# ABESCO ENGINEERED COMBINATION TIE-DOWNS

MANUFACTURED HOME TIE-DOWN CALCULATIONS AND SCHEDULES FOR

10 37 C	ILO RI	TO	ADS:
LEESC	$v_{1}v_{2}v_{3}v_{4}$	300	CAMPA-24

SINGLE / DOUBLE / TRIPLE WIDES DESIGN & GENERAL NOTES

" WIND	energy by a promise on page	15 PSF (70 MPH EXPOSURE	"C") GAC T-28 and	COMPLIES WITH THE	2019 CBC
		Vult = 110 MPH EXP "C"			

\* SOIL BEARING ---- 1500 PSF

"TIE DOWN STRAP ---- 3150# WORKING LOAD

\* SEISMIC ZONE \_\_\_\_\_ 4 CAC T-25 AND 2013 CBC: S=1.6 Fa=1.4 S=1.41 Site Class D

TIE DOWN STRAPS TO BE MIN. 1 1/4" WIDE x 0.029 THICKNESS ZINC PLATED AND MEET ASTM D-3953-97

\* EARTH AUGERS \_\_\_\_\_\_\_ 2962 # (TESTED TO 4750# MIN.)

\* CROSS DRIVES \_\_\_\_\_\_ 2962 # (TESTED TO 4750# MIN.)
\* CONCRETE SLAB ANCHORS \_\_\_\_\_ 1390 # (CALCULATED)

#### GENERAL NOTES:

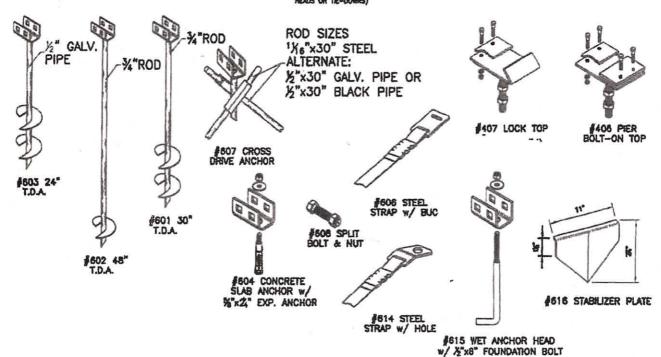
- THE CHARTS SHOWN HEREIN ARE FOR THE REQUIRED NUMBER OF THE DOWNS ON THE SIDES OF THE MANUFACTURED HOME.
- TIE DOWNS ARE REQUIRED AT EACH CHASSIS BEAM, EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME AND CAN BE ANY OF THE TYPES SHOWN HEREIN.
- 3. COMBINATIONS OF THE DIFFERENT TYPES OF THE DOWNS CAN BE USED.
- IN THE EVENT AN EARTH AUGER CANNOT BE INSTALLED DUE TO AN OBSTRUCTION, USE OF CROSS DRIVE ANCHORS IS PERMITTED, STABLIZER PLATE REQUIRED
- FOR ALL TIE DOWN INSTALLATIONS, THE MFGTD HOME CHASSIS MEMBERS ARE SHOWN AS "1" BEAMS, FOR ILLUSTRATION PURPOSES ONLY, CHASSIS BEAMS CAN ALSO BE\*C" SHAPED OR "RFC" SHAPED.
- 6. END TIE DOWNS CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM AXIS AS SHOWN.



