THAAD

LOADING AND BRACING ON COMMERCIAL FLATRACK ISO CONTAINER OF TERMINAL HIGH ALTITUDE AREA DEFENSE (THAAD) MISSILE PACKED IN SINGLE MISSILE ROUND TRANSPORT CONTAINER (SMRTC)

INDEX

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY
AVIATION ANDMISSILE COMMAND

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DO NOT SCALE

MAY 2015

DESIGN ENGINEER	BASIC	RICHARD GARSIDE
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APPROVED BY ORDER OF COMMANDING GENERAL, U.S ARMY MATERIEL COMMAND

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CLASS	DIVISION	DRAWING	FILE
19	48	8237	GM15TH1

PROJECT GM 926-14

GENERAL NOTES

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).

B. ALL LOADS SHIPPED BY THE PROCEDURES DEPICTED IN THIS DRAWING MUST BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN TITLE 49, THE UNITED STATES CODE OF FEDERAL REGULATIONS; AR 55-355/AFM 75-2; DOD 4500.32-R; DOD 5100.76-M; DOD 6055.9-STD; AS WELL AS ANY AND ALL OTHER APPLICABLE SERVICE REGULATIONS.

C. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF THAAD MISSILE PACKED IN SMRTC. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS SMRTC WITH THAAD MISSILE. SEE PAGE 3 AND LOCKHEED MARTIN DRAWING 13640484 FOR DETAILS OF THE SMRTC.

D. THE LOAD AS SHOWN IS BASED ON AN 11,100 POUND 40' LONG BY 7'-10" WIDE COMMERCIAL FLATRACK ISO CONTAINER WITH FULL HEIGHT ENDWALLS AND INSIDE DIMENSIONS OF 38'-11" LONG BY 7'-2" WIDE. THE LOAD IS DESIGNED FOR TRAILER/ CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. **NOTICE**: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.

E. THE CHAINS USED FOR LOAD SECUREMENT WILL ONLY BE FASTENED TO THE FLATRACK CONTAINER BY UTILIZING TIEDOWN PROVISIONS LOCATED ON THE TOP OR ALONG THE SIDE OF THE FLATRACK BOTTOM SIDE RAILS. **CAUTION:** THE LOAD SECUREMENT CHAINS WILL NOT BE POSITIONED AROUND THE UNDERSIDE OR THROUGH THE FORKLIFT POCKETS OF THE FLATRACK CONTAINER. ADDITIONALLY, THE FLATRACK TIEDOWN PROVISIONS MUST BE AT LEAST AS STRONG AS THE CHAINS BEING USED; AND BE OF A SUFFICIENT WIDTH TO RECEIVE THE CHAINS.

F. THE CHAINS AND LOAD BINDERS MUST NOT EXTEND BEYOND THE OUTER ENVELOPE OF THE FLATRACK.

G. THE APPROVED METHODS SHOWN HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING AND STAYING OF THE DESIGNATED ITEM. **NOTICE:** A SHIPMENT WILL BE POSITIONED ON A TRAILER CONSISTENT WITH STATE WEIGHT LAWS.

H. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM IDENTIFIED IN THE DRAWING TITLE, OR WHEN THEY ARE EMPTY.

J. PORTIONS OF THE FLATRACK DEPICTED WITHIN THIS DRAWING, SUCH AS THE ENDWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

K. **MAXIMUM LOAD WEIGHT CRITERIA:**

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

L. REFER TO ASSOCIATION OF AMERICAN RAILROADS MANUAL "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS" FOR APPLICABLE LOADING RULES AS FOLLOWS: PREFACE, 1, 2, 3, 5, 7, 10, 13, 14, 15, AND 17. NOTE THAT ALL CHAINS USED FOR LOAD SECUREMENT MUST BE MARKED AS SPECIFIED IN LOADING RULE 17.

M. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:

1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.

2. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

N. A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH THE PIECE ON TO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

O. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED

P. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.

Q. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM, AND ONE POUND EQUALS 0.454 KG.

