APPLICATION FOR OSHPD PREAPPROVAL OF MANUFACTURER’S CERTIFICATION (OPM)

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OSHPD Preapproval of Manufacturer’s Certification (OPM)

Type: [ ] New  [X] Renewal/Update

### Manufacturer Information

Manufacturer: Woodwork Institute

Manufacturer’s Technical Representative: Clare Smith

Mailing Address: 3188 Industrial Blvd., West Sacramento, CA 95691

Telephone: (916) 372-9943  Email: clare@woodinst.com

### Product Information

Product Name: Woodwork Institute Casework Anchorage

Product Type: Casework

Product Model Number: NA

General Description: Seismic Anchorage for Tall Storage Casework and Wall Hung Casework

### Applicant Information

Applicant Company Name: LTK ASSOCIATES, INC.

Contact Person: Raymond Z. Uribes

Mailing Address: 745 Distel Drive, Suite 7, Los Altos, CA 94022

Telephone: () -  Email: ltk@ltkse.com

Title: 

6/16/2020  OPM-0092: Reviewed for Code Compliance by Jeffrey Kikumoto
**Certification Method**

Testing in accordance with:  
- [ ] ICC-ES AC156  
- [ ] FM 1950-16  

- [ ] Other(s) (Please Specify): ________________________________

*Use of criteria other than those adopted by the California Building Standards Code, 2019 (CBSC 2019) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2019 may be used when approved by OSHPD prior to testing.

- [X] Analysis  
- [ ] Experience Data  
- [ ] Combination of Testing, Analysis, and/or Experience Data (Please Specify): ________________________________

**OSHPD Approval**

Date: 6/16/2020  
Name: Jeffrey Kikumoto  
Title: Senior Structural Engineer  
Condition of Approval (if applicable): ________________________________

Registered Design Professional Preparing Engineering Recommendations

Company Name: LTK ASSOCIATES, INC.

Name: Raymond Z. Uribes  
California License Number: S2479

Mailing Address: 745 Distel Drive, Suite 7, Los Altos, CA 94022

Telephone: (650) 967-8465  
Email: ltk@ltkse.com

OSHPD Special Seismic Certification Preapproval (OSP)

- [ ] Special Seismic Certification is preapproved under OSP  
OSP Number: ________________________________

OSHPD

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
WOODWORK INSTITUTE
CASEWORK SUPPORTS & ATTACHMENTS
OSHPD Pre-Approval of
Manufacturer’s Certification (OPM)
OPM-0092

SUPPORTS & ATTACHMENTS DESIGNED FOR:
2019 CALIFORNIA BUILDING CODE (CBC)
ASCE 7-16

IMPORTANCE FACTOR:  I_p=1.5
DESIGN S.R.A., SHORT PERIOD:  S_{ss}=2.00
COMP. AMP. FACTOR:  a_p=1.0  (ASCE 7-16
COMP. RESPONSE MOD. FACTOR:  R_p=2.5  TABLE 13.5.1)
OVERSTRENGTH FACTOR:  \( \alpha_{o}=2.0 \)  (REQ’D FOR ANCHORAGE TO CONCRETE & CMU)

THE SUPPORT AND ATTACHMENT DETAILS MAY BE USED FOR ANY LOCATION
IN THE STATE OF CALIFORNIA WHERE \( S_{ss} \) IS NOT GREATER THAN 2.00
AND AT ANY HEIGHT IN THE BUILDING WHERE \( z/h \leq 1.0 \).

SEISMIC FORCES:
FOR FASTENERS USED IN FRAMED WALLS OR CMU WALLS
FORCES SHOWN ON THESE DRAWINGS ARE AT ASD LEVEL
CALCULATED THUS:  \( F_{ph}=1.00(W_p) \)  \( F_{pv}=0.28(W_p) \)
FOR FASTENERS USED IN CONCRETE WALLS
FORCES SHOWN ON THESE DRAWINGS ARE AT SD LEVEL
CALCULATED THUS:  \( F_p=1.44(W_p) \)  \( E_v=0.40(W_p) \)

THIS PRE-APPROVAL ENCOMPASSES
THE FOLLOWING:
DESIGN CRITERIA:  DC-01 & 02
STORAGE CABINET:  SC-01, 02 & 03
WALL CABINET:  WC-01, 02 & 03

