

## Jones Gillam Renz Architects

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## **ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS**

JONES GILLAM RENZ DOCUMENT JGR 710

PROJECT:	<b>The Reserves at Grand View Heights</b> New Development Laramie, Wyoming	Report No.	One (1)
OWNER:	<b>Overland Property Group</b> Dan Maximuk 234 N. Santa Fe Ave, Suite A	Date	Sept. 30, '24
	Salina, KS 67401	Architect's Proj No.	22-3262
CONTRACTO	3501 SW Fairlawn Rd. Topeka, KS 66614	Contract For:	General Construction Mechanical, Electrical

The work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Prior to proceeding in accordance with these instructions, indicate your acceptance of these instructions for minor change to the Work as consistent with the Contract Documents and return a copy to the Architect.

## DESCRIPTION:

Contractor to make adjustments as needed and required per the modifications as indicated on attached drawings and in the below descriptions:

## DRAWINGS:

- 1. Cover Sheet updated to include Sheet E6.4, and reflect updated set date of 9-27-24
- 2. Sheets CFP1 & CFP2 (attached)
  - i. Building A & Building B Information:
    - 1. Occupancy Basic has been corrected to R-2 Apartments
    - 2. Occupancy Load Factors has been corrected to Tables 1004.5 & 1006.2.1
    - ii. Project Information:
      - 1. Facility Address has been corrected to (Unassigned) Bill Nye Avenue
      - 2. Codes/Regulations have been corrected to the 2023 National Electric Code and the 2017 ICC A117.1 Accessible and Usable Buildings and Facilities.
  - Accessible and Usable Bu
- 3. Sheet A2.1 (attached)
  - i. Stairs on south side of Building A Yes, these are leading up to the building from the public sidewalk. Sheet A3.1 has been revised to show this.
  - ii. Restrooms: Men #C05 and Women #C06 Sink and turning radius clearances have been corrected. For enlarged detail and dimensions, reference Sheets A2.10 & A2.11
- Sheet A2.3 (attached) Toilet and Sink clearances at Accessible Unit have been corrected. For enlarged detail and dimensions, reference Sheet A2.5
- 5. Sheet A2.4 (attached)
  - i. Toilet and Sink clearances at Accessible Unit have been corrected. For enlarged detail and dimensions, reference Sheet A2.5
  - ii. Accessible Unit 3A Primary Bath #118 Sink has been relocated to adjacent wall.
  - iii. Note has been added to reference Specifications/Project Manual for UL Listing Assemblies and Attachment Details and Notes. The attached sheets will be added to the specifications. Included are: UL listings L501, L528, P522, U303 and U341.
  - iv. Penetration details Please reference attached Sheet A4.9. This sheet was accidentally left out of the set. This sheet shows all our details for both fire-rated and non-rated penetrations.
- 6. Sheet A2.5 (attached)
  - i. Details A & D (Bath #103) toilet and sink clearances have been corrected.
  - ii. Detail C (Bath #118) toilet and sink clearances have been corrected. Sink has been relocated to adjacent wall.
- 7. Sheet A2.7 (attached) Details H & J have been modified to show relocation of sink in Unit 3A Bath #118
- 8. Sheet A2.10 (attached) Restrooms: Men #C05 and Women #C06 Sink and turning radius clearances have been corrected.

- 9. Sheet A2.11 (attached) Restrooms: Men #C05 and Women #C06 Sink and turning radius clearances have been corrected.
- 10. Sheet A3.1 (attached) Stairs on south side of Building have been added to the elevation.
- 11. Sheet A4.9 (attached) This sheet was accidentally left out of the set. This sheet shows all our details for both fire-rated and non-rated penetrations.
- 12. Sheet A6.1 (attached) Dimension line has been corrected. All guardrails will be at least 42" tall.
- 13. Sheet S001 (attached) The frost depth has been noted as part of the General Notes for the Building. The General Notes have also bee updated to clarify City Bulletin references as well as references to the Geotechnical Report for this building.
- 14. Sheet S004 (attached) A new header type was added for girder truss support and (2) beam sizes were revised due to availability of lumber sizes.
- 15. Sheet S110 (attached) Foundations were added for girder truss column supports.
- 16. Sheet S111 (attached) Columns and the new opening type were added for girder truss support
- Sheet S112 (attached) Columns and the new opening type were added for girder truss support
- Sheet S120 (attached) Foundations were added for girder truss column supports.
- 19. Sheet S121 (attached) Columns and the new opening type were added for girder truss support
- 20. Sheet S122 (attached) Columns and the new opening type were added for girder truss support
- 21. Sheet S500 (attached) An unused typical detail was removed.
- 22. Sheet S501 (attached) The footing depth below finished grade was revised per City Comments
- Sheet S510 (attached) The beam-column connection was revised to simplify construction.
- 24. Sheet S511 (attached) A ledger board was added to details with joists or roof truss bearing to simplify construction
- 25. Sheet S520 (attached) A truss bracing diagram was added for clarity of roof truss bracing.
- 26. Sheet E1.0 (attached) Meter center has been updated
- 27. Sheet E6.2 (attached) Changed service voltage to 208V-3psh and revised risers and schedules
- 28. Sheet E6.4 (attached) Added electrical one-line diagrams
- 29. Sheet ME1.2 (attached) Meter center has been updated
- 30. Sheet M4.1 (attached) Revised Note 11
  - i. All penetrations of rated floor ceiling assembly are protected with a ceiling radiation damper.
  - ii. CRD not required where ductwork is routed below floor/ceiling assembly inside soffit.
- 31. Sheet M6.1 (attached)
  - i. Added ceiling radiation damper detail
  - ii. Revised electric heat and voltage for VTAC units
- 32. Sheet P1.1 (Attached) Revised lavatory location in Primary Bath 118 (Accessible unit)
- 33. Sheet P4.1 (attached) Added detail for revised lavatory location in Primary Bath 118 (Accessible Unit)
- 34. Sheet P6.1 (attached) Title Block has been corrected.

### CIVIL:

- Civil Engineering Design Report has been updated (dated September 2024), attached. 2.
  - Sheet C1.0
    - Limits of "No Parking" curb stripe shown on both sides of the drives off Red Cloud Trail and Sitting Bull Trail. a.
    - b New ADA ramps shown at both drive entrances, typical, both sides of the drive.
    - Sheet C2.0
      - Note 4 Added to the General Notes: Parking Lot Striping shall be 4" wide stripes using white paint per LMC 15.14.040.C.11.C а

## SPECIFICATIONS:

3.

UL Assembly Details and attachment instructions have been added to the Specifications: UL L501, L528, P522, U303 and U341.

#### Attachments:

- Revised/Added Architectural Sheets: CFP1, CFP2, A2.1, A2.3, A2.4, A2.5, A2.7, A2.10, A2.11, A3.1, A4.9, A6.1 Revised Structural Sheets: S001, S004, S110, S111, S112, S120, S121, S122, S500, S501, S510, S511, S520
- 2.
- 3. Revised/Added MEP Sheets: E1.0, E6.2, E6.4, ME1.2, M4.1, M6.1 P1.1, P4.1, P6.1
- 4. Revised Civil Sheets: C1.0, C2.0
- UL Assembly and Attachment Details for UL L501, L528, P522, U303 and U341. 5.
- Updated Civil Engineering Design Report 6

Issued by:	Jones Gillam Renz Architects PO Box 2928, Salina, KS 67402	
-	Maggie Gillam, Project Architect	mgillam@jgrarchitects.com

#### Copies to:

MCP Group - Brian Murphy OPG- Dan Maximuk, Austin Kack, Raegan Brown, Amanda Klaus LST – Ryan Lies Structural – Isaac Cundiff, Marcus Himmelberg Civil – Collin Fossen

# UL Product iQ®



## Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States

Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design Criteria and Allowable Variances

## Design No. L501

September 24, 2024

Unrestrained Assembly Rating — 1 Hr. Finish Rating — (See Items 5 and 5A)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide <u>BXUV</u> or <u>BXUV7</u>

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



1. Flooring Systems — The flooring system shall consist of one of the following:

## System No. 1

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered. Panels secured to joists with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each joist. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier — Nom 0.010 in. thick commercial rosin-sized building paper.

**Finish Flooring** — Min 1 by 4 in. T & G lumber installed perpendicular to joists, or min 19/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.

## System No. 2

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Floor Mat Materials\*** — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK ® Brand Sound Reduction Board, LEVELROCK ® Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials\* — (Optional) — Floor mat material loose laid over the subfloor.Refer to manufacturer's instructions regarding minimum thickness of floor topping over floor mat. GRASSWORX L L C — SC Types

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 having a min compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design. **UNITED STATES GYPSUM CO** — Type C, SD, LRK, HSLRK

LATICRETE SUPERCAP L L C — Types LRK, HSLRK

USG MEXICO S A DE C V — Types LRK, HSLRK, CSD

## System No. 3

**Subflooring** — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

**Floor Mat Materials\*** — (Optional) — Floor mat material nom 5/64 in. (2 mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of floor-topping mixture. Floor topping thickness a min 1 in. over the floor mat.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/4 in. (6 mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32 mm) of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/8 in. (3 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19 mm).

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/4 in. (6 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in. (25 mm).

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250, Quiet Qurl 55/025

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 3/8 in. (10 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/4 in. (32 mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 400, Quiet Qurl 60/040

**Alternate Floor Mat Materials** — (Optional) — Floor mat material nom 3/4 in. (19 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in. (38 mm).

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750, Quiet Qurl 65/075

**Metal Lath (Optional)** — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 3310, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant

#### System No. 4

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in thick commercial asphalt saturated felt.

**Finish Flooring — Floor Topping Mixture\*** — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

ELASTIZELL CORP OF AMERICA — Type FF

#### System No. 5

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in thick commercial asphalt saturated felt.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.2 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

**AERIX INDUSTRIES** — Floor Topping Mixture

#### System No. 7

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

**Finish Flooring — Floor Topping Mixture\*** — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Mixture shall consist of 5 to 8 gal of water to 80 lbs of floor topping mixture to 2.1 cu ft of sand.

ULTRA QUIET FLOORS - UQF-A, UQF-Super Blend, UQF-Plus 200

#### System No. 8

**Subflooring** — Min 15/32 in. wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in thick commercial asphalt saturated felt.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

MAXXON CORP — Type Maxxon Standard and Maxxon High Strength

Floor Mat Materials\* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

MAXXON CORP — Type Encapsulated Sound Mat.

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material.

Fiber Glass Reinforcement - (Optional, Not Shown) - 0.015 in. thick PVC coated non-woven fiberglass mesh, 0.368 lbs/sq yd loose laid over the floor mat material.

#### System No. 9

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1.

Finish Floor — Mineral and Fiber Board\* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

### System No. 10

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Finish Flooring — Floor Topping Mixture\*** — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ARCOSA SPECIALTY MATERIALS — AccuCrete ® Types NexGen, Green, Prime and PrePour, AccuRadiant ®, AccuLevel ® Types G40, G50 and SD30

Alternate Floor Mat Material\* — (Optional) - Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in. or 1 in. thick for 19/32 or 15/32 in. thick wood structural panels respectively.

**ARCOSA SPECIALTY MATERIALS** — AccuQuiet<sup>®</sup> D13, D-18, D25, DX38, EM.125, EM.125S, EM.250S, EM.250S, EM.375S, EM.375S, EM.750, and EM.750S.

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

FORMULATED MATERIALS LLC — Types FR-25, FR-30, SiteMix, and Treadstone Advantage

Alternate Floor Mat Material\* — (Optional) — Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

FORMULATED MATERIALS LLC — Types M1, M2, M3, Elite, Duo, R1, and R2.

#### System No. 12

Deleted.

#### System No. 13

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) — Nom 0.010 in. thick commercial rosin-sized building paper.

**Finish Flooring\*** — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials\* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC - Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

#### System No. 14

**Subflooring** — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the joists with end joints staggered, secured as described in System No. 1.

**Gypsum Board\*** — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long No. 6 Type W bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches from the joints of the subfloor.

## GEORGIA-PACIFIC GYPSUM L L C — Type DS

Floor Mat Materials\* — (As an alternate to the single layer gypsum board) — Floor mat material loose laid over the subfloor.

**MAXXON CORP** — Type Encapsulated Sound Mat.

**Gypsum Board\*** — (For use when floor mat is used) Two layers of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists on top of the floor mat material. Gypsum board secured to each other with 1 in. long No. 6 Type G bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches in between layers and from the joints of the subfloor.

## GEORGIA-PACIFIC GYPSUM L L C — Type DS

#### System No. 15

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1.

Finish Flooring — Floor Topping Mixture\* — Min 3/4 in. thickness of floor topping mixture for min 15/32 in. thick wood structural panels, having a min compressive strength of 2150 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

MAPEI CORP — Type Planitex SL 35

#### System No. 16

**Subflooring** — Min. 15/32 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture for 15/32 in. thick wood structural panels respectively, having a min compressive strength of 2100 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

THE STRONG CO INC — Type UltraLevel

## System No. 17

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

**Finish Flooring — Floor Topping Mixture\***— Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

DEPENDABLE LLC — GSL M3.4, GSL K2.6, GSL-CSD and GSL RH

Floor Mat Materials\* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC - Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

## System No. 18

**Subflooring** — **Building Units\*** — Nom 3/4 in. thick, tongue and grooved boards. Long dimension of boards to be perpendicular to joists with end joints staggered a min of 4 ft. and centered over the joists. Boards secured to joists with 2 in. long self-drilling, self-tapping screws or 2 in. x 0.113 in. Ring Shank nails spaced a max of 12 in. OC in the field with screws/nails located 1 in. from long edge, and max 8 in. OC along the end joints with screws/nails located 1/2 in. from end joint. **ECTEK INTERNATIONAL INC** — Type MegaBoard

Vapor Barrier — Nom 0.010 in. thick commercial rosin-sized building paper.

**Finish Flooring** — Min 1 by 4 in. T & G lumber installed perpendicular to joists, or min 19/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered

## System No. 19

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

**Finish Flooring\*** — **Floor Topping Materials** — Min 3/4 in. to 1-1/2 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance with a minimum compressive strength of 1500 psi.

See **Floor- and Roof-Topping Mixtures** (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

**Floor Mat Materials\*** — (Optional) — Floor mat material nom 1/8 in. to 3/4 in. thick. Loose laid over the subfloor. When used, Acousti-flor CSM (Crack Suppression Mat) is loose laid over the floor mat material. Floor topping material thickness is dependent on thickness of floor mat used.

WALFLOR INDUSTRIES INC — Type Acousti-flor, Acousti-flor CSM. Floor topping thickness depends on products used as follows:

Acousti-flor (1/8 in. thick) - Floor topping thickness shall be a minimum of 3/4 in.

Acousti-flor (1/4 in. thick) - Floor topping thickness shall be a minimum of 1 in.

Acousti-flor (3/8 in. thick) - Floor topping thickness shall be a minimum of 1 in.

Acousti-flor (3/4 in. thick) - Floor topping thickness shall be a minimum of 1-1/2 in.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

## System No. 20

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

**Finish Flooring - Floor Topping Mixture\*** — Min 1 in. thickness of floor topping mixture having a min compressive strength of 4500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design. **SIKA DEUTSCHLAND GMBH** — Type SCHONOX AP Rapid Plus

#### System No. 21

**Subflooring - Building Units\*** — Nom. 1-1/2 in. thick T & G laminated composite plywood sub-floor panels to be perpendicular to the trusses with end joints staggered 4 ft. End joints centered over top chord of trusses. Subfloor panels secured to trusses with construction adhesive and #8 by 3 in. wood screws spaced 12 in. OC in the field and 6 in. OC at the end joints. **RSP INDUSTRIES INC** — SAP board

#### System No. 22

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

**Vapor Barrier** — Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

**Finish Flooring - Floor Topping Mixture\*** — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

**Floor Mat Materials**\* — (Optional, Not Shown) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

Freudenberg Performance Materials LP — EnkaSonic<sup>®</sup> by Colbond a member of the Low & Bonar group Types 125, 250, 250 Plus, 400, 400 Plus, 750, and 750 Plus.

**Floor Mat Reinforcement** — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

## System No. 23

**Subflooring** — Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the joists with end joints staggered secured as described in System No. 1.