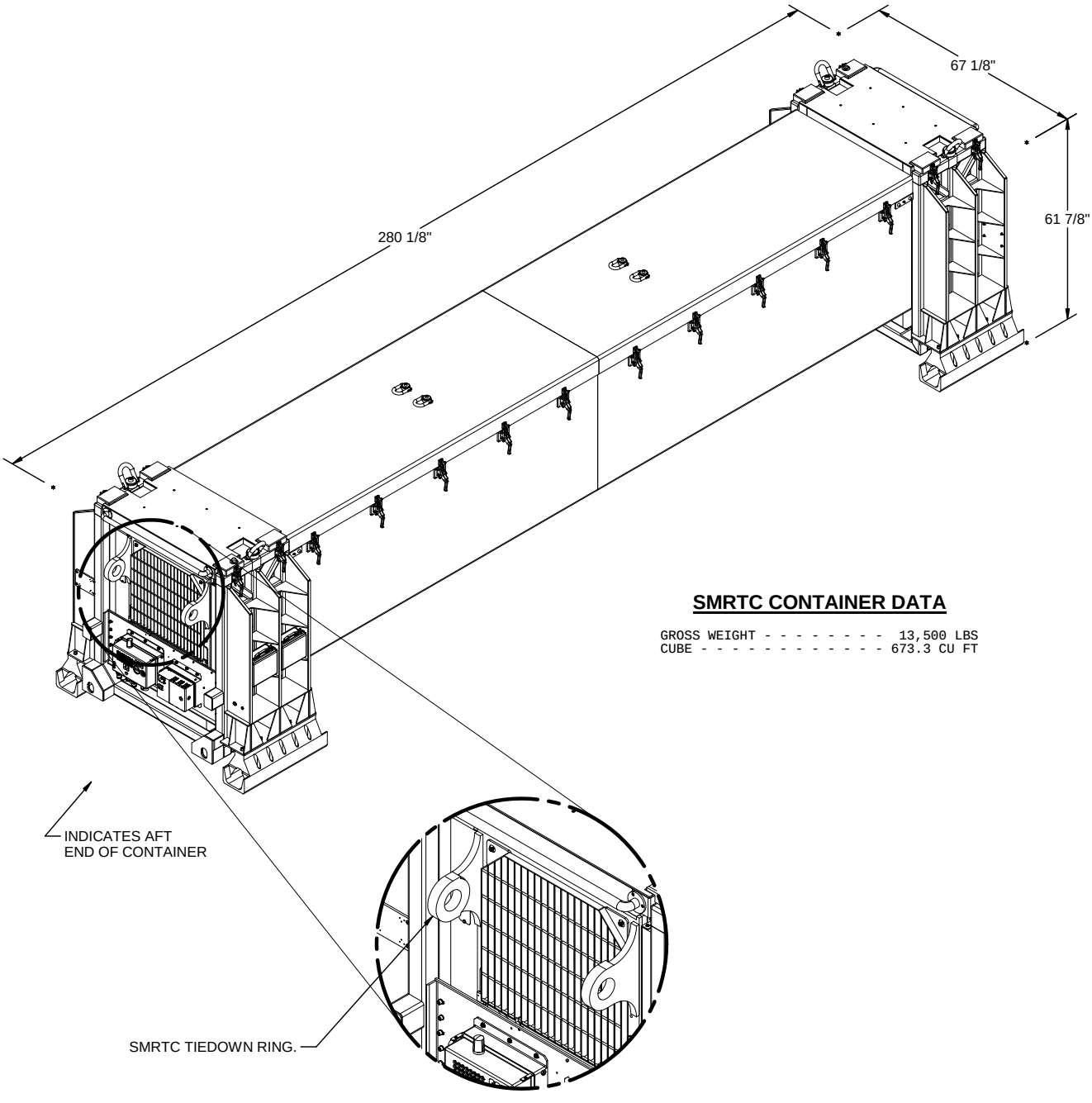
MATERIAL SPECIFICATIONS

LUMBER - - - - - - -: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.

NAILS - - - - - - -: ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).