THIS PRE-APPROVAL COVERS ONLY
THE SUPPORTS & ATTACHMENTS OF
THE UNIT TO THE STRUCTURE.
THE SUPPORTS AND ATTACHMENTS SHALL
BE SUPPLIED & INSTALLED BY THE CONTRACTOR.
STANDARD WOODWORK CASEWORK:

MATERIAL USED IN THE CONSTRUCTION OF THE POINT OF ATTACHMENT TO THE STRUCTURE (i.e., NAILER) SHALL BE OF THE FOLLOWING:

PLYWOOD (STRUCT 1),

MDF (GRADE 150) OR,

DOUGLAS FIR LARCH WITH A SPECIFIC GRAVITY OF 0.50 OR BETTER.

MINIMUM THICKNESS OF 3/8” FOR THE PART THROUGH WHICH ATTACHMENT IS TO BE MADE.

HOLES IN CABINET FOR EXPANSION ANCHORS SHALL BE BOLT DIAMETER + 1/16”.

FASTENERS:

MINIMUM SCREW FASTENERS SHALL BE:

#14 WOOD SCREWS (ROUND WASHER HEAD)

COMPLYING w/ ANSI/ASME STANDARD B18.6.1 OR SHEET METAL SCREWS (SMS)

WITH HEX WASHER HEAD

(TAPPING SCREW FASTNR’S SHALL HAVE DATA IN ACCORDANCE w/ ICC-ES AC118).

WS SHALL HAVE 2 1/2” PENETRATION INTO WOOD BACKING, SMS SHALL HAVE MIN. 3 THREADS EXTEND BEYOND SHEET METAL BACK’G.

EXPANSION ANCHORS:

FOR USE IN CONCRETE WALL:

HILTI KWI BOLT T2, ICC ESR–1917

f’c=3000psi, NW CONCRETE

3/8” w/ 2” EMBEDMENT

MIN. EDGE DISTANCE 6”

MIN. WALL THICKNESS 4”

INSTALLATION TORQUE 25 FT–LB

1/2” w/ 3/4” EMBEDMENT

MIN. EDGE DISTANCE 6”

MIN. WALL THICKNESS 6”

INSTALLATION TORQUE 40 FT–LB

FOR USE IN CMU WALL: (ALL CELLS GROUTED SOLID)

HILTI KWI BOLT–3 (ICC ESR–1385)

24” DEEP STORAGE CABINETS ONLY:

1/2” w/ 3 1/2” EMBED. & 4” MIN. EDGE DIST.

INSTALLATION TORQUE: 25 ft–lb

ALL OTHER CABINETS:

3/8” w/ 2 1/2” EMBED. & 4” MIN. EDGE DIST.

INSTALLATION TORQUE: 15 ft–lb

NOTE: Expansion anchors designed to ICC–ES AC01 are limited to allowable stress design ONLY in accordance with AC01 1.2. Hence, strength design values are not acceptable. Allowable stress values can be limited provided, SEOR will verify that:

a. masonry is not cracked as defined in ICC–ES AC01 Section 2.3.

b. the SEOR shall provide calculations to show that the masonry wall would not crack under the design earthquake loads under all service conditions;

c. conditions of use requirements in accordance w/ ESR–1385 Section 5.0 is satisfied.

LOADING:

MAXIMUM CONTENT LOAD: 33 PCF

WALL BACKING:

WALL BACKING MAY BE EITHER,

3x6 FLAT DOUGLAS FIR (No. 2) (at wood framed walls) or

16GA, 50 KSI SHEET METAL BACKING (at metal stud framed walls)

ALL BACKING AND WALL FRAMING TO BE DESIGNED BY SEOR.

GENERAL NOTES:

1) THIS OSHPD PREAPPLICATION OF MANUFACTURER’S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2019.

2) STRUCTURAL ENGINEER OF RECORD IS RESPONSIBLE FOR:

a) THE DESIGN OF THE STRUCTURE (FLOOR, WALL, BACKING) TO SUPPORT THE FORCES DUE TO THIS EQUIPMENT LOADING.

b) VERIFY THAT THE ANCHORS A REASONABLE DISTANCE FROM ANY OPENINGS.

c) VERIFY THAT ALL NEW OR EXISTING ANCHORS ARE ADEQUATE DISTANCE FROM THE ANCHORS SHOWN IN THIS PRE–APPROVAL.