**Finish Floor - Building Units\*** — Min 1/2 in. thick magnesium oxide panels installed parallel, perpendicular, or diagonally to trusses with panel edges offset a min of 4 in. between subfloor and magnesium oxide panels. Panels secured to subfloor with construction adhesive and corrosion resistant fasteners, spaced 12 in. OC around the perimeter and in the field of the panel. Fasteners must be placed no closer than 1/2 in. from all panel edges and no closer than 2 in. from panel corners.

HUBER ENGINEERED WOODS L L C — Type 1/2 in. Square Edge Exacor™ Board

#### System No. 24

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Floor Mat Materials\* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

#### **GRASSWORX L L C** — SC Types

**Finish Flooring\*** — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

#### System No. 25

**Subflooring - Building Units\*** — Nom. 1-3/16 in. thick T & G laminated composite plywood sub-floor panels to be perpendicular to the joist with end joints staggered 4 ft. End joints centered over top chord of joist. Subfloor panels secured to joist with construction adhesive and #8 by 2-3/8 in. wood screws spaced 12 in. OC in the field and 6 in. OC at the end joints.

**RSP INDUSTRIES INC** — SAP 1.0

#### System No. 26

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered, secured as described in System No. 1.

**Finish Flooring - Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ALPHAGYP, LLC — Type AG3000

2. Wood Joists — Min 2 by 10, spaced 16 in. OC and effectively fireblocked in accordance with local codes.

3. Cross Bridging — Min 1 by 3 in. or min 2 by 10 solid blocking.

3A. **Horizontal Bridging** — Used in lieu of Item 3 in same joist bay as ceiling damper (Item 4), when ceiling damper is employed. Wood 2 by 4 in. secured between joists with nails.

4. **Ceiling Damper\*** — **(Optional)** — Max nom area shall be 198 sq in. Max rectangular size shall be 12 in. wide by 16-1/2 in. long. Max height of damper shall be 9-3/8 in. Aggregate damper openings shall not exceed 99 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 7) shall be installed in accordance with installation instructions. **AIR BALANCE INC** — Type 299 (See Item 5A)

AIR KING VENTILATION PRODUCTS — Series FRAS, Series FRAK, Series FRAKV

CENTRAL VENTILATION SYSTEMS CO L L C — Models C-S/R-HC(-A), C-RD-HC(-A)

JAMIL ALI NASSER AL-ZADJALI FOR INDUSTRY— Models C-S/R-HC(-A), C-RD-HC(-A)

BADR & ASFOUR COMPANY FOR ENGINEERING AND METAL INDUSTRIES — Models C-S/R-HC(-A), C-RD-HC(-A)

**GREENHECK FAN CORP** — Model CRD-1WJ

METAL-FAB INC — Models MSCDHC, MRCDHC

BRISK MFG INC — Model BMI-50-CRD-S/R-WT

PRICE INDUSTRIES LTD — Models CD-S/R-HC, CD-RD-HC

RUSKIN COMPANY — Model CFD7

UNITED ENERTECH CORP — Models C-S/R-HC(-A), C-RD-HC(-A)

5. **Gypsum Board\*** — Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1-7/8 in. long, 6d cement coated nails spaced 6 in. OC. **AMERICAN GYPSUM CO** — Types AGX-1, AG-C, LightRoc

**BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO** — Type DBX-1

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Type C, Type X-1, Types LGFC6A, LGFC-C/A, LWTX

CGC INC — Types C, IP-X1, IP-X2, IPC-AR, SCX, WRX

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, 9, C, GPFS1, GPFS6, DA, DAP, DAPC, DGG, DS, Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, TG-C, GreenGlass Type X, Type LWX (finish rating 22 min), Veneer Plaster Base-Type LWX (finish rating 22 min), Water Rated-Type LWX (finish rating 22 min), Sheathing Type-LWX (finish rating 22 min), Soffit-Type LWX (finish rating 22 min), Type LWX (finish rating 22 min), Veneer Plaster Base - Type LWX (finish rating 22 min), Soffit-Type LWX (finish rating 20 min), Veneer Plaster Base - Type LW2X (finish rating 20 min), Veneer Plaster Base - Type LW2X (finish rating 20 min), Sheathing Type-LW2X (finish rating 20 min), Sheathing - Type LW2X (finish rating 20 min), Soffit - Type LW2X (finish rating 20 min)

NATIONAL GYPSUM CO — eXP-C, FSK, FSK-C, FSK-G, FSL, FSLX, FSMR-C, FSW-2, FSW-3, FSW-C, FSW-G, FSW-8, RSX

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR or WR.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-3, PG-4, PG-5, PG-6, PG-9, PG-C, PG-11, Type PGI (Finish Rating 26 minutes).

PANEL REY S A — Types PRC, PRC2

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type C, Type X

UNITED STATES GYPSUM CO — Types C, IP-X1, IP-X2, IPC-AR, SCX, WRX

USG BORAL DRYWALL SFZ LLC — Types C, SCX

USG MEXICO S A DE C V — Types C, IP-X1, IP-X2, IPC-AR, SCX, WRX

5A. **Gypsum Board\*** — (Finish Rating - 16 min.) Required when Air Balance Inc. Type 299 ceiling damper (Item 4) is installed. Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1-7/8 in. long, 6d cement coated nails spaced 6 in. OC with the first nails located 1/2 in. and 3 in. from the board edges. **UNITED STATES GYPSUM CO** — Type C

**USG BORAL DRYWALL SFZ LLC** — Types C, SCX

USG MEXICO S A DE C V — Type C

5B. **Gypsum Board\*** — Nom 3/4 in. thick, 48 in. wide gypsum board, installed as described in Item 5 with nails length increased to 2 in.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-13

5C. **Gypsum Board\* (As an alternative to Item 5)** — Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long Type S screws spaced 6 in. OC. **UNITED STATES GYPSUM CO** — ULIX

5D. **Gypsum Board\* (As an alternative to Item 5A)** — Required when Air Balance Inc. Type 299 ceiling damper (Item 4) is installed. Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1-7/8 in. long Type S screws spaced 6 in. OC with the first screws located 1/2 in. and 3 in. from the board edges. **UNITED STATES GYPSUM CO** — ULIX

5E. **Gypsum Board\* (As an alternative to Item 5)** — Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 2 in. long, No. 6 screws spaced 6 in. OC.

## NATIONAL GYPSUM CO — FSW, FSW-6

6. **Finishing System** — (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

7. Grille — Steel grille, installed in accordance with the installation instructions provided with the ceiling damper.

8. **Steel Corner Fasteners** — (Optional, Not Shown) — Used to attach ends of gypsum board at wall intersection where joists run parallel to wall. Channel shaped, 2 in. long by 1 in. high on the back side with two 1/8 in. wide cleats protruding into the 5/8 in. wide channel, fabricated from 24 gauge galvanized steel. Fasteners nailed to face of wall bearing plate through fastener tab with one No. 6d cement coated nail, spaced not greater than 16 in. OC and 2 in. from edge of gypsum board. Fasteners covered with gypsum board facing applied to intersecting wall.

9. **Discrete Products Installed in Air-handling Spaces\*** — Automatic Balancing Valve/Damper — (Not Shown - Optional) — For use with item 4, Ruskin Company's Model CFD7 damper (CABS). Ceiling damper to be provided with plenum box per damper manufacturer's instructions with side outlet only. Entire assembly to be installed into any UL Class 0 or Class 1 flexible air duct in accordance with the instructions provided by the automatic balancing valve/damper manufacturer. **METAL INDUSTRIES INC** — Model ABV-4, ABV-5, ABV-6

# \* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2024-09-24

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See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. **L528** 

September 2, 2024

Unrestrained Assembly Rating - 1 Hr.

Finish Rating - 22 Min.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide <u>BXUV</u> or <u>BXUV7</u>

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.







#### System No. 1

**Subflooring** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

#### System No. 2

**Subflooring** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) — Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring — Min 3/4 in. thickness of lightweight insulating concrete with **Perlite Aggregate\*** or **Vermiculite Aggregate\***, or gypsum concrete.

See Perlite Aggregate (CFFX) and Vermiculite Aggregate (CJZZ) categories for names of manufacturers.

#### System No. 3

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Floor Mat Materials\*** — (Optional)— Floor mat material nom 5/64 in. (2 mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 in. of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/4 in. (6 mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32 mm) of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/8 in. (3 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19 mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/4 in. (6 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in. (25 mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250, Quiet Qurl 55/025

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 3/8 in. (10 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/4 in. (32 mm)

HACKER INDUSTRIES INC - FIRM-FILL SCM 400, Quiet Qurl 60/040

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 3/4 in. (19 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in. (38 mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750, Quiet Qurl 65/075

**Metal Lath** — (Optional) — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 3310, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant

#### System No. 4

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.010 in. thick.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

**UNITED STATES GYPSUM CO** — Types LRK, HSLRK, CSD

#### LATICRETE SUPERCAP L L C — Types LRK, HSLRK

USG MEXICO S A DE C V — Types LRK, HSLRK, CSD

Floor Mat Materials\* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK I Brand Sound Reduction Board, LEVELROCK Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials\* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding minimum thickness of floor topping over floor mat.

**GRASSWORX L L C** — SC Types

Alternate Floor Mat Material\* — (Optional) - Floor mat material nominal 3/8 in. thick loose laid over the subfloor. Floor topping shall be a min 3/4 in. thick.

#### System No. 5

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring — Floor Topping Mixture\*** — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

ELASTIZELL CORP OF AMERICA — Type FF

#### System No. 6

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring — Floor Topping Mixture\*** — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.2 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

**AERIX INDUSTRIES** — Floor Topping Mixture

Deleted.

#### System No. 7

#### System No. 8

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring - Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

MAXXON CORP — Types Maxxon Standard and Maxxon High Strength

Floor Mat Materials\* — (Optional) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

MAXXON CORP — Type Encapsulated Sound Mat.

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) - 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material.

Fiber Glass Reinforcement - (Optional, Not Shown) - 0.015 in. thick PVC coated non-woven fiberglass mesh, 0.368 lbs/sq yd loose laid over the floor mat material.

#### System No. 9

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Mixture shall consist of 5 to 8 gal of water to 80 lbs of floor topping mixture to 2.1 cu ft of sand. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

ULTRA QUIET FLOORS — UQF-A, UQF-Super Blend, UQF-Plus 200

#### System No. 10

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

FORMULATED MATERIALS LLC — Types FR-25, FR-30, SiteMix, and Treadstone Advantage

Alternate Floor Mat Material\* — (Optional) Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in.

FORMULATED MATERIALS LLC — Types M1, M2, M3, Elite, Duo, R1, and R2

#### System No. 11

**Subflooring** — Min 1 by 6 in. T & G lumber fastened diagonally to trusses, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Finish Floor - Mineral and Fiber Board\* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

#### System No. 12

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring** — **Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ARCOSA SPECIALTY MATERIALS — AccuCrete® Types NexGen, Green, Prime and PrePour, AccuRadiant®, AccuLevel® Types G40, G50 and SD30

Alternate Floor Mat Material\* — (Optional) — Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in.

**ARCOSA SPECIALTY MATERIALS** — AccuQuiet® Types D13, D-18, D25, DX38, EM.125, EM.1255, EM.250, EM.250S, EM.375, EM.375S, EM.750, and EM.750S.

#### System No. 13

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) — Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring\* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies.

Floor Mat Materials\* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC - Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC - Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

#### System No. 14

Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

**Gypsum Board\*** — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long No. 6 Type W bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

Floor Mat Materials\* — (As an alternate to the single layer gypsum board) — Floor mat material loose laid over the subfloor.

MAXXON CORP — Type Encapsulated Sound Mat.

**Gypsum Board\*** — (For use when floor mat is used) Two layers of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists on top of the floor mat material. Gypsum board secured to each other with 1 in. long No. 6 Type G bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches in between layers and from the joints of the subfloor.

## GEORGIA-PACIFIC GYPSUM L L C — Type DS

#### System No. 15

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

**Finish Flooring - Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

DEPENDABLE LLC — GSL M3.4, GSL K2.6, GSL-CSD, GSL RH and SKIMFLOW

Floor Mat Materials\* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC - Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials\* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

**Alternate Floor Mat Materials\*** — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

#### System No. 16

**Subflooring** — Min 23/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) — Nom 0.010 in. thick commercial rosin-sized building paper.

**Finish Flooring\*** — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See **Floor- and Roof-Topping Mixtures** (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials\* — (Optional) — Nom 3/32 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat RST02

Floor Mat Materials\* — (Optional) — Nom 3/16 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat FF03NP

Floor Mat Materials\* — (Optional) — Nom 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat FF06

Floor Mat Materials\* — (Optional) — Nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

PLITEQ INC — Type GenieMat FF10

Floor Mat Materials\* — (Optional) — Nom 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

PLITEQ INC — Type GenieMat FF17

Floor Mat Materials\* — (Optional) — Nom 1 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

PLITEQ INC — Type GenieMat FF25

#### System No. 17

**Subflooring** — Nom. 1-1/2 in. thick T & G laminated composite plywood sub-floor panels to be perpendicular to the trusses with end joints staggered 4 ft. End joints centered over top chord of trusses. Subfloor panels secured to trusses with construction adhesive and #8 by 3 in. wood screws spaced 12 in. OC in the field and 6 in. OC at the end joints. **RSP INDUSTRIES INC** — SAP board

## System No. 18

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss.

Wall and Partition Facings and Accessories\* - Sound Barrier (Optional) — Acoustic Sleeper pads stapled to the top of the subfloor, the bottom of the finish floor, or to 5/16 in. thick by 1-1/2 in. wide wood strips and centered over wood trusses. Acoustic Sleeper pads are to be spaced appropriately so that the finish floor panels are fastened through Acoustic Sleeper pads to the trusses. STC ARCHITECTURAL PRODUCTS L L C DBA STC SOUND CONTROL — Acoustic Sleeper

**Finish Floor** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Butt joints of panels have the option of being sealed with any UL Classified caulk or sealant found under - Fill, Void or Cavity Materials\* (XHHW).

#### System No. 19

**Structural Cement-Fiber Units\*** — For use with **UNITED STATES GYPSUM CO** Types C, IP-X2, IPC-AR and ULIX or AMERICAN GYPSUM CO Type AG-C. gypsum boards only. Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to wood trusses with end joints staggered a min of 2 ft and centered over the trusses. Panels secured to wood trusses with 1-5/8 in. long, No. 8, self- countersinking wood screw spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the end edges of the panel.

**UNITED STATES GYPSUM CO** — Types STRUCTO-CRETE, USGSP

#### System No. 20

**Subflooring** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

**Finish Flooring - Floor Topping Mixture\*** — Min 1 in. thickness of floor topping mixture having a min compressive strength of 4500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design. **SIKA DEUTSCHLAND GMBH** — Type SCHONOX AP Rapid Plus

## System No. 21

**Subflooring** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in.

diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be for the 6d nails.

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

**Finish Flooring - Floor Topping Mixture\*** — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

**Floor Mat Materials\*** — (Optional, Not Shown) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

Freudenberg Performance Materials LP — EnkaSonic<sup>®</sup> by Colbond a member of the Low & Bonar group Types 125, 250, 250 Plus, 400, 400 Plus, 750, and 750 Plus.

**Floor Mat Reinforcement** — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath - (Optional) - Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

## System No. 22

Subflooring — Min 23/32 in. thick T & G wood structural panels described and installed as shown in System No. 1.

**Finish Floor - Building Units\*** — Min 1/2 in. thick magnesium oxide panels installed parallel, perpendicular, or diagonally to trusses with panel edges offset a min of 4 in. between subfloor and magnesium oxide panels. Panels secured to subfloor with construction adhesive and corrosion resistant fasteners, spaced 12 in. OC around the perimeter and in the field of the panel. Fasteners must be placed no closer than 1/2 in. from all panel edges and no closer than 2 in. from panel corners **HUBER ENGINEERED WOODS L L C** — Type 1/2 in. Square Edge Exacor™ Board

## System No. 23

**Subflooring** — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered. Fastened with 8d ringed shank nails spaced 12 in. OC along each truss.

**Finish Floor - Building Units\*** — Min 1/2 in. thick, supplied in 4 by 8 ft panels, fastened to trusses through subfloor with 8d ringed shank nails spaced a max of 12 in. OC. All joints to be staggered a min of 12 in. with adjacent sub-floor joints. **ECTEK INTERNATIONAL INC** — Type MegaBoard, 1/2 in. thick

#### System No. 24

**Subflooring** — **Building Units\*** — Nom 3/4 in. thick, tongue and grooved boards. Long dimension of boards to be perpendicular to wood trusses with end joints staggered a min of 4 ft. and centered over the trusses. Boards secured to trusses with min 2 in. long screws or 2 in. x 0.113 in. Ring Shank nails spaced a max of 12 in. OC in the field with screws/nails located 1 in. from long edge, and max 8 in. OC along the end joints with screws/nails located 1/2 in. from end joint.