CHAIN - - - - - - -: NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATIONS ADOPTED NOVEMBER 1999.

LOAD BINDER - - - -: FED SPEC GG-B-325.



SMRTC CONTAINER DATA

GROSS WEIGHT - - - - - - - - - 13,500 LBS
CUBE - - - - - - - - - - - - - 673.3 CU FT

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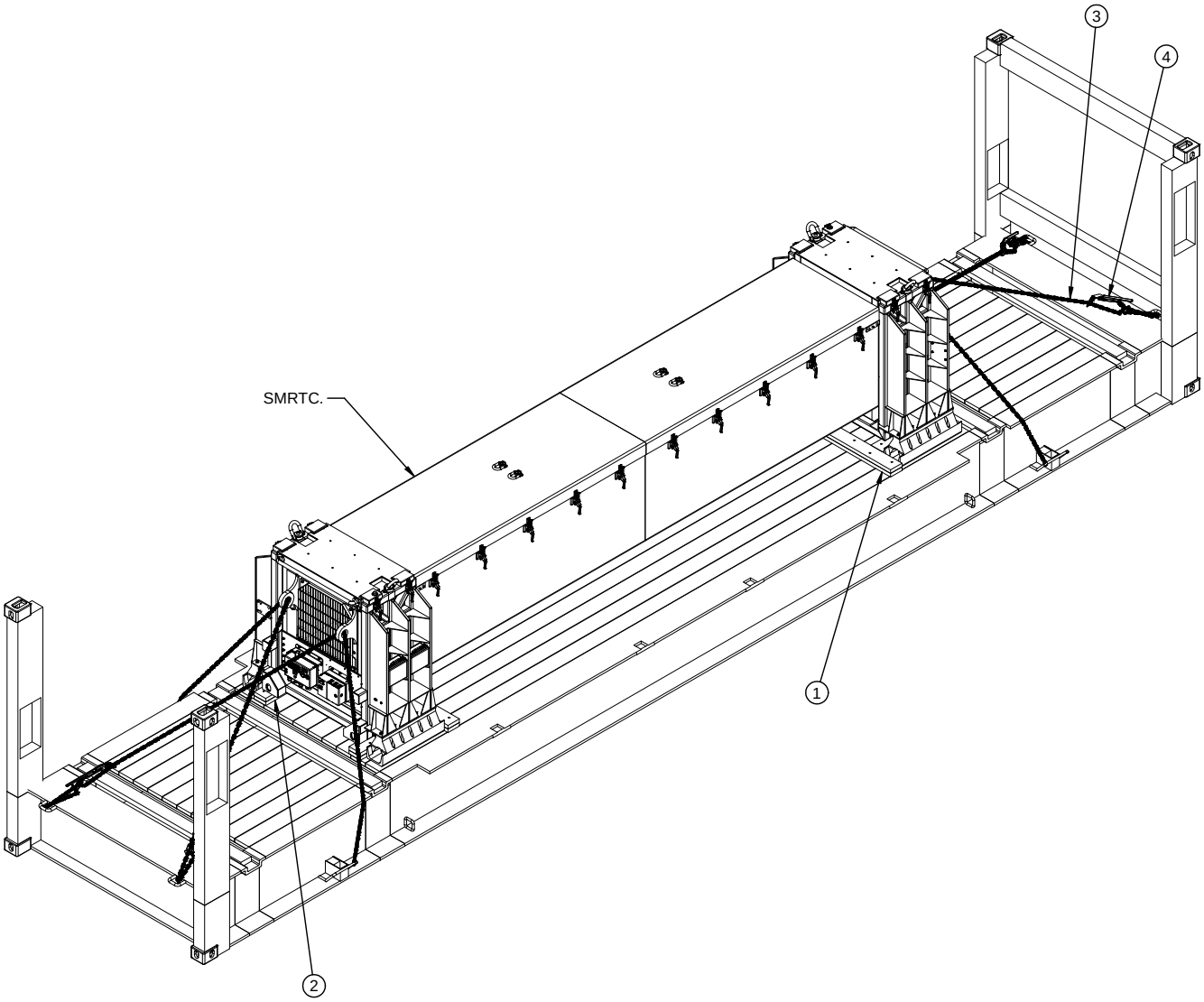