SEOR SHALL VERIFY THERE IS NO ADVERSE INTERACTION WHERE OTHER ANCHORS ARE WITHIN 18” OR 6HEF FROM THIS UNIT’S ANCHORS.

EXPANSION ANCHOR TESTING IN CONCRETE:

PER CBC SECTION 1910.5

TORQUE TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR (FROM APPROVED INDEPENDENT AGENCY)

& A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE IOR, OWNER, & ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE.

–TEST 50% OF THE ANCHORS, IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS UNTIL 20 CONSECUTIVE ANCHORS PASS, THEN RESUME INITIAL TEST FREQUENCY.

–TEST ACCEPTANCE CRITERIA,

ANCHORS TESTED w/ A CALIBRATED WRENCH MUST ATTAIN THE SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT.

EXPANSION ANCHOR TESTING IN CMU:

TESTING OF EXPANSION ANCHORS IN CMU, SIMILAR TO CRITERIA NOTED ABOVE.
STANDARD WOODWORK CASEWORK:

DIMENSIONS:
- D = 12 & 24" (max)
- H = 96" (max)
- LENGTH = VARIES

LOADING:
- APPROXIMATE EMPTY WEIGHT OF CABINET:
  - D=12" 50 #/FT (6.25 pcf)
  - D=24" 90 #/FT (5.63 pcf)

WALL BACKING & STUDS:
- SEE DESIGN CRITERIA DWG. No. DC–02

FASTENERS / ANCHORS:
- FOR FASTENER AND ANCHOR TYPES,
  SEE DWG. No. DC–02
- FOR FASTENER & ANCHOR LOCATIONS
  AND SPACING SEE DWG’S. SC–02 & 03

WALL CONSTRUCTION:
- MAY BE OF CONCRETE, CMU, WOOD OR STEEL STUD FRAMING.
- SEOR TO DESIGN WALL AND CHECK IF CABINETS ON BOTH SIDES OF WALL.

C.G. AT DIMENSIONAL CENTER OF CABINET (TYP)
FASTENERS, MIDDLE ROW
(DOUBLE ROW @ WOOD AND METAL STUD WALLS AND
& 24" DEEP STORAGE CABINETS AT CMU WALLS)
ONE OR TWO LAYER 5/8” GYPBRD. ON STUD, FRAMED WALLS

FASTENERS BOTTOM ROW

MINIMUM FLOOR CONSTRUCTION:
- 2 1/2” THICK 3000 PSI
- SAND LTWT CONC. OVER METAL DECK
- SEOR TO CHECK FLOOR TO SUPPORT CABINET LOADS.
FASTENER MAX. SPACING & DESIGN VALUES:

1) STUD FRAMED WALLS (WOOD OR METAL):
   A) w/ 1 LAYER OF GYP. BOARD
      SPACING: 1-#14 SCREW AT 12” O.C.
      DESIGN VALUES: T=103#, V=89#
   B) w/ 2 LAYERS OF GYP. BOARD
      SPACING: 1-#14 SCREW AT 10 1/2” O.C.
      DESIGN VALUES: T=85#, V=71#
      w/ MINIMUM 8 FASTENERS PER CABINET
      (1 AT EACH CORNER AND 4 AT MIDDLE ROW).

2) CMU WALLS:
   (1) 3/8”Ø HKB–3 AT 14” O.C.
   MIN. 6 ANCHORS PER CABINET
   (1 AT EA. CORNER AND 2 AT MIDDLE ROW)
   DESIGN VALUES: T=411#, V=354#  
   (includes Ø6)

3) CONCRETE WALLS:
   (1) 3/8”Ø HKB–TZ AT 14” O.C.
   MIN. 6 ANCHORS PER CABINET
   (1 AT EA. CORNER AND 2 AT MIDDLE ROW)
   SD DESIGN VALUES: Tu=587#, Vu=506#  
   (SD VALUES INCLUDE Ø6)

NOTES:

1) SEE NOTES ON DRAWING DC–01 & DC–02.
2) CABINET DIMENSIONS SHOWN ARE MAXIMUM SIZES. FOR CABINETS OF OTHER
   SIZES USE FASTENER QUANTITIES FOR NEXT LARGER CABINET SIZE.
3) MATERIAL SHOWN AS: WOOD, METAL, CMU, CONCRETE IS THE TYPE OF WALL
   CONSTRUCTION TO WHICH THE FASTENERS WILL BE ATTACHED. SEE
   DRAWING DC–02 FOR MATERIAL SPECIFICS AND BACKING REQUIREMENTS
   FOR STUD WALL TYPES.
4) FASTENERS TO BE SPACED EQUALLY IN EACH ROW (OR LINE), PROVIDE MINIMUM
   QUANTITY OF FASTENERS NOTED ABOVE, UNLESS SPACING REQUIREMENTS
   DICTATE THE NEED FOR MORE FASTENERS.
5) FOR TYPICAL FASTENER TYPES, SEE DRAWING DC–02.
24" DEEP STORAGE CABINET

ELEVATION OF BACK PANEL

FASTENER LOCATIONS

NOTES:
1) SEE NOTES ON DRAWING DC–01 & DC–02.
2) CABINET DIMENSIONS SHOWN ARE MAXIMUM SIZES. FOR CABINETS OF OTHER SIZES USE FASTENER QUANTITIES FOR NEXT LARGER CABINET SIZE.
3) MATERIAL SHOWN AS: WOOD, METAL, CMU, CONCRETE IS THE TYPE OF WALL CONSTRUCTION TO WHICH THE FASTENERS WILL BE ATTACHED. SEE DRAWING DC–02 FOR MATERIAL SPECIFICS AND BACKING REQUIREMENTS FOR STUD WALL TYPES.
4) FASTENERS TO BE SPACED EQUALLY IN EACH ROW (OR LINE), PROVIDE MINIMUM QUANTITY OF FASTENERS NOTED ABOVE, UNLESS SPACING REQUIREMENTS Dictate the Need for More Fasteners.
5) FOR TYPICAL FASTENER TYPES, SEE DRAWING DC–02.

 SCALE: NONE     DATE: 3/26/2020

LTK ASSOCIATES
Incorporated

24" DEEP STORAGE CABINET

Woodwork Institute
P.O. Box 980247
West Sacramento, CA 95798-0247
(916) 372-9943
www.woodworkinstitute.com

Drawing No.
OPM-0092
SC-03

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STANDARD WOODWORK CASEWORK:

DIMENSIONS:
D = 14" & 18" MAX.
H = 48" (max)
LENGTH = VARIES

LOADING:
APPROXIMATE EMPTY WEIGHT OF CABINET:
D=14" 50#/FT (10.71 pcf)
D=18" 65#/FT (10.83 pcf)

WALL BACKING & STUDS:
SEE DESIGN CRITERIA DWG. No. DC-02

FASTENERS / ANCHORS:
FOR FASTENER & ANCHOR TYPES,
SEE DWG. No. DC-02
FOR FASTENER & ANCHOR LOCATIONS
AND SPACING SEE DWG.’S. WC-02 & 03

WALL CABINET

BASE CABINETS
NOT INCLUDED
IN SCOPE OF
THIS OPM

MINIMUM FLOOR
CONSTRUCTION:
2 1/2" THICK
3000 PSI
SAND LTWT CONC.
OVER METAL DECK
SEOR TO CHECK
FLOOR TO SUPPORT
CABINET LOADS.

ONE OR TWO LAYER 5/8" GYPBRD. ON STUD FRAMED WALLS.

WALL CONSTRUCTION
MAY BE OF CONCRETE,
CMU, WOOD OR STEEL
STUD FRAMING.
SEOR TO DESIGN WALL
AND CHECK IF CABINETS
ON BOTH SIDES OF WALL.

TYP. 3/4" THICK
INTEGRAL NAILED,
MATERIALS SEE
DC–02
FASTENER MAX. SPACING & DESIGN VALUES:

1) STUD FRAMED WALLS (WOOD OR METAL):
   A) w/ 1 LAYER OF GYP. BOARD
      SPACING: 1–#14 SCREW AT 8" O.C.
      (7 SCREWS MIN. FOR W=48"
      AT WOOD FRAMING)
      DESIGN VALUES: T=119#, V=119#
   B) w/ 2 LAYERS OF GYP. BOARD
      SPACING: 1–#14 SCREW AT 6" O.C.
      (9 SCREWS MIN. FOR W=48"
      AT WOOD FRAMING)
      DESIGN VALUES: T=106#, V=89#
      w/ MINIMUM 1 SCREW AT EACH CORNER.