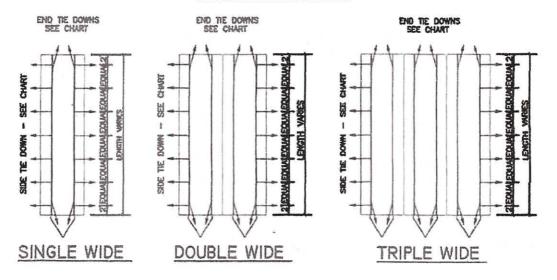
- THE SIZES, TYPES, LENGTHS, ECT. OF MATERIAL SHOWN HEREIN ARE MINIMUM, LARGER, LONGER, HEAVIER MATERIALS SUPPLIED BY ABESCO MAY BE USED AT THE SAME SPACING & LOCATION SHOWN.
- 8. PARTS ARE STAMPED ABESCO
- 9. THIS TIE DOWN SYSTEM CAN BE USED WITH 10' WIDE MANUFACTURED HOME SECTIONS WITH 100" CHASSIS CENTERS PROVIDED THE HEIGHT FROM GRADE TO THE BOTTOM OF CHASSIS BEAM DOES NOT EXCEED 16"
- 10. TIE DOWN STRAPS IN THE LONGITUDINAL OR TRANSVERSE DIRECTION CAN BE BOLTED TO THE HITCH ATTACHMENT PLATE THAT IS WELDED TO THE CHASSIS BEAM.



# ABESCO TIE-DOWNS



# TIE DOWN LOCATIONS



EARTH AUGERS		CROSS DR	CROSS DRIVE ANCHORS			CONCRETE	CONCRETE SLAB ANCHORS						
MAX. LENGTH OF MFG'D HOME	361	541	72'	MAX, LENGTH OF MFG'D HOME	36'	541	72'	MAX. LENGTH OF MFG'D HOME	34'	42'	50'	59'	68
MAX. NO. OF SIDE TIE DOWNS	2	3	4	MAX. NO. OF SIDE TIE DOWNS	2	3	4	MAX. NO. OF BIDE TIE DOWNS	4	5	8	7	8

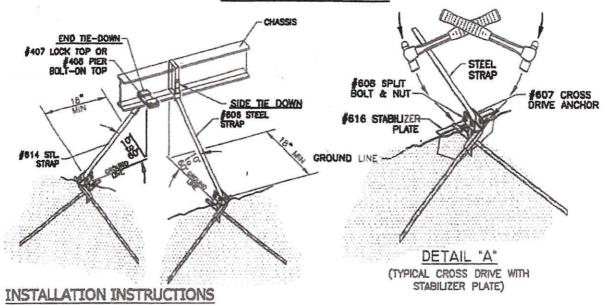
#### NOTE:

SIDE TIE-DOWNS: MUST BE WITHIN 24" OF THE END OF THE CHASSIS BEAM.

END TIE-DOWNS: CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM ONE TIE-DOWN IS MANDATORY AT EACH END OF "PBEAM (SEE PAGE #1 GENERAL NOTE #6).

IF SIDE WALL TIE-DOWN GROUND ANCHOR LOCATION IS SUCH THAT THE ANGLE BETWEEN THE GROUND AND STRAP EXCEEDS 60°, CONNECT THE TIE STRAP TO THE INSIDE CHASSIS BEAM ON DOUBLE AND TRIPLE WIDES AND THE OPPOSITE CHASSIS BEAM ON SINGLE WIDES.

# CROSS DRIVE TIE DOWN



- I. INSTALL CROSS DRIVE ANCRORS INTO SOIL AS SHOWN.
- 2. ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
- 3. INSERT STRAP THROUGH SPLIT BOLT, CUT OFF EXCESS STRAP AND THEN TIGHTEN BOLT UNTIL STRAP IS SNUG.

#### CONTRACTORS WARNING: CHECK FIRST FOR UNDERGROUND UTILITIES.

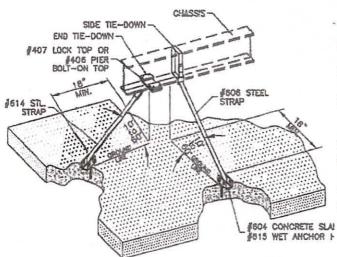
CROSS DRIVE ANCHORS ARE USED WHERE HARD OR ROCKY SOIL OCCURS, IF THE GROUND SURFACE IS OTHER THAN ROCK OR MINIMUM 2" ASPHALT, INSTALL #616 STABILIZER PLATE. (STABILIZER PLATES MAY BE PREWELDED TO #607 CROSS DRIVE ANCHOR)

#### NOTE:

IF A CROSS DRIVE IS USED WHERE AN AUGER COULD BE USED (IN LOAMY TYPE SOIL), THEN TWO CROSS DRIVES MUST BE INSTALLED PROPERLY IN PLACE OF THE ONE TIE-DOWN. BOTH CROSS DRIVES MUST BE STABILIZED AS SHOWN IN DETAIL "A". SEE PAGE #1, GENERAL NOTE #4.