ISOMETRIC VIEW

KEY NUMBERS

① HEADER, 2" X 6" X 70" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO DECK W/8-10d NAILS AND NAIL SECOND PIECE TO FIRST PIECE W/8-20d NAILS. INSTALL BEFORE PLACEMENT OF SMRTC ON FLATRACK. SEE PREPOSITIONED DUNNAGE DETAIL ON PAGE 5.

② SIDE BLOCKING, 2" X 6" X 32-1/2" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO DECK W/8-10d NAILS AND NAIL SECOND PIECE TO FIRST PIECE W/8-20d NAILS. INSTALL BEFORE PLACEMENT OF SMRTC ON FLATRACK. SEE PREPOSITIONED DUNNAGE DETAIL ON PAGE 5.

③ CHAIN, BINDING, 3/8" GRADE 80 BY A LENGTH TO SUIT (4 REQD). INSTALL FROM FLATRACK END RING, THRU TIE DOWN RING OF SMRTC, TO THE TIE DOWN PROVISION ON SIDE OF FLATRACK AS SHOWN. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 5.

④ LOAD BINDER, 3/8", OVER-CENTER TYPE (4 REQD, 1 PER CHAIN). WIRE TIE HANDLE TO PREVENT OPENING DURING TRANSPORT. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 5.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2″ X 6″	45	45
NAILS	NO. REQD	POUNDS
10d (3″)	48	3/4
20d (4″)	48	1-3/4
3/8″ GRADE 80 CHAIN/BINDER - - - 4 REQD - - - - 165 LBS		
ANTI-CHAFING MATERIAL - - - - AS REQD - - - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
THAAD SMRTC	1	13,500 LBS
DUNNAGE		257 LBS
COMMERCIAL FLATRACK		11,100 LBS
TOTAL WEIGHT		24,857 LBS

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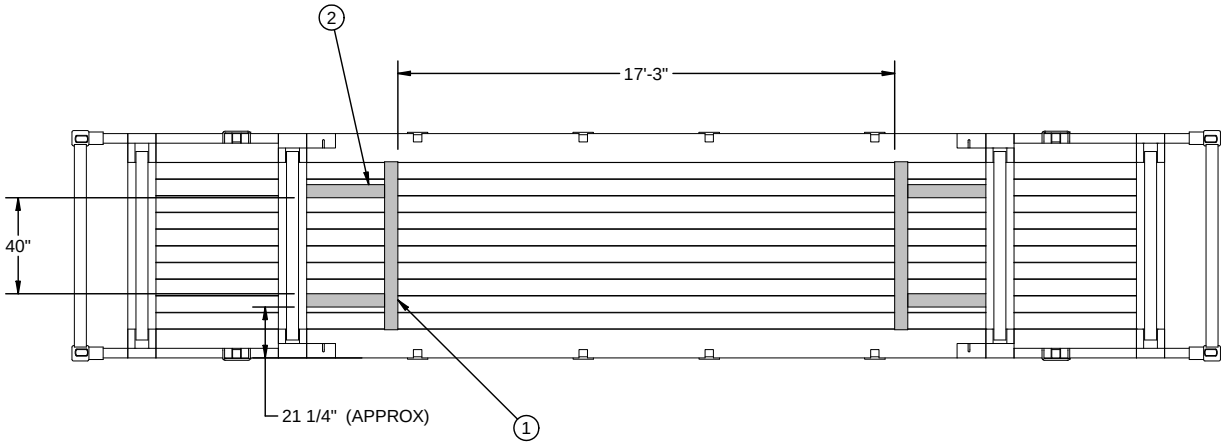

PLAN VIEW

PREPOSITIONED FLOOR BLOCKING

KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 4.