ECTEK INTERNATIONAL INC — Type MegaBoard, 3/4 in. thick

**Finish Floor (optional)** — **Building Units\*** — Min 1/2 in. thick, supplied in 4 by 8 ft panels, fastened to trusses through subfloor with 2-3/8 in. long 8d ringed shank nails spaced a max of 12 in. OC. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

ECTEK INTERNATIONAL INC — Type MegaBoard, 1/2 in. thick

## System No. 25

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**Subflooring** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Floor Mat Materials\* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

## **GRASSWORX L L C** — SC Types

**Finish Flooring\*** — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath - (Optional) - Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

## System No. 26

**Subflooring – Building Units\*** — Nom 3/4 in. thick, ship-lap or tongue-in-groove edge detail. Long dimension of boards to be perpendicular to trusses with end joints staggered a min of 4 ft. and centered over the trusses. Boards secured to trusses with #8 x 2 in. long screws or 2 in. long by 0.113 in. ring shank nails spaced a max of 12 in. OC in the field and 8 in. OC along butt ends. Fasteners located 1/2 in. from butt edges and 2 in. from long edges of the board. When Finish Floor (see below) is not used, must be used with Item 7I).

## AMERIFORM L L C — Type Nocom

**Finish floor –** (Optional) - Min 1/2 in. thick, supplied in 4 ft by 8 ft panels, installed perpendicular or parallel to trusses with panel edges offset a min of 24 in. with adjacent sub-floor joints. Panels secured to subfloor with construction adhesive and corrosion resistant fasteners spaced a max of 12 in. OC. around perimeter and in the field of the panel. Fasteners located 1/2 in. at butt edges and 2 in. from long edge of the boards.

MULTI-PANELS – Type M4 Panel

## System No. 27

**Subflooring** Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

**Finish Floor – Building Units**\* - (Optional) - Min 1/2 in. thick, supplied in 4 ft by 8 ft panels, installed perpendicular or parallel to trusses with panel edges offset a min of 24 in. with adjacent sub-floor joints. Panels secured to subfloor with construction adhesive and corrosion resistant fasteners s spaced a max of 12 in. OC. around perimeter and in the field of the panel. Fasteners located 1/2 in. at butt edges and 2 in. from long edges of the board.

MULTI-PANELS – Type M4 Panel

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**Subflooring** — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. TetraGRIP<sup>™</sup> nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

**Finish Flooring - Floor Topping Mixture\*** — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 900 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

## TECNODRY SA DE CV – Type SURFACE GYP

2. **Trusses** — Parallel chord trusses, spaced a max 24 in. OC, fabricated from nom 2 by 4 in. lumber with lumber oriented vertically or horizontally. Min truss depth is 12 in. when item 9 is not employed. Min truss depth is 18 in. when item 9 is employed. Truss members secured together with min No. 20 MSG galv steel truss plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split-tooth-type plate. Each tooth has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approx 7/8 in. centers with four rows of teeth per in. of plate width.

3. **Furring Channels** — Hat channels, 7/8 in. deep by 2-9/16 in. or 2-11/16 in. or 2-23/32 in. wide at the base and 1-7/16 in. wide at the face, formed from No. 25 ga galv steel, spaced 24 in. OC perpendicular to trusses. Channels secured to trusses with double strand of No. 18 SWG galv steel wire spaced 48 in. OC. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Two furring channels used at end joints of gypsum board (Item 4), each extending a min of 6 in. beyond both side edges of the board.

3A. **Resilient Channels** — (Not Shown) — As an alternate to Item 3, resilient channel formed from No. 26 MSG galv steel, spaced 16 in. OC perpendicular to trusses. Channels secured to each truss with 1-1/4 in. long No. 6 Type S bugle head steel screw. Channels overlapped at splices 4 in. Two resilient channels used at end joints of gypsum board (Item 4), each extending a min of 6 in. beyond both side edges of the board.

3B. **Steel Framing Members\*** — (Optional)— Used as an alternate method to attach furring channels to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to the bottom chord of alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to the bottom chord of alternating trusses with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item 3. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two min 7/16 in. long No. 6 self-tapping framing screws, at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. When Fiber, Sprayed (Item 6) is used, furring channel spacing reduced to 16 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board shall be installed as described in Item 4.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75)

3C. **Steel Framing Members\*** — (Optional, Not Shown) — Used as an alternate method to attach furring channels to trusses. Clips spaced 48 in. OC., and secured to the bottom chord to alternating trusses with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. Two layers of gypsum board required as described in Item 4. Not evaluated for use with Item 6. When Item 3C is used and Batts and Blankets\* are added per Section III Item 18 Blanket Insulation in the General Information of this Directory (BXUV), clips spaced 48 in. OC, furring channels spaced 16 in. OC max, 3-1/2 in. max. Batts and Blankets\* secured to plywood subfloor with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC, and two layers of gypsum panel ceiling membrane, the clip spacing shall be reduced to 24 in. OC and secured to consecutive trusses, the furring channel spacing shall be reduced to 12 in. OC, and two layers of gypsum board required as described in Item 4A. **KINETICS NOISE CONTROL INC** — Type Isomax.

3D. **Steel Framing Members\*** — (Optional, Not Shown) — For Use with Item 7- Used as an alternate method to attach furring channels to trusses. Clips spaced 48 in. OC. and secured to the bottom chord to alternating trusses with one No. 8 x 2-1/2 in. coarse

## BXUV.L528 | UL Product iQ

drywall screw through the center hole. Furring channels are friction fitted into clips. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. Not evaluated for use with Item 6. **PLITEQ INC** — Type Genie Clip

3E. **Steel Framing Members\*** — (Optional, Not Shown) — For use with Item 7B - Used as an alternate method to attach furring channels to trusses. Clips spaced at 48" OC and secured to the bottom of the trusses with one 2 in. Coarse Drywall Screw with 1 in. diam. washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire .Additional clips are required to hold the Gypsum Butt joints as described in item 4. Not evaluated for use with Item 6.

STUDCO BUILDING SYSTEMS - RESILMOUNT Sound Isolation Clips - Type A237 or A237R

3F. **Resilient Channels** — For use with Item 4B and 7A - Resilient channels, formed from No. 25 MSG galv steel and shaped as shown, spaced 12 in. OC perpendicular to joist. Channels overlapped 4 in. at splices and secured to each joist with 1-1/4 in. Type S screws. Min end clearance of channels to wall to be 1/2 in. Additional resilient channels positioned so as to coincide with end joints of gypsum board.

3G. **Resilient Channels** — For Use With Item 4C and 7C. Formed from min 25 MSG galv steel installed perpendicular to trusses and spaced 16 in. OC. Channels secured to each truss with 1-5/8 in. long Type S bugle head steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum panel end joint. Additional channels shall extend min 6 in. beyond each side edge of panel. Insulation, Item 7C is applied over the resilient channel/gypsum panel ceiling membrane.

3H. **Steel Framing Members\*** — (Optional, Not Shown) — Used as an alternate method to attach furring channels to trusses. Clips spaced at 48" OC and secured to the bottom of the trusses with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam. washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire .Additional clips are required to hold the Gypsum Butt joints as described in item 4. Not evaluated for use with Item 6.

**REGUPOL AMERICA** — Type SonusClip

31. **Steel Framing Members** — (Not Shown) — For use with Items 4C and 7F, As an alternate to Item 3, main runners, cross tees, cross channels and wall angle as listed below.

a. **Main Runners** — Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft. OC. Main runners suspended by min 12 SWG galv. steel hanger wires spaced 48 in. OC. Hanger wires to be located adjacent to main runner/cross tee intersections. Hanger wires wrapped and twist-tied on 16d nails driven in to side of trusses at least 5 in. above the bottom face.

b. **Cross Tees or Channels** — Nom 4 ft long cross tees, with 15/16 in. or 1-1/2 in. wide face, or nom 4 ft long cross channels, with 1-1/2 in. wide face, spaced 16 in. OC, installed perpendicular to the main runners. Additional cross tees or channels used 8 in. from each side of butted gypsum board end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall Angle or Channel** — Painted or galv. steel angle with 1 in. legs or channel with 1 in. legs, 1-9/16 in. deep attached to walls at perimeter of ceiling with fasteners 16 in. OC. To support steel framing member ends and for screw-attachment of the gypsum panel. **USG INTERIORS LLC** — Type DGL or RX

3J. **Steel Framing Members\*** — (Optional, Not Shown) — Used to attach resilient channels (Item 3A) to trusses (Item 2). Clips spaced 48 in. OC on adjacent trusses, and secured to trusses with one No. 8 x 2-1/2 in. coarse drywall screw through center grommet hole. Channels secured to clips with one #10 x 1/2 in. pan-head self-drilling screw. Ends of adjoining channels overlapped 6 in. and secured together with two #8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board butt joints require additional resilient channels spaced 1-1/2 in. from the butt joint on either side. One edge of the extra channels will extend to an adjacent truss where it is secured with a clip.

**KEENE BUILDING PRODUCTS CO INC** — Type RC+ Assurance Clip

3K. **Resilient Channels** — For use with items 3L, 4F, and 7G — Formed from min 26 MSG galv steel installed perpendicular to trusses. When Item 7G is draped over channels, channels spaced a maximum 12 in. OC. Channels secured to each truss as described in Item 3L.

Channel ends butted and centered under the joists and attached to the joists with one screw at each end. Additional resilient channels positioned so as to coincide with end joints of gypsum board as shown in the above illustration. Additional channels shall extend min 3 in. beyond each side edge of board.

3L. **Steel Framing Members\*** — (Optional, Not Shown) — Used as an alternate method to attach resilient channelsto joists (Item 2). For use with items 3K, 4F and 7G. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 24 in. O.C. Channel ends butted and centered under the joists and attached to the joists with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints, as described in Item 3K. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the joists with the screws supplied with the accessory and per the accessory manufacturer's installation instructions. **PAC INTERNATIONAL L L C** — Types RC-1 Boost

## 3M. Steel Framing Members\* — (Optional, Not Shown) — As an alternate to Item 3.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC, perpendicular to trusses. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels used at end joints of gypsum board (Item 4), each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to trusses, frictionfitted into the channel caddy on the Steel Framing Members (Item 3Md) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 3Md) location with 16d nails or minimum 2-1/2 in. screws.

d. Steel Framing Members\* — Spaced 48 in. OC. max along truss, and secured to the truss on alternating trusses with two, #10 x 1-1/2 in. screws through mounting holes on the hanger bracket.
PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

3N. Steel Framing Members\* — (Optional, Not Shown) — As an alternate to Item 3.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to trusses and friction fit into Steel Framing Members (Item 3Nc). Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or with two TEK screws along each leg of the 6 in. overlap. Two furring channels used at end joints of gypsum board (Item 4). Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels run perpendicular to strong back channels and shall be minimum 6 in. longer than length of joint, secured to strong back channels with 7/16 in. pan head screws, two along each of the legs.

b. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 3Nc) location with 16d nails or minimum 2-1/2 in. screws.

c. **Steel Framing Members\*** — Used to attach furring channels (Item 3Na) to trusses. Clips spaced 48 in. OC and secured along truss webs at each furring channel intersection with min. 3/4 in. long self-drilling #10 x 1-1/2 in. screws through each of the provided hole locations. Furring channels are friction fitted into clips. **PAC INTERNATIONAL L L C** — Type RSIC-S1-1 Ultra

3O. **Resilient Channels** — For Use With Item 4G and 7C. Formed from min 25 MSG galv steel installed perpendicular to trusses and spaced 16 in. OC. Channels secured to each truss with 1-1/4 in. long Type S bugle head steel screws. Channels overlapped 4 in. at

splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum panel end joint. Additional channels shall extend min 6 in. beyond each side edge of panel. Insulation, Item 7C is applied over the resilient channel/gypsum panel ceiling membrane.

3P. Steel Framing Members\* — (Optional, Not Shown, As an alternate to Item 3) — Furring channels and Steel Framing Members as described below:

A. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in., spaced 24 in. OC max perpendicular to trusses. Channels secured to trusses as described in Item 3Pb. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the wallboard butt joints, as described in Item 4.

B. **Steel Framing Members\*** — Used to attach furring channels (Item 3Pa) to trusses (Item 2). Clips spaced 48 in. OC max with No. 8 x 2-1/2 in. course drywall screw through the center grommet. Furring channels are friction fitted into clips.

**CLARKDIETRICH BUILDING SYSTEMS** — Type ClarkDietrich Sound Clips

3Q. **Steel Framing Members\*** — (Optional, Not Shown) — Used as an alternate method to attach resilient channels (items 3 and 3G) to joists (Item 2). For use with items 3K, 4F and 7G. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 24 in. O.C. Channel ends butted and centered under the joists and attached to the joists with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints, as described in Item 3K. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the joists with the 2in. screws supplied with the accessory and per the accessory manufacturer's installation instructions.

PAC INTERNATIONAL L L C — Types RC-1 Boost

3R. **Steel Framing Members**\* — (Optional) — As an alternate to Item 3G — Used as an alternate method to attach furring channels to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to the bottom chord of alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item 3. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two min 7/16 in. long No. 6 self-tapping framing screws, at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. When Fiber, Sprayed (Item 6) is used, furring channel spacing reduced to 16 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board shall be installed as described in Item 4.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75), RSIC-SI-X.

#### 3S. Steel Framing Members\* — (Optional, Not Shown) — As an alternate to Item 3G.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC, perpendicular to trusses. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels used at end joints of gypsum board (Item 4), each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to trusses, frictionfitted into the channel caddy on the Steel Framing Members (Item 3Md) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 3Md) location with 16d nails or minimum 2-1/2 in. screws.

d. **Steel Framing Members**<sup>\*</sup> — Spaced 48 in. OC. max along truss, and secured to the truss on alternating trusses with two, #10 x 2in. screws through mounting holes on the hanger bracket.

PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

## 3T. Steel Framing Members\* — (Optional, Not Shown) — As an alternate to Item 3G.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to trusses and friction fit into Steel Framing Members (Item 3Nc). Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or with two TEK screws along each leg of the 6 in. overlap. Two furring channels used at end joints of gypsum board (Item 4). Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels with 7/16 in. pan head screws, two along each of the legs at intersection back channels with 7/16 in. pan head screws, two along each of the legs at intersections.

b. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 3Nc) location with 16d nails or minimum 2-1/2 in. screws.

c. **Steel Framing Members**\* — Used to attach furring channels (Item 3Na) to trusses. Clips spaced 48 in. OC and secured along truss webs at each furring channel intersection with min. 3/4 in. long self-drilling #10 x 2in. screws through each of the provided hole locations. Furring channels are friction fitted into clips.

PAC INTERNATIONAL L L C — Type RSIC-S1-1 Ultra

3U. **Steel Framing Members\*** — (Optional, Not Shown) — For Use with Item 7G- Used as an alternate method to attach furring channels to trusses. Clips spaced 48 in. OC. and secured to the bottom chord to alternating trusses with one No. 8 x 2-1/2 in. screw and washer through the center hole. Furring channels are friction fitted into clips. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or screw attached with two pan head screws on each leg of overlap. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. Not evaluated for use with Item 6.