2) CMU WALLS:
   (1) 3/8"Ø HKB–3 AT 14" O.C.
      MIN. 1 ANCHOR AT EA. CORNER
      DESIGN VALUES: T=347#, V=356#
      (INCLUDES Ω)

3) CONCRETE WALLS:
   (1) 3/8"Ø HKB–TZ AT 14" O.C.
      MIN. 1 ANCHOR AT EA. CORNER
      SD DESIGN VALUES: Tu=625#, Vu=629#
      (SD VALUES INCLUDE Ω)

NOTES:
1) SEE NOTES ON DRAWING DC–01 & DC–02.
2) CABINET DIMENSIONS SHOWN ARE MAXIMUM SIZES. FOR CABINETS OF OTHER
   SIZES USE FASTENER QUANTITIES FOR NEXT LARGER CABINET SIZE.
3) MATERIAL SHOWN AS: WOOD, METAL, CMU, CONCRETE IS THE TYPE OF WALL
   CONSTRUCTION TO WHICH THE FASTENERS WILL BE ATTACHED. SEE
   DRAWING DC–02 FOR MATERIAL SPECIFICS AND BACKING REQUIREMENTS
   FOR STUD WALL TYPES.
4) FASTENERS TO BE SPACED EQUALLY IN EACH ROW (OR LINE), PROVIDE MINIMUM
   QUANTITY OF FASTENERS NOTED ABOVE, UNLESS SPACING REQUIREMENTS
   DICTATE THE NEED FOR MORE FASTENERS.
5) FOR TYPICAL FASTENER TYPES, SEE DRAWING DC–02.
FASTENER MAX. SPACING & DESIGN VALUES:

1) STUD FRAMED WALLS (WOOD OR METAL):
   A) w/ 1 LAYER OF GYP. BOARD
      SPACING: 2–#14 SCREWS AT 12" O.C.
      (10 SCREWS MIN. AT TOP & BOTTOM
      FOR W=48" AT WOOD FRAMING)
      DESIGN VALUES: T=115#; V=107#
   B) w/ 2 LAYERS OF GYP. BOARD
      SPACING: 2–#14 SCREWS AT 10" O.C.
      (12 SCREWS MIN. AT TOP & BOTTOM
      FOR W=48" AT WOOD FRAMING)
      DESIGN VALUES: T=95#; V=85#
      w/ MINIMUM 2 SCREWS AT EACH CORNER.

2) CMU WALLS:
   (1) 3/8" HKB–3 AT 10 1/2" O.C.
       MIN. 1 ANCHOR AT EA. CORNER
       DESIGN VALUES: T=461#; V=427#
       (INCLUDES Ωο)

3) CONCRETE WALLS:
   (1) 3/8" HKB–TZ AT 10 1/2" O.C.
       MIN. 1 ANCHOR AT EA. CORNER
       SD DESIGN VALUES: Tu=638#; Vu=566#
       (SD VALUES INCLUDE Ωο)

NOTES:

1) SEE NOTES ON DRAWING DC–01 & DC–02.

2) CABINET DIMENSIONS SHOWN ARE MAXIMUM SIZES. FOR CABINETS OF OTHER
   SIZES USE FASTENER QUANTITIES FOR NEXT LARGER CABINET SIZE.

3) MATERIAL SHOWN AS: WOOD, METAL, CMU, CONCRETE IS THE TYPE OF WALL
   CONSTRUCTION TO WHICH THE FASTENERS WILL BE ATTACHED. SEE
   DRAWING DC–02 FOR MATERIAL SPECIFICS AND BACKING REQUIREMENTS
   FOR STUD WALL TYPES.

4) FASTENERS TO BE SPACED EQUALLY IN EACH ROW (OR LINE), PROVIDE MINIMUM
   QUANTITY OF FASTENERS NOTED ABOVE, UNLESS SPACING REQUIREMENTS
   DICTATE THE NEED FOR MORE FASTENERS.

5) FOR TYPICAL FASTENER TYPES, SEE DRAWING DC–02.

18" DEEP WALL HUNG CABINET
ELEVATION OF CABINET BACK
FASTENER LOCATIONS