THIS PLAN MAY BE USED FOR MANUFACTUED HOMES PLACES IN FEMA FLOOD HAZARD ZONES A, AE & AH, PROVIDED THE GROUND ANCHORS ARE THE #803 48", T.D.A. EARTH AUGERS. UNDER FLOOR VENTS AT THE PERIMETER SKIRTING SHALL BE PLACED WITH THE BOTTOM OF THE VENT MAX 12" ABOVE THE UNDER FLOOR GROUND SURFACE

### CONCRETE TIE DOWN



# INSTALLATION INSTRUCTIONS

#### #604 DRY

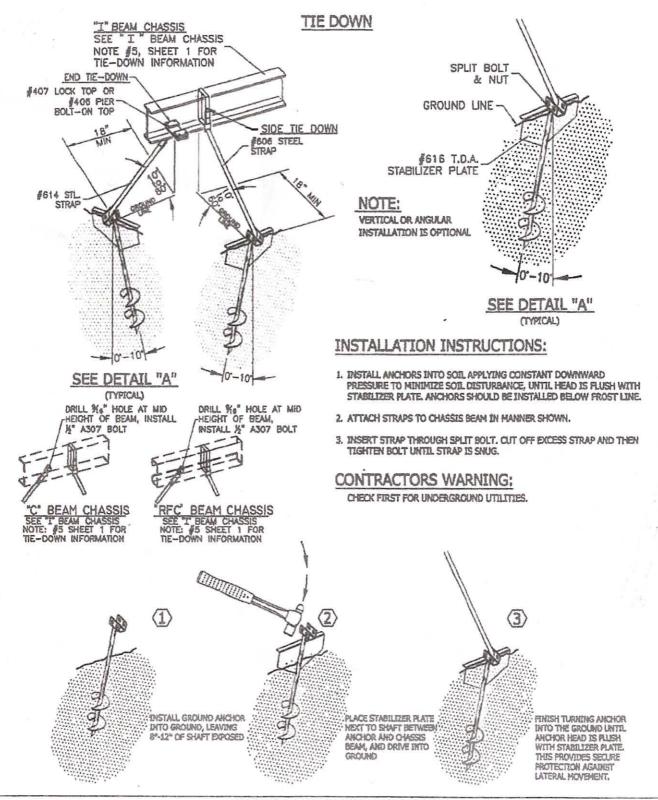
- I. CONCRETE MUST BE A MINIMUM OF 3½" THICK AND IN GOOD CONDITION.
- MINIMUM SLAB AREA OF EACH ANCHOR IS 28 SQUARE FEET.
- DRILL PROPER SIZE HOLE IN SLAB, A MINIMUM OF 12" FROM ANY EDGE.

#### #615 WFT

- 1. PLACE CONCRETE ANCHOR INTO WET CONCRETE.
- 2. ALLOW CONCRETE TO PROPERLY DRY.

#### CHASSIS CONNECTION

- ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
  - INSERT STRAP THROUGH SPLIT BOLT. CUT OFF EXCESS STRAP AND THEN TIGHTEN BOLT UNTIL STRAP IS SNUG.



## CONTRACTORS VERIFICATION -

I CERTIFY THAT I HAVE INSTALLED THE ABESCO ANCHORING SYSTEM AS PER THE INSTALLATION INSTRUCTIONS. I HAVE MADE NO MODIFICATIONS TO THE ANCHORING SYSTEM OR TO THE BUILDING STRUCTURE.

COMPANY NAME:	CONTRACTORS LIC. #	
DATE:	SIGNATURE:	<u>}</u>

TLW 1-09