## **ISOTECH INDUSTRIES INC.** — Type ISOWALL

4. Gypsum Board\* — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to furring or resilient channels. Gypsum board secured with 1 in. long No. 6 Type S bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. End joints secured to both resilient channels as shown in the end joint detail. When Steel Framing Members (Item 3B and 3P) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimension perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long No. 6 Type S bugle head screws spaced 12 in. OC in the field of the board. Gypsum board butt joints shall be staggered 2 ft within the assembly, and shall occur between the main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. The two furring channels at each butt joint shall be spaced approximately 3-1/2 in. OC, and be attached to the bottom chord of the truss with one clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. When both Steel Framing Members (Item 3B) and Fiber, Sprayed (Items 6 or 6A) are used, furring channel spacing reduced to 16 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimension perpendicular to furring channels. Base layer secured to furring channels with nom 1 in. long No. 6 Type S bugle head screws spaced 12 in. OC in the field of the board. Gypsum board butt joints shall be staggered 2 ft within the assembly, and shall occur between the main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. The two furring channels at each butt joint shall be spaced approximately 3-1/2 in. OC, and be attached to the bottom chord of the truss with one RSIC-1 clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer secured to furring channels using 1-5/8 in. long No. 6 Type S screws spaced 8 in. OC and 1-1/2 in. from the end joint. Butted end joints to be offset a min. of 8 in. from base layer end joints. Butted side joints of outer layer to be offset min. 18 in. from butted side joints of base layer. When Steel Framing Members (Item 3C) are used, two layers of nom 5/8 in. thick, 4 ft wide are installed with long dimensions perpendicular to furring channels. Base layer attached to the furring channels using 1 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field of the board. Butted end joints shall be staggered min 2 ft. within the assembly, and occur midway between the continuous furring channels. Each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. The two furring channels shall be spaced approximately 4 in. OC, and be attached to underside of the truss with one Isomax clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer attached to the furring channels using 1-5/8 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field. The end of the outer layer boards at the butt joint shall be attached to the base layer boards with 1-5/8 in. long Type G screws spaced 8 in. OC and 1-1/2 in. from the end joint. Butted end joints to be offset a min of 8 in. from base layer end joints. Butted side joints of outer layer to be offset min 18 in. from butted side joints of base layer. When Steel Framing Members (Item 3D)

are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 16 in. within the assembly. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. These additional furring channels shall be attached to underside of the truss with Genie clips as described in Item 3D. Screw spacing along the gypsum board butt joint shall be 6 in. OC. When Steel Framing Members (Item 3E) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two support furring channels shall be spaced approximately 3 in. in from joint. Screw spacing along the gypsum board butt joint and along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between . Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel. When Fiber, Sprayed (Items 6 or 6A) is used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels. Base layer gypsum board secured with 1 in. long No. 6 Type S bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. End joints secured to both resilient channels as shown in the end joint detail. Outer layer gypsum board secured with 1-5/8 in. long No. 6 Type S bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. Outer layer shall be finished as described in Item 5. When Foamed Plastic insulation (Item 7E) is applied to the underside of the subflooring, screw spacing shall be reduced to 8 in. OC with minimum 1-1/4 in. long Type S screws to install gypsum to the resilient channels (Item 3A). Resilient channels (Item 3A) to be spaced maximum 12 in. OC. Butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. End joints secured to both resilient channels as shown in end joint detail.

When **Steel Framing Members** (Item 3E) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channels) to support the floating end of the gypsum board. Each of these shorter sections of furring channel shall extend one truss beyond the width of the gypsum panel and be attached to the adjacent trusses with one SonusClip at every truss involved with the butt joint.

When **Steel Framing Members**\* (Item 3I) are used, one layer of 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to cross channels with side joints centered along main runners. Gypsum board fastened to cross channels with 1 in. long No. 8 Type S bugle head steel screws located 1/2 in. from end joints and 1-3/4 in. from side joints and spaced 8 in. OC along the end joints and in the field. Panels fastened to cross tees with 1 in. long, Type S bugle-head screws spaced in the field and 8 in. OC along end joints. Panels fastened to main runners with 1 in. long. Type S bugle-head screws spaced midway between cross tees. Screws along sides and ends of panels spaced 3/8 to 1/2 in. from panel edge. Gypsum board sheets screw attached to leg of wall angle with 1 in. long No. 8 Type S bugle head steel screws spaced 12 in. OC. End joints of panels shall be staggered with spacing between joints on adjacent panels not less than 4 ft OC.

When **Steel Framing Members** (Item 3J) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to resilient channels. Gypsum board secured to resilient channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board and located 3/4 in. from side joints and 1-1/2 in. from end joints. Gypsum board joints are to be staggered by a minimum of 24 in.

When **Steel Framing Members** (Item 3M) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Adjacent butt joints staggered minimum 48 in. OC.

When **Steel Framing Members** (Item 3N) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Butt joints staggered minimum 24 in. OC.

When **Steel Framing Members** (Item 3U) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Butt joints staggered minimum 48 in. OC.

AMERICAN GYPSUM CO — Type AG-C

## **CERTAINTEED GYPSUM INC** — Type C

CGC INC — Types C, IP-X2, IPC-AR

**CERTAINTEED GYPSUM INC** — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C, FSW-G

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type C

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

4A. **Gypsum Board** — For use when Item 3C is used and **Batts and Blankets**\* are secured to the plywood subfloor, to the trusses or draped over the furring channel/gypsum panel ceiling membrane as described in Item 3C. For method of gypsum board installation, see Item 4.

CGC INC — Types C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

4B. **Gypsum Board\*** — For use when **Batts and Blankets\*** (Item 7A) and Resilient Channels (Item 3F) are used. Nom 5/8 in. thick, 4 ft wide gypsum board installed with long dimension perpendicular to resilient channels. Nom 1 in. long No. Type S bugle head screws are driven through channel spaced 8 in. OC. End joints of gypsum board similarly fastened to additional resilient channels positioned at end joint locations.

AMERICAN GYPSUM CO — Type AG-C.

**CERTAINTEED GYPSUM INC** — Type LGFC-C/A

#### PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type C

4C. **Gypsum Board\*** — For use with Items 3G and 7C or 3I and 7F, or 3I and 7C. Nom 5/8 in. thick, 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. Finish Rating with this ceiling system is 20 min.

CGC INC — Type ULIX

## **UNITED STATES GYPSUM CO** — Type ULIX

4D. **Gypsum Board\*** — For use when Flooring System (Item 1) consists of both System No. 1 and min 15/32 in. plywood, min grade "Underlayment" or "Sturd-I-Floor" with T & G edges and conforming with PS1-83 specifications, or min 3/4 in. thickness of any Floor Topping Mixture (CCOX) bearing the UL Classification Marking as to Fire Resistance, min Truss depth (Item 2) is 18 in. and Batts and Blankets (Item 7D) and Resilient Channels (Item 3A) are used. One layer of nom 5/8 in. thick, 48 in. wide gypsum board installed with

## BXUV.L528 | UL Product iQ

long dimension perpendicular to resilient channels. Gypsum board secured with 1 in. long Type S bugle head steel screws. Screws spaced 1 in. from side joints, and 12 in. OC in the rest of the field. Screws spaced 1-1/2 in. from the end joints. End joints secured to both resilient channels as shown in end joint detail. When batt insulation (Item 7D) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel (Item 3A) spacing shall be reduced to 12 in. OC., and gypsum board screws spaced 1 in. from side joints, and 8 in. OC in the rest of the field. For use only with Ceiling Damper described in Item 9R. **PANEL REY S A** — Type PRC2

4F. **Gypsum Board\*** — For use with Items 3K, 3L, and 7G— One layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to resilient channels. Gypsum board secured to resilient channels with min nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board and located 3/4 in. from side joints and 1-1/2 in. from end joints. Gypsum board butt joints are to be staggered by a minimum of 24 in. **PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type C

4G. **Gypsum Board\*** — For use with Items 3G and 7C. Nom 5/8 in. thick, 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. **AMERICAN GYPSUM CO** — Type AG-C.

5. **Finishing System** — (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

6. **Fiber, Sprayed\*** — (Dry Dense Packed 100% Borate Formulation) — (Not Shown, Optional) — The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft<sup>3</sup>, in accordance with the application instructions supplied with the product. When Item 6 (Fiber, Sprayed, Dry Dense Packed) is used, Furring Channels (Item 3F) or Resilient Channels (Item 3A) spacing shall be reduced to 12 in. OC. When Item 6 (Fiber, Sprayed, Dry Dense Packed) is used, two layers of gypsum board required as described in Item 4. Not evaluated for use with Item 3C.

APPLEGATE GREENFIBER ACQUISITION LLC — Insulmax and SANCTUARY to be used with dry application only.

6A. **Fiber, Sprayed\*** — (Loose Fill 100% Borate Formulation) — (Not Shown, Optional) — The finished rating when Fiber, Sprayed is used has not been determined. The fiber is applied without water or adhesive at a minimum dry density of 0.5 lb/ft<sup>3</sup> and at a max thickness of 3-1/2 in., in accordance with the application instructions supplied with the product. When Item 6A (Fiber, Sprayed, Loose Fill) is used, Furring Channels (Item 3F) or Resilient Channels (Item 3A) spacing shall be reduced to 12 in. OC. When Item 6A (Fiber Sprayed, Loose Fill) is used, two layers of gypsum board required as described in Item 4. Not evaluated for use with Item 3C. **APPLEGATE GREENFIBER ACQUISITION LLC** — Insulmax & SANCTUARY to be used with dry application only.

7. Batts and Blankets\* — (Not Shown) — For use with Item 3D — Nom 3 in. thick mineral wool insulation held suspended in the concealed space with 0.090 in. diam galv steel wires attached to the wood trusses at 18 in. OC.

7A. **Batts and Blankets\*** — For Use With Items 3F and 4B — Glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance having a min. density of 0.5 pcf, draped over the resilient channel/gypsum panel ceiling membrane. No limit on overall thickness.

7B. **Batts and Blankets\*** — (Not Shown) — For use with Item 3E — Nom 3-1/2 in. thick, min. 2 pcf fiber glass insulation held suspended in the concealed space with nominal 0.090 in. diam galv steel wires attached to the wood trusses at nominally 16 in. OC.

7C. **Batts and Blankets\* or Fiber, Sprayed\*** — For Use with Item 4C (Not Shown) — Min. 3-1/2 in thick with no limit on maximum thickness fitted in the concealed space, draped over the resilient channel (Item 3G)/gypsum board (Item 4C or 4G) ceiling membrane.

7D. **Batts and Blankets\*** — For Use With Item 4D — Insulation may be secured to plywood subfloor with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC. Insulation may alternatively be draped over the resilient channels and gypsum board ceiling membrane, and the resilient channels and gypsum board attachment shall be modified as specified in Item 4D. Any glass fiber insulation bearing the UL Classification Marking for Surface Burning Characteristics and/or Fire Resistance, and having a min density of 0.5 pcf and max thickness of 3-1/2 in. may be used.

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7E. **Foamed Plastic\*** — (As alternate to Item 6 and 6A, Not Shown) — Spray foam insulation applied directly to the underside of the plywood subflooring. Spray foam insulation installed to a maximum thickness of 10 in. at a nominal 0.5 lb/ft<sup>3</sup> or 2.0 lb/ft<sup>3</sup> density, depending on the product installed. Spray foam insulation is limited to use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 3A) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 4) spaced maximum 3 in. away from gypsum butt joints. Gypsum board (Item 4) to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Item 9) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Not evaluated for use with Items 3, 3B through 3F, 3G, 6, 6A, 7 through 7D. Not evaluated with Flooring System (Item 1) Configuration No. 1.

**BASF CORP** — Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, Walltite® HP+, Walltite® MAX, Walltite® v.5, Walltite® LWP, Walltite® Plus and Enertite® Max.

7F. **Batts and Blankets\*** — (Not Shown) For Use with Item 3I and 4C — Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. There is no limit in the overall thickness of insulation, and the insulation can be secured against the subflooring, held suspended in the concealed space or draped over the Steel Framing Members and gypsum panel membrane.

7G. **Batts and Blankets\*** — (Not Shown) For Use with Item 3L, 3K, 3U, and 4F — Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. There is no limit in the overall thickness of insulation, and the insulation can be secured against the subflooring, held suspended in the concealed space or draped over the Steel Framing Members and gypsum panel membrane.

7H. **Foamed Plastic\*** — (As alternate to Items 6 and 7) — Spray foam insulation applied directly to the underside of the plywood subflooring. Spray foam insulation installed to a maximum thickness of 11 in. at a nominal 1.0 lb/ft<sup>3</sup> - 2.5 lb/ft<sup>3</sup> density, while maintaining a minimum 7 in. clearance between the spray foam insulation and the gypsum board (Item 4). Spray foam insulation is limited for use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 3A) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board spaced maximum 3 in. away from gypsum butt joints. Gypsum board to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Item 9) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Only for use with item 3A not evaluated for use with alternates to item 3A.

**CARLISLE SPRAY FOAM INSULATION** — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, SealTite PRO HFO, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, Foamsulate HFO, and Foamsulate HFO 2.0.

71. **Batts and Blankets\*** — (Not Shown - Required as indicated with Flooring System No. 26) - Glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. Min. 3-1/2 in. thick, 0.92 pcf density, draped over the resilient or furring channels and gypsum panel membrane. Resilient or furring channels to be spaced 12 in. OC with extra channels installed at butt joints as indicated above.

8. Air Duct\* — (Optional) — Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

9. **Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max. nom area shall be 349 sq in. Max. overall length and width shall not exceed 18-11/16 in. by 18-11/16 in. with max. 16 in. by 16 in. register opening. Aggregate damper openings shall not exceed 175 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. An aluminum or steel grille (Item 10) shall be installed in accordance with installation instructions. **MIAMI TECH INC** — Model Series RxCRD, RxCRDS or RxCRPD

9A. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max damper assembly size nom 18 in. long by 18 in. wide and 4-1/4 in. high, or 8 in. diam. fabricated from galv steel. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.

RUSKIN COMPANY — Model CFD7T, CFD7T-END-BT, CFD7T-90-BT, CFD7T-ST-BT, CFD7T-SB, CFD7T-R6-DB, CFD-7T-IB6 or CFDR7T

9B. Deleted.

9C. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 12 in. diameter damper with insulated register box assembly. The maximum size of the register box assembly is nom. 20 in. long by 20 in. wide and 4 in. high fabricated from galv steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.

AIRE TECHNOLOGIES INC — Series 57

9D. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 20 in. long by 16 in. wide by 4 in. high rectangular damper with duct board plenum box assembly. The maximum outer dimensions of the plenum box assembly are 23-1/2 in. long by 19-1/2 in. wide and 17 in. high fabricated from 6pcf, 1-1/2 to 2 in. thick Knauf Air Duct Board M\*. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 160 sq in. per 100 sq ft ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions. AIRE TECHNOLOGIES INC — Series 58

9E. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 14 in. long by 14 in.wide by rectangular damper with 90° boot. The maximum size of damper/boot assembly is 14 in. long by 14 in. wide and 18 in. high fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 98 sq in. per 100 sq ft ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.

AIRE TECHNOLOGIES INC - Models 50 w/ Boot, 50EA w/ Boot, 51 w/Boot, 50 w/ Box, 50EA w/ Box or 51 w/Box

9F. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8). — For use with min 18 in. deep trusses Not for use with flooring system 1 or 17. Max plenum box size nom 19 in. long by 19 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.

LLOYD INDUSTRIES INC — Model CRD 50-BT, CRD 50-EA-BT, CRD 55-BT, CRD 55 EA-BT

UNITED ENERTECH CORP — Model C-S/R-WT-L, C-S/R-EA-L, C-S/R-BT, C-S/R-EA-BL

9G. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8). For use with min 18 in. deep trusses Not for use with flooring system 1 or 17. Max plenum box size nom 13 in. long by 13 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 50 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.

LLOYD INDUSTRIES INC — Model CRD 50-BT-6, CRD 50-EA-BT-6, CRD 55-BT-6, CRD 55 EA-BT-6

9H. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 103 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 10-1/8 in. Aggregate damper openings shall not exceed 52 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 10) shall be installed in accordance with installation instructions. PANASONIC CORPORATION OF NORTH AMERICA — Model PC-RD05C5

91. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 113 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 11-1/8 in. Aggregate damper openings shall not exceed 57 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 10) shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Model RDFUWT

9J. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 79 sq in. with the length not to exceed 10 in. and the width not to exceed 7-15/16 in. Aggregate damper openings shall not exceed 40 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A metallic grille (Item 10) shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Models RDJ1 and RDH

9K. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8). For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max plenum box size nom 19 in. long by 19 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.

METAL-FAB INC — Models MSCD-HC and MRCD-HC

9L. Alternate Ceiling Damper\* — (Optional, To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 10) shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Model RDMWT

9M. **Alternate Ceiling Damper\*** — Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 10) shall be installed in accordance with installation instructions.

BROAN-NUTONE L L C — Model RDMWT2

9N. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8) — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom 21 in. long by 18 in. wide, fabricated from galvanized steel. Plenum box max size nom 21 in. long by 18 in. wide by 18 in. wide by 14 in. high (inner dimension) fabricated from either galvanized steel or min 1 in. thick Listed Duct Board bearing the UL Listing Marking having a min R-Value of 4.3. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area. **GREENHECK FAN CORP** — Model CRD-1WT

9O. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8) — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom 12 in. long by 12 in. wide with an 8 in. diameter damper, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 72 sq in. per 100 sq ft of ceiling area.

