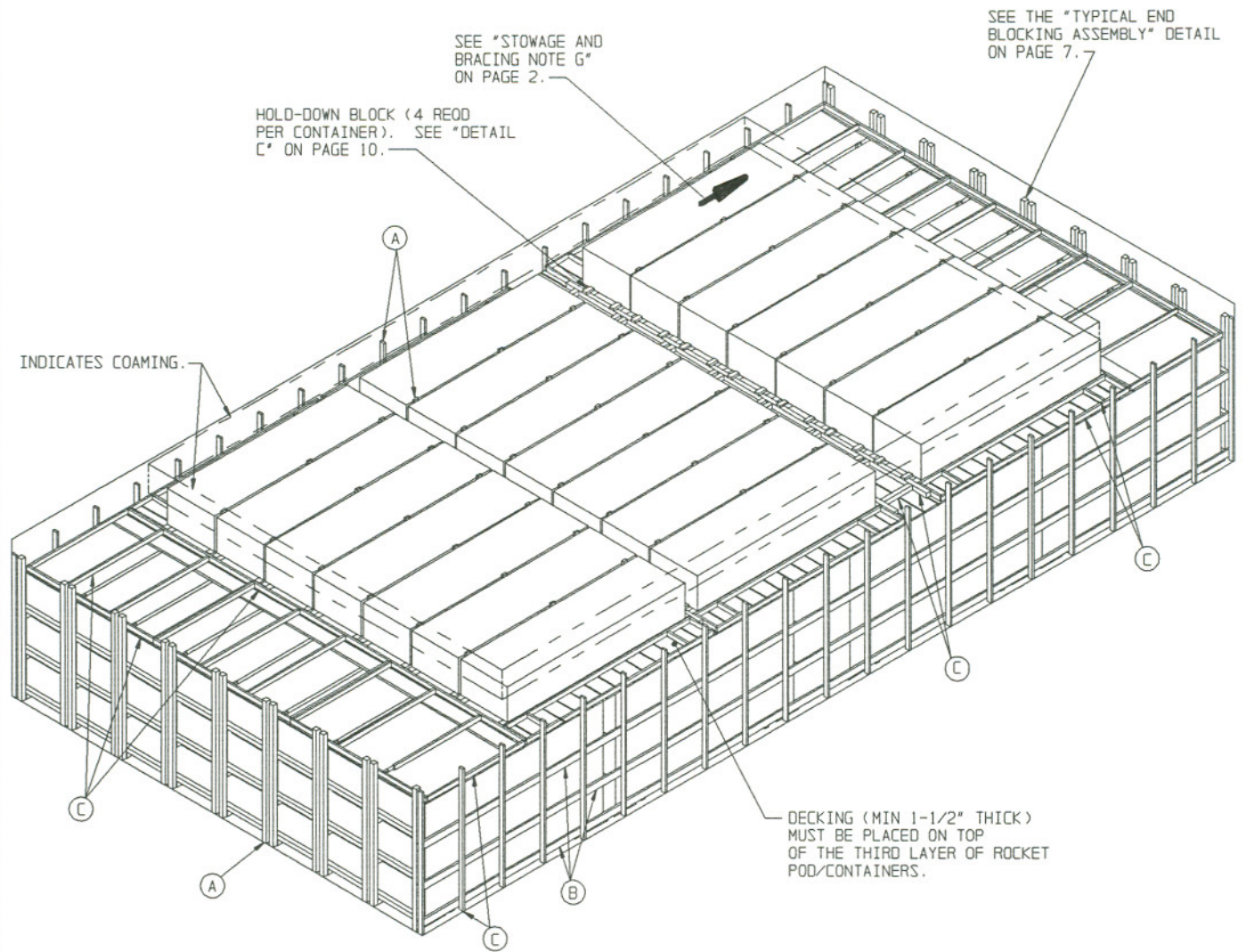


**NOTE 1:**

THE HOLD-DOWN BLOCK AS SHOWN AT THE RIGHT AND IN THE LOAD VIEWS ON PAGES 4 AND 11 MAY BE USED AS ONE METHOD TO PREVENT THE FLOORLINE BLOCKING AT THE ENDS OF OR BETWEEN LONGITUDINALLY ADJACENT ONE-LAYER HIGH CONTAINERS FROM BECOMING DISPLACED. IF DESIRED, THE FLOORLINE BLOCKING MAY BE HELD IN PLACE BY OTHER ACCEPTABLE MEANS, SUCH AS VERTICAL BRACING, ETC.

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



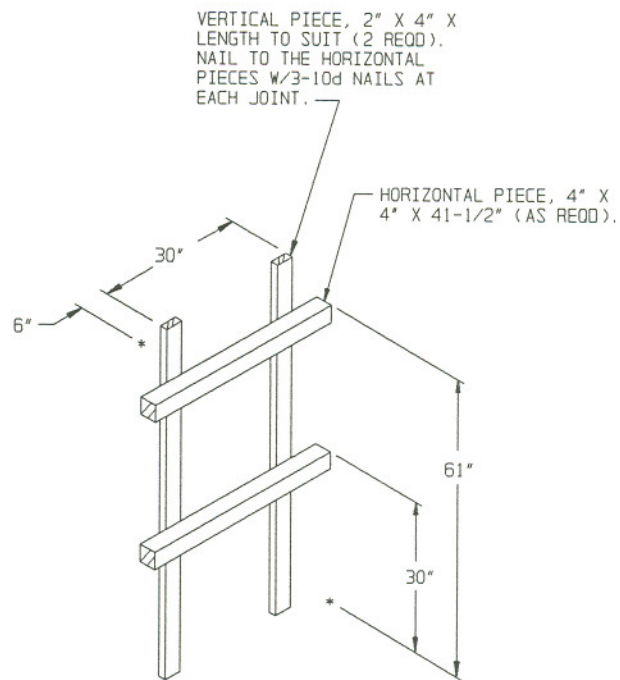


**ISOMETRIC VIEW**

THE VIEW SHOWN ABOVE DEPICTS A TYPICAL LOAD OF 117 ROCKET POD/CONTAINERS IN A BARGE HAVING INSIDE DIMENSIONS OF 59'-11" LONG BY 30'-1" WIDE. BLOCKING BETWEEN STACKS OF POD/CONTAINERS WILL BE THE SAME AS SHOWN ON PAGES 4 AND 6.

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

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.



### ALTERNATIVE END BLOCKING ASSEMBLY

THE ASSEMBLY DEPICTED ABOVE IS DESIGNED FOR A 3-LAYER LOAD. FOR A 2-LAYER LOAD, OMIT THE HORIZONTAL PIECE AT THE 61" LEVEL AND FOR A 4-LAYER LOAD, AN ADDITIONAL HORIZONTAL PIECE WILL BE ADDED AT 7'-8". THE LENGTH OF THE VERTICAL PIECES WILL BE ADJUSTED AS APPROPRIATE. THIS ASSEMBLY IS FOR USE ABOARD SHIPS AND/OR IN BARGES.