SPECIAL PROVISIONS FOR CHAIN TIEDOWN

LADING WILL BE SECURED BY CHAINS AND LOAD BINDERS, PROVIDED THE FOLLOWING CONDITIONS ARE MET.

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY WILL BE USED. ALL CHAINS AND LOAD BINDERS SHALL CONFORM TO THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1999.

2. ALL CHAINS SHALL BE MARKED AS PRESCRIBED BY THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1999. AT LEAST ONE LINK IN EVERY 36 LINKS SHALL CARRY THE MANUFACTURER'S PERMANENT AND DISTINCTIVE MARK IDENTIFYING THE GRADE OF CHAIN. CHAINS NOT MARKED IN THIS MANNER SHALL NOT BE USED. IN ADDITION TO THE GRADE MARKING, THE CHAIN MAY ALSO CARRY LETTER MARKINGS OR SYMBOLS IDENTIFYING THE CHAIN MANUFACTURER. THE PRESENCE OF THE MANUFACTURER'S IDENTIFICATION MARKING IS NOT MANDATORY.

3. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION. **CAUTION:** EXTREME CARE MUST BE EXERCISED WHEN TENSIONING CHAINS TO PREVENT DAMAGE OR PERMANENT DEFORMATION TO THE LADING.

4. CHAIN SIZES AND GRADES APPROVED FOR USE ARE AS FOLLOWS:

   A. 3/8", GRADE 43 HIGH TEST CHAIN
   B. 5/16", GRADE 70 TRANSPORT CHAIN
   C. 3/8", GRADE 70 TRANSPORT CHAIN
   D. 5/16", GRADE 80 ALLOY STEEL CHAIN
   E. 3/8", GRADE 80 ALLOY STEEL CHAIN

(CONTINUED AT RIGHT)

(SPECIAL PROVISIONS FOR CHAIN TIEDOWN CONTINUED)

5. THE GRABHOOKS ON THE ENDS OF THE CHAIN MAY BE OF THE FOLLOWING TYPES WITH GRADE MARKINGS AS INDICATED.

   A. CLEVIS GRABHOOKS, 3/8" SIZE, DO NOT REQUIRE GRADE MARKING. ALLOY GRABHOOKS, 5/16" SIZE, SHALL CARRY THE MANUFACTURER'S GRADE MARK OF 7, 70, OR 700. THE HOOKS SHALL BE USED ON THE APPROPRIATE SIZE CHAIN.

   B. CLOSED EYE GRABHOOKS, 3/8" AND 5/16" SIZE, MAY BE USED ON THE APPROPRIATE SIZE CHAIN IF THEY ARE A PART OF A CHAIN ASSEMBLY WHICH WAS PROVIDED BY A CHAIN MANUFACTURER, AND THE CHAIN ASSEMBLY CARRIES THE CORRECT GRADE IDENTIFICATION MARKING AS PREVIOUSLY STATED. CLOSED EYE GRABHOOKS THAT FORM A PART OF THE CHAIN ASSEMBLY ARE EXEMPT FROM GRADE MARKINGS.

6. CONNECTING LINKS USED FOR CHAIN REPAIR MUST BE CORRECTLY MARKED AND BE EQUAL TO OR GREATER IN STRENGTH THAN THE CHAIN THEY ARE REPAIRING. CHAINS WITH UNMARKED CONNECTING LINKS SHALL NOT BE USED.

7. CHAIN AND FITTING OF A HIGHER GRADE MAY BE SUBSTITUTED FOR THE GRADES SPECIFIED IN NOTE 4 ABOVE.

8. LOAD BINDERS SHALL BE 5/16" TO 3/8" SIZE AND HAVE A MINIMUM BREAKING STRENGTH OF 16,200 POUNDS (WORKING LOAD LIMIT OF 5,400 POUNDS). OVERCENTER TYPE LOAD BINDERS SHALL BE SAFETY WIRED TO PREVENT ACCIDENTAL OPENING DURING TRANSPORT. LOAD BINDER SIZE SHALL BE COMPATIBLE WITH THE SIZE OF THE CHAIN BEING USED.