**GREENHECK FAN CORP** — Model CRD-2WT

9P. **Alternate Ceiling Damper\*** — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 324 sq in. with the length not to exceed 24 in. and the width not to exceed 20 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 10) shall be installed in accordance with installation instructions. **C&S AIR PRODUCTS** — Model RD-521

## POTTORFF — Model CFD-521

9Q. **Alternate Ceiling Damper\*** — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 196 sq in. with the length not to exceed 26 in. and the width not to exceed 14 in. Max height of damper shall be 7 in. Aggregate damper openings shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 10) not to exceed 144 in.<sup>2</sup> shall be installed in accordance with installation instructions.

C&S AIR PRODUCTS — Model RD-521-BT

## POTTORFF — Model CFD-521-BT

9R. Alternate Ceiling Damper\* — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 256 sq in. with the length not to exceed 24 in. and the width not to exceed 20 in. Max height of damper shall be 17 in. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 10) shall be installed in accordance with installation instructions. C&S AIR PRODUCTS — Models RD-521-IP, RD-521-NP
#### **POTTORFF** — Models CFD-521-IP, CFD-521-NP

9S. **Alternate Ceiling Damper\*** — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 144 sq in. with the length not to exceed 14 in. and the width not to exceed 12 in. Max height of damper shall be 17-7/8 in. Aggregate damper openings shall not exceed 74 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 10) shall be installed in accordance with installation instructions.

C&S AIR PRODUCTS — Models RD-521-90, RD-521-NP90

#### POTTORFF — Models CFD-521-90, CFD-521-90NP

9T. **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8.) — For use with min 18 in. deep trusses. For use with Item 4D only. Not for use with flooring system 1. Maximum 20 in. long by 18 in. wide by 2-1/8 in. high, fabricated from galvanized steel. Plenum box maximum size nom. 21 in. long by 18 in. wide by 16 in. high fabricated from either galvanized steel or Classified Air Duct Materials bearing the UL Class 0 or Class 1 rigid air duct material. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area. NAILOR INDUSTRIES INC — Types 0755, 0755A, 0756D, 0757D, 0757D, 0757DFP, 0757DFP, 0763

SAFE AIR DOWCO — 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463

9U. Alternate Ceiling Damper\* — (Optional, to be used with Air Duct Item 8) For use with min 18 in. deep trusses. Max nom 11-1/8 in. long by 13-5/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 76 sq in. per 100 sq ft of ceiling area. GREENHECK FAN CORP — Model CRD-310WT

9V. Alternate Ceiling Damper\* — (Optional, to be used with Air Duct Item 8) For use with min 18 in. deep trusses. Max nom 12-3/8 in. long by 14-1/2 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 90 sq in. per 100 sq ft of ceiling area. GREENHECK FAN CORP — Model CRD-320WT

9W. **Alternate Ceiling Damper\*** — (Optional, to be used with Air Duct Item 8) For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 12 in. diameter damper within max 15 in. by 15 in. register box with max 12 in. by 12 in. register opening fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 72 sq. in. per 100 sq. ft. of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions. **RUSKIN COMPANY** — Model CFD7T-SR

9X **Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 12 in. diameter damper and insulated register box assembly. The maximum size of the register box assembly is nom. 20 in. long by 20 in. wide and 4 in. high fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.

SOUTHWARK METAL MFG CO — Model 800 w/Box

9Y **Alternate Ceiling Damper\*** — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 20 in. long by 16 in. wide by 4 in. high rectangular damper with plenum box assembly. The maximum outer dimensions of the plenum box assembly are 23-1/2 in. long by 19-1/2 in. wide and 17 in. high fabricated from 6pcf, 1-1/2 to 2 in. thick Knauf Air Duct Board M\*. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 160 sq in. per 100 sq ft ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions. **SOUTHWARK METAL MFG CO** — CRD w/DB Box

9Z Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 14 in. long by 14 in. wide and 18 in. high ceiling damper with boot or box assembly, fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.

SOUTHWARK METAL MFG CO — Model 500 w/Boot, 510 w/Boot, 500 w/Box or 510 w/Box

9AA. Alternate Ceiling Damper\* — (Optional, to be used with Air Duct Item 8) For use with min 18 in. deep trusses. Max nom 10-3/8 in. long by 10-3/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 54 sq in. per 100 sq ft of ceiling area.

#### **GREENHECK FAN CORP** — Model CRD-300WT

9AB. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 7-11/32 in. long by 7-11/16 in. wide fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 28.5 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

#### AIRE TECHNOLOGIES INC — Models ITG-CRD2.

9AC. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 9-11/16 in long by 9-1/16 in. wide fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 44.5 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

#### AIRE TECHNOLOGIES INC — Models SIG-CRD2

9AD. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 10-13/32 in. long by 10-22/32 in. wide fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 56 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

#### AIRE TECHNOLOGIES INC — Models SMT-CRD2

9AE. Alternate Ceiling Damper\* — (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 8-13/16 in. wide and 8-1/2 in. long fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 37.5 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

#### AIRE TECHNOLOGIES INC — Models GBR-CRD2

10. Grille — Aluminum or Steel grille, installed in accordance with the installation instructions provided with the ceiling damper.

11. **Discrete Products Installed in Air-handling Spaces\*** — Automatic Balancing Valve/Damper — (Not Shown - Optional) — For use with item 9A, Ruskin Company's Model CFD7T damper (CABS). Ceiling damper to be provided with plenum box per damper manufacturer's instructions with side outlet only. Entire assembly to be installed into any UL Class 0 or Class 1 flexible air duct in accordance with the instructions provided by the automatic balancing valve/damper manufacturer. NAILOR INDUSTRIES INC — Model ABV-4, ABV-5, ABV-6

## \* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2024-09-02

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## BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

## BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for

## Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

### Design No. P522

June 14, 2024

Unrestrained Assembly Rating — 1 Hr Finish Rating — 25 Min (See Items 3 or 3A )

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide <u>BXUV</u> or <u>BXUV7</u>

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



1. **Roofing System\*** — Any UL Class A, B or C Roofing System (TGFU) or Prepared Roof Covering (TFWZ) acceptable for use over nom 15/32 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Nom 15/32 in. thick wood structural panels secured to trusses with No. 6d ringed shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Construction adhesive may be used with either the nails or staples.

2. **Trusses** — Pitched or parallel chord wood trusses, spaced a max of 24 in. OC, fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Truss members secured together with min. 0.0356 in. thick galv steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tooth has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approximately 7/8 in. centers with four rows of teeth per inch of plate width. Minimum parallel chord truss depth shall be 18 in. Where pitched truss intersects with the interior face of the exterior walls, the min truss depth shall be 5-1/4 in. with a min roof slope of 3/12 and a min. average depth of 18 in.. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 5-1/4 in. With a min roof slope of 3/12 and a min. average depth of 18 in. Where the truss intersects with the interior face of the exterior walls, the min truss depth may be reduced to 3 in. if the batts and blankets (Item 3) are used as shown in the above illustration (Alternate Insulation Placement) and are firmly packed against the intersection of the bottom chords and the plywood sheathing.

3. **Batts and Blankets\*** — (Optional) — Required when Item 6B is used — Glass fiber insulation, secured to the wood structural panels with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC. Any glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance, having a min density of 0.5 pcf. As an option, the insulation may be fitted in the concealed space, draped over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. When **Steel Framing Members** (Item 6B) are used, max 3-1/2 in. thick insulation shall be draped over the furring channels (Item 6Ba) and gypsum board ceiling membrane, and friction-fitted between trusses and Steel Framing Members (Item 6Bd). The finished rating has only been determined when the insulation is secured to the decking.

3A. **Fiber, Sprayed\*** — As an alternate to Item 3 (not evaluated for use with Item 6B) — Any thickness of spray-applied cellulose insulation material, having a min density of 0.5 lb/ft<sup>3</sup>, applied with water, over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Fiber, Sprayed is applied with moisture in accordance with the application instructions supplied with the product. The finish rating when Fiber Sprayed is used has not been determined. Alternate application method: The fiber is applied without water or adhesive in accordance with the application instructions supplied without water or adhesive in accordance when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Alternate application method: The fiber is applied without water or adhesive in accordance when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Alternate application method: The fiber is applied without water or adhesive in accordance when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Alternate application method: The fiber is applied without water or adhesive to a nominal density of 3.5 lb/ft<sup>3</sup> behind netting (Item 9) stapled to the rafters. The netting is stapled at both lower edges of the rafters creating a cavity to accept the cellulose fiber.

APPLEGATE GREENFIBER ACQUISITION LLC — SANCTUARY for use with wet or dry application. Insulmax are to be used for dry application only.

3B. **Foamed Plastic\*** — (As an alternate to Item 3 or 3A, Not Shown) — Spray foam insulation applied directly to the underside of the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 10 in. at a nominal 0.5 lb/ft<sup>3</sup> density, while maintaining a minimum 8-1/2 in. clearance between the spray foam insulation and the gypsum board (Item 7). When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board (Item 7) to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a fire damper (Items 5 through 5K) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Not evaluated for use with Items 6A through 6F.

Holcim Solutions and Products US, LLC — Sucraseal

3C. **Cavity Insulation - Batts and Blankets\* or Fiber, Sprayed\*** — (As described above) in Items 3 and 3A — (For Use with Item 7B, Not Shown) — Min. 3-1/2 in thick with no limit on maximum thickness fitted in the concealed space, draped over the resilient channel (Item 6G)/gypsum board (Item 7B) ceiling membrane.

3D. **Foamed Plastic\*** — (As alternate to Item 3, 3A, or 3B, Not Shown) — Spray foam insulation applied directly to the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 10 in. at a nominal 0.5 lb/ft<sup>3</sup> or 2.0 lb/ft<sup>3</sup> density, depending on the product installed. When spray foam insulation is installed, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) spaced maximum 3 in. away from gypsum butt joints. Gypsum board (Item 7) to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a fire

damper (Items 5 through 5H) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Not evaluated for use with Items 6A through 6F.

**BASF CORP** — Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, Walltite® HP+, Walltite® MAX, Walltite® v.5, Walltite® LWP, Walltite® Plus and Enertite® Max

3E. **Foamed Plastic\*** — (As an alternate to Item 3, 3A, 3B, 3C, or 3D, Not Shown) — Spray foam insulation applied directly to the underside of the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 17 in. at a nominal 0.5 lb/ft<sup>3</sup> density, while maintaining a minimum 1-1/2 in. clearance between the spray foam insulation and the gypsum board (Item 7). When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board (Item 7) to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a fire damper (Items 5 through 5K) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Not evaluated for use with Items 6A through 6F.

Holcim Solutions and Products US, LLC — EasySeal.5, EasySeal ULD

3F. **Foamed Plastic\*** — (As alternate to Item 3) — Spray foam insulation applied directly to the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 11 in. at a nominal 0.5 lb/ft<sup>3</sup> - 2.5 lb/ft<sup>3</sup> density, while maintaining a minimum 7 in. clearance between the spray foam insulation and the gypsum board (Item 7). When spray foam insulation is installed, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board spaced maximum 3 in. away from gypsum butt joints. Gypsum board to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a fire damper (Items 5 through 5K) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Only for use with item 6 not evaluated for use with alternates to item 6.

**CARLISLE SPRAY FOAM INSULATION** — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, SealTite PRO HFO, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, Foamsulate HFO, and Foamsulate HFO 2.0.

3G. **Foamed Plastic\*** — (As an alternate to Item 3, 3A, 3B, 3C, or 3D, Not Shown) — Spray foam insulation applied directly to the underside of the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 17 in. at a nominal 0.5 lb/ft<sup>3</sup> density, while maintaining a minimum 1-1/2 in. clearance between the spray foam insulation and the gypsum board (Item 7). When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board (Item 7) to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a fire damper (Items 5 through 5K) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Not evaluated for use with Items 6A through 6F.

EVEREST SYSTEMS LLC — Opticell 0.5

4. Air Duct\* — For use with Ceiling Dampers\* - Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

5. **Ceiling Damper\*** — Max nom area, 324 sq in. Max square size, 18 in. by 18 in. rectangular sizes not to exceed 324 sq in. with a max width of 18 in. Max damper height is 14 in. Installed in accordance with manufacturers installation instructions provided with the damper. Max damper openings not to exceed 162 sq in. per 100 sq ft of ceiling area. **C&S AIR PRODUCTS** — Model RD-521

POTTORFF — Model CFD-521

5A. Alternate Ceiling Damper\* — Max nom area, 196 sq in. Max square size, 14 in. by 14 in. Rectangular sizes not to exceed 196 sq in. with a max width of 26 in. Max overall damper height is 7 in. Installed in accordance with the manufacturers installation instructions provided with the damper. Max damper openings not to exceed 98 sq in. per 100 sq ft of ceiling area. C&S AIR PRODUCTS — Model RD-521-BT

POTTORFF — Model CFD-521-BT.

5B. Alternate Ceiling Damper\* — Max nom area shall be 256 sq in. with the length not to exceed 24 in. and the width not to exceed 20 in. Max height of damper shall be 17 in. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille shall be installed in accordance with installation instructions. C&S AIR PRODUCTS — Model RD-521-IP, RD-521-NP

POTTORFF — Models CFD-521-IP, CFD-521-NP

5C. **Alternate Ceiling Damper\*** — Ceiling damper & fan assembly. Max nom area shall be 75 sq in. with the length not to exceed 8-9/16 in. and the width not to exceed 8-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 38 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturers installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.

DELTA ELECTRONICS INC — Models CRD2, GBR-CRD, ITG-CRD

5D. **Alternate Ceiling Damper\*** — Ceiling damper & fan. Max nom area shall be 75 sq in. with the length not to exceed 9-1/4 in. and the width not to exceed 9-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 45 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.

DELTA ELECTRONICS INC — Model SIG-CRD

5E. Alternate Ceiling Damper\* — Max nom area shall be 144 sq in. with the length not to exceed 14 in. and the width not to exceed 12 in. Max height of damper shall be 17-7/8 in. Aggregate damper openings shall not exceed 74 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille shall be installed in accordance with installation instructions.

C&S AIR PRODUCTS — Model RD-521-90, RD-521-NP90

POTTORFF — Models CFD-521-90, CFD-521-90NP

5F. **Alternate Ceiling Damper\*** — Ceiling damper & fan assembly. Max nom area shall be 131 sq in. with the length not to exceed 11-1/16 in. and the width not to exceed 11-7/8 in. Aggregate damper openings shall not exceed 66 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions. **DELTA ELECTRONICS INC** — Model SMT-CRD

5G. **Alternate Ceiling Damper\*** — Ceiling damper & fan assembly. Max nom area shall be 103 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 10-1/8 in. Aggregate damper openings shall not exceed 52 sq in. per 100 sq ft of ceiling area.

Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions. **PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA** — Model PC-RD05C5

5H. Alternate Ceiling Damper\* — Ceiling damper & fan assembly. Max nom area shall be 113 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 11-1/8 in. Aggregate damper openings shall not exceed 57 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Model RDFUWT

51. Alternate Ceiling Damper\* — Ceiling damper & fan. Max nom area shall be 79 sq in. with the length not to exceed 10 in. and the width not to exceed 7-15/16 in. Aggregate damper openings shall not exceed 40 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A metallic grille shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Models RDJ1 and RDH

5J. Alternate Ceiling Damper\* — Ceiling damper & fan assembly. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Model RDMWT

5K. Alternate Ceiling Damper\* — Ceiling damper & fan assembly. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions. BROAN-NUTONE L L C — Model RDMWT2

6. **Furring Channels** — Resilient channels formed of 25 MSG thick galv steel. Installed perpendicular to the trusses (Item 2), spaced a max of 16 in. OC when no insulation (Item 3 or 3A) is fitted in the concealed spaced, or a max of 12 in. OC when insulation (Item 3 or 3A) is fitted in the concealed space, draped over the resilient channel/gypsum board ceiling membrane, or when insulation (Item 3B, 3D or 3E) is applied to the underside of the roofing system (Item 1). Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channels oriented opposite at wallboard butt-joints. Channel splices overlapped 4 in. beneath wood trusses. Channels secured to each truss with 1-1/4 in. long Type S screws.

6A. **Steel Framing Members\*** — (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to trusses when no insulation (Items 3 or 3A) is fitted in the concealed space or 12 in. OC when insulation (Items 3 or 3A) is fitted in the concealed space or 24 in. OC when insulation (Items 3 or 3A) is fitted in the concealed space, draped over the furring channel/gypsum board ceiling membrane or 24 in. OC when insulation (Items 3 or 3A) is fitted in the concealed space, draped over the furring channel/gypsum board ceiling membrane and a second layer of gypsum board is attached as described in Item 7 for steel framing members. Channels secured to trusses as described in Item 6Ab. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members** — Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating trusses with No. 8 by 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to alternating trusses with No. 8 by 1-1/2 in. coarse drywall screw through the center hole. Furring channels are

friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item 6Aa. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

#### 6B. Steel Framing Members\* — (Not Shown) — As an alternate to Items 6 and 6A.

a. **Furring Channels** — Hat-shaped furring channels, 7/8 in. deep by 2-5/8 in. wide at the base and 1-1/4 in. wide at the face, formed from No. 25 ga. galv steel, spaced max 16 in. OC perpendicular to trusses and Cold Rolled Channels (Item 6Bb). Furring channels secured to Cold Rolled Channels at every intersection with a 1/2 in. pan head self-drilling screw through each furring channel leg. Ends of adjoining channels overlapped 4 in. and tied together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap. Supplemental furring channels at base layer and outer layer gypsum board butt joints are not required. Batts and Blankets draped over furring channels as described in Item 3. Two layers of gypsum board attached to furring channels as described in Item 7.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to trusses, frictionfitted into the channel caddy on the Steel Framing Members (Item 6Bd). Adjoining lengths of cold rolled channels lapped min. 6 in. and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 6 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the truss (Item 2) at the top and bottom of the blocking at each Steel Framing Member (Item 6Bd) location.

d. **Steel Framing Members\*** — Hangers spaced 48 in. OC. max along truss, and secured to the Blocking (Item 6Bc) on alternating trusses with a single 5/16 in. by 2 in. hex head lag bolt or four #6 1-1/4 in. drywall screws through mounting hole(s) on the hanger bracket. The two 1/4 in. long steel teeth on the hanger are embedded in the side of the blocking. Hanger positioned on blocking and leveling bolt height adjusted such that furring channels are flush with bottom of trusses before gypsum board installation. Spring gauge of hanger chosen per manufacturer's instructions.

KINETICS NOISE CONTROL INC — Type ICW.

#### 6C. Steel Framing Members\* — (Not Shown) — As an alternate to Items 6, 6A and 6B.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep installed perpendicular to wood structural members. Channels spaced a max of 16 in. OC when no insulation (Item 3 or 3A) is fitted in the concealed space or a max of 12 in. OC when insulation (Item 3 or 3A) is fitted in the concealed space. Channels secured to trusses as described in Item 6Cb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire near each end of overlap.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 6Ca) to trusses (Item 2). Clips secured to the bottom chord of each truss (48 in. OC) with one No. 8 by 2-1/2 in. long coarse drywall screw through center grommet. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item 6Ca. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.

PLITEQ INC — Type Genie Clip

6D. Steel Framing Members\* — (Not Shown) — As an alternate to Items 6, 6A, 6B and 6C.

a. **Main runners** — Installed perpendicular to trusses — Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft OC. Main runners hung a min of 2 in. from bottom chord of trusses with 12 SWG galv steel wire. Wires located a max of 48 in. OC.

b. **Cross tees or channels** — Nom 4 ft long, 15/16 in. or 1-1/2 in. wide face or cross channels, nom 4 ft long, 1-1/2 wide face, installed perpendicular to the main runners, spaced 16 in. OC. Additional cross tees or channels used at 8 in. from each side of butted gypsum

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board end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall angles or channels** — Used to support steel framing member ends and for screw-attachment of the gypsum wallboard — Min 0.016 in. thick painted or galvanized steel angle with 1 in. legs or min. 0.016 in. thick painted or galvanized steel channel with a 1 by 1-1/2 by 1 in. profile, attached to walls at perimeter of ceiling with fasteners 16 in. OC. **CGC INC** — Type DGL or RX

**USG INTERIORS LLC** — Type DGL or RX

6E. **Alternate Steel Framing Members\*** — (Not Shown) — As an alternate to items 6, 6A, 6B, and 6C, furring channels and Steel Framing Members as described below.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to trusses. When insulation, Items 3 or 3A is used, the furring channel spacing shall be reduced to 12 in. OC. Channels secured to joists as described in Item b.

b. **Steel Framing Members\*** — Used to attach furring channels (Item a) to the wood trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 7. **STUDCO BUILDING SYSTEMS** — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6F. **Steel Framing Members\*** — (Not Shown) — As an alternate to Items 6 through 6E- Not for use with Items 3 or 3A. Main runners nom 12 ft long, spaced 72 in. OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 48 in. OC. Cross tees, nom 6 ft long, installed perpendicular to main runners and spaced 24 in. OC. Additional 6 ft long cross tees required at each gypsum board end joint with butted gypsum board end joints centered between cross tees spaced 8 in. OC. The main runners and cross tees may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation. **USG INTERIORS LLC** — Type DGL or RX

6G. **Resilient Channels** — For Use With Item 7B - Formed from min 25 MSG galv steel installed perpendicular to trusses and spaced 16 in. OC. Channels secured to each truss with 1-5/8 in. long Type S bugle head steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum panel end joint. Additional channels shall extend min 6 in. beyond each side edge of panel. Insulation, Item 3C is applied over the resilient channel/gypsum panel ceiling membrane.

6H. Alternate Steel Framing Members\* — (Not Shown) — As an alternate to items 6 through 6G, furring channels and Steel Framing Members as described below.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to trusses. When insulation, Items 3 or 3A is used, the furring channel spacing shall be reduced to 12 in. OC. Channels secured to joists as described in Item b.

b. **Steel Framing Members\*** — Used to attach furring channels (Item a) to the wood trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 7. **REGUPOL AMERICA** — Type SonusClip

7. **Gypsum Board\*** — One layer of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type S bugle-head screws. Screws spaced a max of 12 in. OC along butted end-joints and in the field when no insulation (Item 3 or 3A) is fitted in the concealed spaced, or a max of 8 in. OC along butted end-joints and in the

field when insulation (Item 3 or 3A) is fitted in the concealed space, draped over the resilient channel/gypsum board ceiling membrane. When insulation (Item 3B, 3D or 3E) is installed in the concealed space, spray-applied to the underside of the roofing system (Item 1), screws are spaced a max of 8 in. OC along resilient channels, fasteners are increased in length to 1-1/4 in, and gypsum board butt joints shall be staggered min. 2 ft within the assembly, and occur between the main furring channels.

When **Steel Framing Members\*** (Item 6A or 6C) are used, sheets installed with long dimension perpendicular to furring channels and side joints of sheet located beneath trusses. Gypsum board screws are driven through channel spaced 12 in. OC in the field when no insulation (Item 3 or 3A) is fitted in the concealed space, or 8 in. OC in the field when insulation (Item 3 or 3A) is fitted in the concealed space, draped over the furring channel/gypsum board ceiling membrane. Gypsum board butt joints shall be staggered min. 2 ft within the assembly, and occur between the main furring channels. At the gypsum board butt joints, each end of the gypsum board shall be supported by a single length of furring channel equal to the width of the wallboard plus 6 in. on each end. The furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to the trusses with one clip at each end of the channel. Screw spacing along the butt joint to attach the gypsum board to the furring channels shall be 8 in. OC. Second (outer) layer of gypsum board required when furring channels (Item 6A, a) are spaced 24 in. OC and insulation is fitted in the concealed space, draped over the furring channel source ceiling membrane. Outer layer of gypsum board attached to the furring channels using 1-5/8 in. long Type S bugle-head screws spaced 8 in. OC at butted joints and 12 in. OC in the field. Butted end joints of outer layer to be offset a minimum of 8 in. from base layer end joints. Butted side joints of outer layer to be offset minimum 18 in. from butted side joints of base layer.

When **Steel Framing Members** (Item 6B) are used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels (Item 6Ba). Base layer attached to the furring channels using 1 in. long Type S bugle head steel screws spaced 8 in. OC along butted end joints and 12 in. OC in the field of the board. Butted end joints centered on the continuous furring channels. Butted base layer end joints to be offset a min of 16 in. in adjacent courses. Outer layer attached to the furring channels using 1-5/8 in. long Type S bugle head steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints centered on the continuous furring channels and steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints centered on the continuous furring channels and offset a min of 16 in. from butted end joints of base layer. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer.

When **Steel Framing Members** (Item 6C) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 72 in. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end, spaced approximately 2 in. in from joint. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Butt joint furring channels shall be attached with a RESILMOUNT Sound Isolation Clip secured to underside of every truss that is located over the butt joint. Over all Gypsum Board side joints, approximately 20 in. lengths of furring channel shall be installed parallel to trusses (Item 2) between main furring channels. Side joint furring channels shall be attached to underside of the joist with RESILMOUNT Sound Isolation Clips - located approximately 2 in. from each end of the approximate 20 in. length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge.

When **Steel Framing Members** (Item 6E) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two support furring channels shall be spaced approximately 3 in. in from end joint. Screw spacing along the gypsum board butt joint and along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between. Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel.

When alternate **Steel Framing Members\*** (Item 6F) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board sheets installed with long dimension (side joints) perpendicular to the 6 ft long cross tees with the end joints staggered min 4 ft and centered between cross tees which are spaced 8 in. OC. Gypsum board side joints may occur beneath or between main runners. Prior to installation of the gypsum board sheets, backer strips consisting of nom 7-3/4 in. wide pieces of gypsum board are to be laid atop the cross tee flanges and centered over each butted end joint location. The backer strips are to be secured to the flanges of the cross tees at opposite corners of the backer strip with hold down clips to prevent the backer strips from being uplifted during screw-attachment of the gypsum board sheets. Gypsum board fastened to cross tees with 1 in. drywall screws spaced 1 in. and 4 in. from the side joints and max 8 in. OC in the field of the board. The butted end joint and spaced 1 in. and 4 in. from the side joints are screws located 1 in. from each side of the butted end joint and spaced 1 in. and 4 in. from the side joints are screws located 1 in. from each side of the butted end joint and spaced 1 in. and 4 in. from the side joints are screws located 1 in. from each side of the butted end joint and spaced 1 in. and 4 in. from the

When **Steel Framing Members** (Item 6H) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channels) to support the floating end of the gypsum board. Each of these shorter sections of furring channel shall extend one truss beyond the width of the gypsum panel and be attached to the adjacent trusses with one SonusClip at every truss involved with the butt joint.

CGC INC — Types C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

7A. **Gypsum Board\*** — For use with Steel Framing Members (Item 6D) when Batts and Blankets\* (Item 3) are not used - One layer of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to the main runners. Gypsum board fastened to each cross tee or channel with five wallboard screws, with one screw located at the midspan of the cross tee or channel, one screw located 12 in. from and on each side of the cross tee or channel mid span and one screw located 1-1/2 in. from each gypsum board side joint. Except at wallboard end joints, wallboard screws shall be located on alternating sides of cross tee flange. At gypsum board end joints, gypsum board screws shall be located 1/2 in. from the joint. Gypsum board fastened to main runners with wallboard screws 1/2 in. from side joints, midway between intersections with cross tees or channels (16 in. OC). End joints of adjacent gypsum board sheets shall be staggered not less than 32 in. Gypsum board sheets screw attached to leg of wall angle with wallboard screws spaced 12 in. OC. Joints treated as described in Item 7. For use with **Steel Framing Members\*** (Item 6D) when **Batts and Blankets\*** (Item 3) are used - Ratings limited to 1 Hour - 5/8 in. thick, 4 ft wide; installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints. Fastened to main runners with 1 in. long gypsum board screws spaced 8 in. OC in the field and 8 in. OC along end joints. Fastened to main runners with 1 in. long gypsum board screws spaced midway between cross tees. Screws along sides and ends of boards spaced 3/8 to 1/2 in. from board edge. End joints of the sheets shall be staggered with spacing between joints on adjacent boards not less than 4 ft OC. **CGC INC** — Type C or IP-X2

UNITED STATES GYPSUM CO — Type C or IP-X2

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Type C or IP-X2

7B. **Gypsum Board\*** — For use with Items 3C and 6G. Nom 5/8 in. thick, 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. Finish Rating with this ceiling system is 20 min. **CGC INC** — Type ULIX

**UNITED STATES GYPSUM CO** — Type ULIX

8. **Finishing System** — (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board. **Alternate Ceiling Membrane** — Not Shown.

9. Netting — Fibrous, woven netting material fastened to underside of each joist with staples, with side joints overlapped.

## \* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2024-06-14

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BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. U303

February 8, 2024

#### Bearing Wall Rating — 1 Hr

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide <u>BXUV</u> or <u>BXUV7</u>

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



1. Wood Studs — Nom 2 by 4 in. spaced 16 in. OC, effectively cross-braced.

2. **Gypsum Board\*** — 5/8 in. thick, with square or tapered edges, applied vertically or horizontally with vertical joints centered over studs. Horizontal joints need not be backed by framing. Fastened to studs and plates with 1-7/8 in. long 6d cement coated nails spaced 7 in. OC or with 1-7/8 in. long Type S screws spaced 8 in. OC, or 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last srcrew 1 in. from edge of board. 54 in. widths applied horizontally. **CGC INC** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, ULIX, ULX,WRC, WRX.

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, SCX, IP-X1, IP-X2, IPC-AR, ULIX, ULX, WRC or WRX.

USG BORAL DRYWALL SFZ LLC — Types C, SCX

USG MEXICO S A DE C V — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, ULX, WRC or WRX.

3. **Joints** — When tapered edge gypsum board is used, joints covered with joint compound and paper tape. As an alternate, gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with joints reinforced with paper tape. When square-edge gypsum board is used, treatment of joints is optional.

4. **Batts and Blankets\*** — Min 3 in. thick mineral wool batts, friction fit between studs. **THERMAFIBER/OWENS CORNING** — Type SAFB, SAFB FF

ROCKWOOL — Type SAFEnSOUND, min. 1.8 pcf.

5. **Sheathing** — Min 15/32 in. thick, 4 ft wide, wood structural panels, min grade "sheathing" applied vertically, with vertical joints centered over studs. Attached to studs with 10d galv nails 6 in. OC at the perimeter and 12 in. OC in the field. Sheathing fully covered with a weather resistive barrier.

6. **Cementitious Backer Units\*** — 1/2 or 5/8 in. thick, installed vertically or horizontally over the sheathing with vertical joints centered over studs. All joints offset min 12 in. from underlying sheathing joints. Fastened to studs and plates with corrosion resistant 2-1/4 in. long chamfered, ribbed wafer head screws with a minimum head diameter of .400 inches or 2-1/4 in. hot-dipped galvanized roofing nails spaced 8 in. OC.

**UNITED STATES GYPSUM CO** — Type DCB.

USG MEXICO S A DE C V — Type DCB.

7. Joints — Cement board joints need not be treated.

8. Vapor Retarder , Water Barrier or Weather Resistive Barrier — (Optional, not shown) — As required

## \* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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## BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. U341

January 31, 2024

Bearing Wall Rating — 1 Hr. Finish Rating — Min 20 min.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide <u>BXUV</u> or <u>BXUV7</u>

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



#### HORIZONTAL SECTION

1. **Wood Studs** — Nom 2 by 4 in., spaced 24 in. OC max. Cross braced at mid-height and effectively firestopped at top and bottom of wall. No min. air space between stud rows except to accommodate attachment of sheathing, where required. See items 4 and 5.

2. Gypsum Board\* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.

Nom 5/8 in. thick 4 ft wide. Gypsum board applied horizontally or vertically, unless specified below, and nailed to studs and bearing plates 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam head. As an alternate, No. 6 bugle head drywall screws, 1-7/8 in. long, may be substituted for the 6d cement coated nails.

When **Steel Framing Members\*** (Item 6 or any alternate clips) are used, wallboard attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When used in widths other than 48 in., gypsum board to be installed horizontally.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

**CERTAINTEED GYPSUM INC** (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

#### PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

**THAI GYPSUM PRODUCTS PCL** (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board\*** — (As an alternate to Item 2, not shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically to studs and bearing plates on one side of the assembly with 1-5/8 in. long Type S screws spaced 12 in. OC at perimeter of panels and 8 in. OC in the field. Horizontal joints of vertically applied panels need not be backed by studs. Panel joints covered with paper tape and two layers of joint compound. Screwheads covered with two layers of joint compound. Batts and Blankets placed in stud cavity as described in Item 5C. Not evaluated for use with Steel Framing Members, Furring Channels or Fiber, Sprayed. **PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type QuietRock QR-530 (finish rating 23 min).

2B. **Gypsum Board\*** — (As an alternate to Item 2, not shown) — Any 5/8 in. thick gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified companies listed below shown in the **Gypsum Board\*** (CKNX) category. Applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally.

#### UNITED STATES GYPSUM CO

#### USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2C. **Gypsum Board\*** — (As an alternate to Item 2, Not Shown) — 5/8 in. thick gypsum panels applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally. **AMERICAN GYPSUM CO** — Types AGX-1, M-Glass, AG-C, LightRoc

CERTAINTEED GYPSUM INC — Type C or Type X-1

**NATIONAL GYPSUM CO** — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

#### THAI GYPSUM PRODUCTS PCL — Type C or Type X

2D. **Gypsum Board\*** — (As an alternate to Items 2, 2A, 2B and 2C) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed as described in Item 2. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.

**GEORGIA-PACIFIC GYPSUM L L C** — GreenGlass Type X, Type DGG.

#### BXUV.U341 | UL Product iQ

2E. **Gypsum Board\*** — (As an alternate to Items 2 through 2D) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 2.

GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

2F. **Gypsum Board\*** — (As an alternate to Items 2 through 2E) - Installed as described in Item 2. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads, 7 in. OC. Not for use with item #6. **NATIONAL GYPSUM CO** — Type SBWB

2G. **Gypsum Board\*** — (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 2.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types QuietRock ES.

2H. **Gypsum Board\*** — (As an alternate to Items 2 through 2G) — Installed as described in Item 2. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 12 in. OC.

**CERTAINTEED GYPSUM INC** — Type SilentFX

Wall and Partition Facings and Accessories\* — (As an alternate to Items 2 through 2H) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

2J. **Gypsum Board\*** — (As an alternate to 5/8 in. Type FSW in Item 2) — 2 layers nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal joints on the same side need not be staggered. Inner layer attached with fasteners, as described in item 2, spaced 24 in. OC. Outer layer attached per Item 2. **NATIONAL GYPSUM CO** — Type FSW.

2K. **Gypsum Board\*** — (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

CERTAINTEED GYPSUM INC — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-VA, Type LGFC-WD, Type LGLLX

3. Joints and Nailheads — Gypsum board joints of outer layer covered with tape and joint compound. Nail heads of outer layer covered with joint compound. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with joints reinforced with paper tape.

4. **Sheathing** — (Optional) — Septum may be sheathed with min 7/16 in. thick wood structural panels min grade "C-D" or "Sheathing" or min 1/2 in. thick **Mineral and Fiber Boards\***.

See Mineral and Fiber Boards (CERZ) category for names of Classified companies.

5. Batts and Blankets\* — 3-1/2 in. max thickness glass or mineral fiber batt insulation. Optional when sheathing (Item 4) is used on both halves of wall.

See Batts and Blankets (BZJZ) category for list of Classified companies.

5A. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft<sup>3</sup>. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft<sup>3</sup>, in accordance with the application instructions supplied with the product.

Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application.

5B. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 5) when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC — Cellulose Insulation

5C. **Batts and Blankets\*** — (Required for use with Wall and Partition Facings and Accessories, Item 2A. Use of Sheathing, Item 4, does not nullify requirement of Item 5C for use with Item 2A) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of 0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

5D. **Fiber**, **Sprayed\*** — As an alternate to Batts and Blankets (Item 5) and Item 5A when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft<sup>3</sup>. **INTERNATIONAL CELLULOSE CORP** — Celbar-RL

5E. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft<sup>3</sup>.

Applegate Greenfiber Acquisition LLC— Applegate Advanced Stabilized Cellulose Insulation

6. **Steel Framing Members\*** — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below: A. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Wallboard attached to furring channels as described in Item 2.

B. **Steel Framing Members\*** — Used to attach furring channels (Item a) to studs (Item 1). Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels. **PAC INTERNATIONAL L L C** — Types RSIC-1, RSIC-1 (2.75).

6A. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members\*** — Used to attach furring channels (Item a) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. **PLITEQ INC** — Type Genie Clip

6B. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips. **STUDCO BUILDING SYSTEMS** — RESILMOUNT Sound Isolation Clips - Type A237R

6C. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

#### BXUV.U341 | UL Product iQ

A. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Cb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

B. **Steel Framing Members\*** — Used to attach furring channels (Item 6CA) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. **REGUPOL AMERICA** — Type SonusClip

6D. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Resilient channels and Steel Framing Members as described below:

a. **Resilient Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members\*** — Used to attach resilient channels (Item 6Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.

KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

6E. Steel Framing Members\* — (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below: a. Resilient Channels — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members**\* - Used to attach resilient channels to wall studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels to the studs. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the studs with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.

PAC INTERNATIONAL L L C — Type RC-1 Boost

6F **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

a **Furring Channels** — Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b **Steel Framing Members\*** — Used to attach furring channels (Item 6Fa) to studs. Clips spaced maximum 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

7. **Wall and Partition Facings and Accessories\*** — (Optional, Not shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

8. **Mineral and Fiber Board\*** — ((Optional, Not Shown) — For optional use as an additional layer on one or both sides of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing as described in Item 2. The required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

9/25/24, 8:29 AM

9. **Non-Bearing Wall Partition Intersection** — (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

#### (Optional, Not Shown) Alternate Construction For Use On One Side Of The Wall.

10. **Mineral and Fiber Board\*** — For use with Items 10A-10D) —Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board. **HOMASOTE CO** — Homasote Type 440-32

10A. **Glass Fiber Insulation** — (For use with Item 10) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ) categories for names of Classified companies.

10B. **Batts and Blankets\*** — (As an alternate to Item 10B, For use with Item 10), 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC. **THERMAFIBER/OWENS CORNING** — Type SAFB, SAFB FF

10C. **Adhesive** — (For use with Item 10) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

10D. **Gypsum Board\*** — (For use with Item 10) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 10). Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min. **AMERICAN GYPSUM CO** — Type AG-C

**CERTAINTEED GYPSUM INC** — Type C

**CERTAINTEED GYPSUM INC** — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

**NATIONAL GYPSUM CO** — Types FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

#### **USG BORAL DRYWALL SFZ LLC** — Type C

#### USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

## \* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2024-01-31

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## The Reserves At Grand View Heights Estates Design Report

September 2024

PREPARED FOR:

**Overland Property Group** 

PREPARED BY:





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#### 1.0 INTRODUCTION

#### 1.1 Project Description

The proposed project, identified as The Reserves at Grand View Heights Estates, is located within the limits of the City of Laramie, in Albany County, Wyoming; Section 6 of Township 15 North, Range 73 West, of the 6<sup>th</sup> Prime Meridian. The project extents are illustrated on the cover sheet of the enclosed construction drawings and in Figure 1 below.



**Figure 1- Project Extents** 

It is the intent of the developer to construct an apartment complex with 42-dwelling units. The development is subject to a Planned Unit Development (PUD) handbook filed with and accepted by the City of Laramie.

The Final plat for this filing is called the Grand View Heights Estates (GVHE), First Filing, and is currently under review by the City of Laramie with an anticipated approval in October 2024.

This project is to service two new buildings containing 42 dwelling units as a multi-family apartment complex. The development includes the installation of water and sanitary sewer pipe for services to each building and appropriate appurtenances with the parking lot and site improvements to meet City of Laramie code requirements. The limits of this first filing include 20

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single-family home lots, and two multi-family development lots with a maximum projected capacity of 66-bedroom units. The water, sanitary and storm sewer pipe will be private utilities owned and maintained by the development and connect to the City facilities located in the dedicated public rights-of-way granted to the City of Laramie by Preliminary Plat. Water system tie-ins are going to be connected to existing stub-out lines within the Sitting Bull and Red Cloud rights-of-way and sanitary sewer collection will be connected to an existing sanitary sewer stub in Sitting Bull Trail planned for during the construction of Grand View Heights Estates subdivision. The project will be constructed in accordance with Wyoming Public Works 2021 Standard Specifications and City of Laramie's Supplementals as well as the enclosed contract documents.

### 1.2 Background

The Grand View Heights Estates (GVHE) subdivision will still be subject to the same PUD Handbook as the original Grand View Heights subdivision and the utility connections to the City of Laramie system were included in the development phases already constructed. For reference, the Bill Nye avenue corridor includes two 8" water valves and curb returns for access into the GVHE property. In addition to the water connection stubs, an 8-inch sanitary sewer main is stubbed across Grand View Heights and Bill Nye Avenue to provide a planned sanitary connection servicing these lots.

### 2.0 WATER SYSTEM

#### 2.1 Hydraulic Analysis

The following table presents the working range of pressures for the proposed water zone improvements.

		Static	Residual	Total Test
PRESSURE ZONE 4	Size/ Material	Pressure at	Pressure at	Flow Rate
		Hydrant	Hydrant	
Bill Nye Ave	14" PVC	93 PSI	84 PSI	2294 GPM

#### **Table 1: Water Zone Existing Pressures**

The primary feed for the apartments is from the Zone4 main located in Bill Nye Ave which feeds 8" mains through the GVHE development. A proposed 6" fire service loop is proposed for the apartments which will be owned and maintained at the Right-of-Way limits by the developer. This main can provide the required flow volumes for both domestic and fire flow demands to the development. This apartment complex sits entirely within the lower 1/3 of service elevations for zone 4 and is served by zone 4 pressure water. The apartments are three stories with a ground level with two elevated stories. Maximum finish floor above grade elevation for the water system is 21'-7" and an actual elevation near 7365' which is inside the service band for zone 4 pressures. Analysis by City of Laramie staff showed no challenges presented with water pressures to service this development.

#### 2.2 Design

The proposed subdivision improvements are to be connected to the existing 8" PVC water stubs



coming from Bill Nye Ave at the planned intersection locations. The pipelines proposed in the subdivision are a minimum of 8-inch diameter PVC pipe and will meet minimum cover requirements per City of Laramie Standards. This development includes two multi-family buildings which have 42-bedroom units. It is anticipated that each of the service lines will be 6-inch PVC into a common riser room before being distributed to each apartment.

Total water demand for apartments is anticipated to be an average of 125 gpd (0.087 gpm) per bedroom unit per day based on City of Laramie residential use data. Using a peaking factor of 2, the peak hour demand will be at 250 gpd (0.17gpm) per capita at peak hour use. This apartment development will require 5250 Gallons per day (3.65 gpm) average and the peak hour demand will be 10,500 Gallons per day (7.29 gpm) for consumption uses.

Fire flow demands for residential development is 1500 gpm for 2-hours. The proposed pipe distribution system is 8" pvc pipe with 6" pvc fire hydrant leads which can provide flow volumes in excess of the minimum values required by International Fire Code 2021 Appendix B provided adequate source water pressures. Because the subdivision is fed from a 14" PVC main in Bill Nye Ave, and residual pressures at 84 PSI during a fire demand, the system will be capable of meeting the minimum flow values required.

Water mains will consist of PVC C900 installed to a depth of at least six feet below the finished grade to prevent freezing. The system includes valves at each end of the service loop in accordance with WDEQ requirements for residential districts. Water mains will be placed a minimum of 10-feet horizontally from other utilities. Thrust blocking will be utilized at all fittings to prevent movement.

Fire hydrants are located at the southwest corner of the property and at the northeast intersection which maintains 200-foot intervals or less from all buildings on site, in accordance with WDEQ requirements. Building service lines shall follow City of Laramie standard details and terminate in a common riser room before continuing through building piping to each apartment.

#### 2.3 Backflow Prevention

Per City of Laramie standard detail backflow prevention devices shall be located in the common riser room for each building.

#### 2.4 Future connections

There are no future connections to the proposed water system anticipated as part of this project.

#### 3.0 SEWER SYSTEMS

The proposed improvements to the sewerage system include a common 8" pvc line with new manholes which will connect to the City of Laramie sewer system in Sitting Bull Trail. The new service line will be privately owned by the developer and not part of the City of Laramie sanitary sewer system outside of previously dedicated rights-of-way.

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#### 3.1 Wastewater Flows

Please see Table 2 below for approximate average and peak flow for this apartment complex. This project's sanitary volumes to downstream collection and treatment facilities and wastewater type was planned for with the Grand View Heights development and are discussed in detail under the final plat report for the Grand View Heights Estates first filing. Additional calculations related to downstream flows for the full Grand View Heights Development flowing into Boulder Drive can be found in the appendices.

The proposed apartment complex will generate an average flow at full build out of 5250 Gallons per day (3.65 gpm) flowing into the manhole located in Sitting Bull Trail. Calculations below were performed for the apartment complex flowing into the city sewerage system at Sitting Bull Trail. Trail.

Estimated Wastewater Flows		
Type of Development: Private Dwelling	on well or meter supply	
Water Duty- Average*	125	Gal/person/day
Water Duty- High*	340	Gal/person/day
Peak Per Capita Usage	131	Gallons/ day
Project Area- Average	5,250	Gpd
Project Area- High	10,500	Gpd

\* (City of Laramie water use data, 2024)

Average flow depth calculations for the shallowest pipe slope are included in the appendix. Calculations show that the average flow depth for a 8" pvc pipe at 0.4% slope is 1.2" and is at 5% of full flow capacity. Pipe velocity of this segment is 1.5ft/sec which is above DEQ minimums to minimize settling and below maximums to prevent pipe scouring.

#### 3.2 Design

A utility drawing shows the sanitary sewer system layout for apartments and how it connects to the city sewerage system in Sitting Bull Trail. Information related to the slopes, sizes and appurtenances can be found in the construction drawings. Generally, the sewer system sits to the west of both buildings and flows by gravity to the south, before combining with City of Laramie system piping at a manhole in Sitting Bull Trail.

Sanitary sewer main will be constructed with 8" PVC schedule 35 pipe. The slope meets the minimum requirement of 0.4 ft/ft for 8" line. The manholes will be new precast 48" diameter manholes with cast in place inverts to meet the design drawings.

#### 3.3 Future Connections

There are no future connections to the proposed sewerage system anticipated as part of this project.

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#### 4.0 Storm Water Drainage

Lot two, block two of the Grand View Heights Estates subdivision is bounded by public street improvements on the north, east and south while the west boundary is shared with another multi-family lot. The final plat report for GVHE made some assumptions accounting for water drainage pertaining to the multi-family lots impervious surface areas. The table below is a copy of the table from the GVHE Final plat report showing assumed drainage from the multifamily lot 1 impervious surface area.

Lot Designation	Lot size (SF)	Number of Lots	Assumed Impervious Area
Single Family or Cottage Lot	4360-8200	58	3,000
Multifamily Lot 1	85,150	1	51,090
Multifamily Lot 2	65,600	1	39,360
Total Impervious Surfacing not Stree	ets		264,450
Approximate R-O-W Surfacing Area			101,300

#### Table 3. Summary of Assumed Impervious Surface Areas

Construction plans for the Reserves apartments have a total impervious surface of 48, 570 sf. This impervious surface area includes all sidewalks, parking lot paving, and building footprint areas. The remainder of the site is planned to be landscaped per city of Laramie code. The total impervious surface area of the site plan is in line with original assumptions for the lot as submitted and accepted in the GVHE final plat submission.

#### 4.1 Storm Water Flows

The primary catchment for the storm water south of Bill Nye Ave in this area is a detention pond constructed during the development of the Grand View Heights 7<sup>th</sup> Filing. The detention pond is oversized for the 100-year storm capacity and detention capacity accounted for the inclusion of the development proposed here. The pond outlet works has been designed so that the outflow is less than the historical 100-year event for the area. Per the drainage report for the 7<sup>th</sup> filing, the pond constructed for the area included additional pond capacity to accommodate flows from this development. The pond size required during the calculation of the 7<sup>th</sup> filing was 1.76 acre-feet of capacity, and as the pond was constructed the provided storage capacity of the pond within the park is 3.74 acre-feet. The additional storage capacity of the pond was built to handle the included development flows with the GVHE subdivision.

#### 5.0 Traffic Impacts to the Subdivision

The traffic impact of the full subdivision has been assessed in the Grand View Heights Estates Traffic Impact Study by Ulteig Dated April 2024. That study evaluates the off-site intersection and road capacity for the additional trips from this subdivision with the existing Grand View Heights traffic loading.



For this submission, assessment on the trips associated only with the single lot for this apartment complex follows. There are 42 planned units for this apartment complex. The ITE Trip generation manual 11<sup>th</sup> edition uses a trip generation rate of 6.74 trips per multi-family housing unit (low rise). It is assumed that ½ of those daily trips are generated off site and ½ are generated on site. With 42-units and 6.74 trips per unit, the total daily trips leaving site are 142 trips, and the total daily trips entering site are 141 trips.

With AM and PM peak hour trips per unit being less than 0.5 vehicles per hour, the entrances from the site are unlikely to see more than 1 vehicle per minute even during peak hours of the day. The low volume of traffic from this site should not impact the overall function of the local streets which the entrances connect with.

The total volume of traffic from this site is significantly less than the total volume assessed in the GVHE Traffic Impact Study and follows assumptions made under the subdivision traffic impact study.

### <u>References</u>

Grand View Heights Planned Unit Development (PUD) Handbook.

EPA. (2019, 05 23). U.S. EPA DWMAPS. Retrieved from https://geopub.epa.gov/DWWidgetApp/

https://www.epa.gov/sites/default/files/2017-02/documents/ws-specification-home-suppstatement-v1.0.pdf

*Grandview Heights 5<sup>th</sup> Filing Utility Study* by United Civil Design Group dated September 25, 2013.

*Preliminary Drainage & Erosion Control Study Grand View Heights 7<sup>th</sup> Filing* by United Civil Design Group Dated May 22, 2017.

*Final Plat application for Grand View Heights Estates, First Filing*. By SolTerra Engineering dated August 2024.

# THE RESERVES at GRAND VIEW HEIGHTS **NEW APARTMENT COMPLEX** LARAMIE, 24-3262 WYOMING

## **REFERENCE LEGEND** DETAIL REFERENCE REF # - SHT. # REVISIONS WAITING ROOM NAME DETAIL REFERENCE REF # – SHT # 101 & NUMBER PROJECTED VIEW OF PHOTOGRAPH REF # — SHT. # A-A1 ELEVATION DESIGNATION PROJECT NORTH A DOOR MARK - TRUE NORTH $\Diamond$ WINDOW MARK — DRAWING NAME DEŤAIL CUT LINE — DRAWING SCALE DRAWING REF #

# **MATERIAL LEGEND**

BATT INSULATION		PLYWOOD
BRICK MASONRY	6	ROUGH WOOD
COMPACTED EARTH		FINISH WOOD
RIGID INSULATION		METAL STUD
 POURED CONCRETE		GLASS LARGE SCAL
 WALL W/ BRICK VENEER	][I	STRUCTURAL STEEL
METAL STUD WALL		CONC. MASONRY UNIT SECTION
CONCRETE WALL	$\overline{\mathbf{v}}$	MTL JOIST
WOOD STUD WALL		MTL FURRING
C.M.U. WALL	<u>) 0 }0</u>	PRECAST CONC. SLAB

# CONSULTANTS

Civil Engineer;

## SolTerra Engineering, Inc.

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# ABBREVIATIONS

&∠@€ø # Adj.F.r. Adj.F.r. Adj.F.r. AArsb.h. AArsb.h. BBBBK BBBBBBBBBBBBBBBBBBBBBBBBBBBBBB	AND Angle At Centerline Diameter or Round Pound or Number Acoustical Adjustable Above Finished Floor Aggregate Aluminum A Approximate Architect or Architectural Asbestos Asphalt Audio Visual Board Bituminous Building Block Blocking Beam Bottom BY OWNER Bearing Brick Cabinet Ceiling Clear	Cntr. Conc. Conc. CMU Ctr. Dbl. DET. DDD. DD. DD. DD. DD. DD. DD. DD. DD.	Counter Column Conc. Concrete Ceramic Tile Concrete Masonry Unit Center Double Detail Drinking Fountain Diameter Dimension Down Door Downspout Drawing Drawer Existing East or Existing Each Expansion Joint Elevation Electrical Elevator Equal Equipment Each Way Elec. Water Cooler Existing Exposed	Exp. Ext. F.A. F.D. F.E. F.I. F.I. F.I. F.I. F.I. F.I. F.I	Expansion Exterior Fire Alarm Floor Drain Foundation Fire Extinguisher F.E. Cabinet Finish Floor Flashing Flow line Foot or feet Footing Furring Future Gauge Galvanized Grab Bar Glass Ground Grade Gypsum Hose Bibb Hollow Core Hardwood Hardware Hollow Metal Horizontal	Hr. Hgt. I.D. Insul. Int. Jan Jt. Kit. Lab. Lav. Lkr. Lt. Mas. Max. McC. Memb. Met. Mfr. Min. Min. Misc. M.O. Mtd.	Hour Height Inside Diameter Insulation Interior Janitor Joint Kitchen Laboratory Laminate Lavatory Locker Light Masonry Maximum Medicine Cabinet Mechanical Membrane Metal Manufacturer Manhole Minimum Mirror Miscellaneous Masonry Opening Mounted	N. N.I.C. No. or Nom. N.T.S. O/ Obs. O.C. O.D. Off. Opp. P. PI. P.Lam. Plas. Plywd. Pr. P.T.D. Pt. P.T.D. Pt. P.T.R. Q.T. R. Rad. R.D. Ref.	North Not In Contract #Number Nominal Not To Scale On or Over Obscure On Center Diameter Office Opening Opposite Paint Plate Plastic Laminate Plaster Plaster Plywood Pair Point Paper Towel Dispenser Partition Paper Towel Receptacle Quarry Tile Riser Radius Roof Drain Reference	Reinf. Reegil. R.O. S.B.C. ed. S.S.C. ed. S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S	Reinforced Required Resilient Room Rough Opening South Splash Block Solid Core Schedule Soap Dispenser Section Shower Sheet Similar Sanitary Napkin Disp. Sanitary Napkin Recep. Specification Square Stainless Steel Standard Steel Storage Structural Suspended Sheet Vinyl Symmetrical Texture Towel Bar Tack Board	Temp. T.&G. Thk. T.O.M. T.O.S. T.P.D. T.V. T.W. Typ. Trd. U.O.N. Ur. V.C.T. V.B. Vert. Vgl. W. W. W. W. W. W. W. W. W. W. W. W. W.	Tempered Tongue & Groove Thick Top Of Masonry Top Of Steel Top Of Pavement Tollet Paper Dispenser Television Tackwall Typical Tread Unless Otherwise Noted Urinal Vinyl Composition Tile Vinyl Tile Vapor Barrier Vertical Vestibule Vinyl West With Without Wall Covering Wood Waterproof Window Wainscot Weight



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## **McClure**

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CIVIL \*SUBMITTED UNDER SEPARATE PERMIT

**BUILDING A INFORMATION** OCCUPANCY OVERALL: RESIDENTIAL CONSTRUCTION TYPE: V-B  $\sim \sim$ OCCUPANCY BASIC R-2 APARTMENTS BUSINESS متعتم ALLOWABLE AREA INCREASE: ACTUAL BUILDING AREA: R-2 FIRST FLOOR 8,609 SF BASE ALLOWABLE7,000 SFFRONTAGE INCREASE4.130 SFFRONTAGE INCREASE5 7,155 SF 7,155 SF SECOND FLOOR THIRD FLOOR TOTAL FLOOR ALLOWABLE 11,130 SF TOTAL BLDG AREA 22,919 SF \*BUILDING HAS AN NFPA 13R SPRINKLER SYSTEM. SECTION 903.3.1.2 \*ALLOWABLE AREA AND HEIGHT BASED ON DIFFERENT USES NOT BEING SEPARATED BY FIRE BARRIERS. MOST RESTRICTIVE ALLOWANCE. BASIC ALLOWABLE STORIES: 3 ACTUAL STORIES: 3 (PER IBC TABLE 504.4) BASIC ALLOWABLE HEIGHT: 60' ACTUAL HEIGHT: 42'-2" (PER IBC TABLE 504.3) TOTAL OCCUPANT LOAD: 126 EXITING: REFERENCE PLAN (TABLES 1004.5 & 1006.2.1) OCCUPANT LOAD FACTORS OCCUPANCY LOAD FACTOR MAX.OCC/STRY 1 EXIT USE APARTMENT 200 sf/OCCUPANT R-2 10 CLUB ROOM 20 sf/OCCUPANT A-3 49 OFFICE 100 sf/OCCUPANT 49 B STORAGE 300 sf/OCCUPANT S–1 29 300 sf/OCCUPANT MECHANICAL М 49 **BUILDING B INFORMATION** OCCUPANCY OVERALL: RESIDENTIAL CONSTRUCTION TYPE: V-B OCCUPANCY BASIC R-2 APARTMENTS ALLOWABLE AREA INCREASE: ACTUAL BUILDING AREA: R-2 FIRST FLOOR 9,509 SF 7,000 SF BASE ALLOWABLE SECOND FLOOR THIRD FLOOR 9,484 SF FRONTAGE INCREASE (67.0%) 4.690 SF TOTAL FLOOR ALLOWABLE 11,690 SF 9,484 SF TOTAL BLDG AREA 28,477 SF \*BUILDING HAS AN NFPA 13R SPRINKLER SYSTEM. SECTION 903.3.1.2 BASIC ALLOWABLE STORIES: 3 ACTUAL STORIES: 3 (PER IBC TABLE 504.4) BASIC ALLOWABLE HEIGHT: 60' ACTUAL HEIGHT: 42'-2" (PER IBC TABLE 504.3) TOTAL OCCUPANT LOAD: 132 EXITING: REFERENCE PLAN OCCUPANT LOAD FACTORS (TABLES 1004.5 & 1006.2.1) LOAD EACTOR MAX.OCC/STRY 1 EXIT OCCUPANCY USE R-2 APARTMENT 200 sf/OCCUPANT 10 **GENERAL PROJECT INFORMATION** FIRE RESISTANCE RATING FOR BUILDING ELEMENTS; V-B EXTERIOR BEARING WALLS: 0 HOUR STRUCTURAL FRAME: 0 HOUR INTERIOR BEARING WALLS: 0 HOUR INTERIOR NON-BEARING WALLS: 0 HOUR STAIRS 0 HOUR FLOOR/CEILING ASSEMBLY: 0 HOUR BETWEEN DWELLINGS: 1 HOUR CEILING/ROOF ASSEMBLY: 0 HOUR CORRIDOR/DWELLING UNITS: 1/2 HOUR DWELLING UNITS - 1 HR FIRE PARTITIONS ROOF COVERINGS CLASS C OR BETTER REQUIRED SEPARATION OF OCCUPANCIES (PER IBC 508.2.4 & TABLE 508.4) RESTRICTIVE USE. DWELLING UNITS -1 HR FIRE PARTITIONS AUTOMATIC FIRE SUPPRESSION SYSTEM: REQUIRED, PROVIDED PER NFPA 13R - ENTIRE BUILDING DRAFTSTOPPING (PER IBC 718.4) DRAFTSTOPPING SHALL BE INSTALLED IN LINE WITH UNIT SEPARATION WALLS THAT DO NOT EXCEEDING 3,000 SF OF ABOVE EVERY TWO DWELLING UNITS, WHICHEVER IS SMALLER. OPENING IN THE PARTITIONS SHALL BE PROTECTED BY SELF-CLOSING DOORS WITH AUTOMATIC LATCHES CONSTRUCTED AS REQUIRED FOR THE PARTITIONS. PORTABLE FIRE EXTINGUISHERS REQUIRED - PROVIDED. A MINIMUM RATING OF 1-A:10-B:C SMOKE CONTROL: SMOKE PARTITIONS: STANDPIPES: NOT REQUIRED NOT REQUIRED NOT REQUIRED (TOP FLR <30') FIRE ALARM REQUIREMENTS: REQUIRED, PROVIDED – MANUAL & AUTOMATIC FIRE ALARM SYSTEM PER NFPA 72 SIGNALING SYSTEM IS AUDIBLE/VISUAL PER NFPA 72 & ADA INSTALLED THROUGHOUT INITIATING DEVICES: PULL STATIONS; SMOKE DETECTION @ SLEEPING & COMMON AREAS, SPRINKLER SYSTEM FLOW AND TAMPER SWITCHES MONITORED. SMOKE ALARM REQUIREMENTS: REQUIRED, PROVIDED - SLEEPING ROOMS, OUTSIDE SLEEPING ROOMS & AT EACH FLOOR



EMERGENCY POWER SOURCE: EXIT SIGNS, EXIT ILLUMINATION & EMERGENCY LIGHTING IS BY BATTERY BACK-UP

TYPE OF CONSTRUCTION ACILITY NAME ACILITY ADDRESS	NEW CONSTRUCTION THE RESERVES AT GRAND NEW HEIGHTS (UNASSIGNED) BILL NYE AVENUE ALBANY COUNTY
OCAL FIRE DEPARTMENT VATER SUPPLY OCAL BUILDING NSPECTION DEPARTMENT	CITY OF LARAMIE, WY CITY OF LARAMIE, WY CITY OF LARAMIE, WY CITY OF LARAMIE, WY
RCHITECT	JONES GILLAM RENZ ARCHITECTS 730 N. NINTH ST.; SALINA, KS 67401
	2021 INTERNATIONAL BUILDING CODE 2021 INTERNATIONAL MECHANICAL CODE 2021 INTERNATIONAL MECHANICAL CODE 2023 NATIONAL ELECTRICAL CODE 2021 INTERNATIONAL ELECTRICAL CODE 2021 INTERNATIONAL ELECTRICAL CODE 2021 INTERNATIONAL ENERGY CONSERV COD FAIR HOUSING ACT DESIGN MANUAL 2010 ADA STANDARDS for ACCESSIBLE DESI 2017 ICC A117.1 ACCESSIBLE & USABLE BU











## **PROJECT INFORMATION**

TYPE OF CONSTRUCTION FACILITY NAME FACILITY ADDRESS AN (	NEW CONSTRUCTION THE RESERVES OF GRAND VIEW HEIGHTS (UNASSIGNED) BILL NYE AVENUE ALBANY COUNTY
LOCAL FIRE DEPARTMENT WATER SUPPLY LOCAL BUILDING INSPECTION DEPARTMENT	CITY OF LARAMIE, WY CITY OF LARAMIE, WY CITY OF LARAMIE, WY CITY OF LARAMIE, WY
ARCHITECT	JONES GILLAM RENZ ARCHITECTS 730 N. NINTH ST.; SALINA, KS 67401
CODES/REGULATIONS	2021 INTERNATIONAL BUILDING CODE 2021 INTERNATIONAL MECHANICAL CODE 2021 INTERNATIONAL PLUMBING CODE 2023 NATIONAL ELECTRICAL CODE 2021 INTERNATIONAL EIRE CODE 2021 INTERNATIONAL ENERGY CONSERV CO FAIR HOUSING ACT DESIGN MANUAL 2010 ADA STANDARDS TO ASCESSIBLE DE 2017 ICC A1171 ACCESSIBLE & USABLE B











0 16' 32' 64'

GENE	ERAL NOTES
1. REF.	SHEET A1.1 FOR LOCATION & ORIENTATION OF
2. REF.	SHEET A2.10 FOR BREEZEWAY AND ADJACENT ROOMS
3 FINIS	A = FACF OF STUD
4. REF	STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATIONS.
5. TYPI	CAL GROUND FLOOR FINISH FLOOR ELEVATION IS
REFE	RENCED AS 100'-0" CONTRACTOR SHALL VERIEY
BUIL	DING FLEVATION WITH SITE CIVIL DRAWINGS
6. CON	TRACTOR SHALL PROVIDE FIREBLOCKING ANCHOR
BOIT	IS AND ANY REQUIRED SHEAR WALL BLOCKING AS
REQU	JIRED BY STRUCTURAL DRAWINGS.
7. CON	TRACTOR TO PROVIDE FIRE BLOCKING AT PARTY WALL
AT 1	0'-0" O.C., TYPICAL, CONTRACTOR TO PROVIDE FIRE
BLOC	KING AT PARTY WALL AT ALL BACK TO BACK
ELEC	TRICAL OUTLETS. PROVIDED AND INSTALL ALL FIRE
BLOO	KING AND DRAFTSTOPS PER 2021 IBC, SECTION 718.2,
718.	3 & 718.4.
8. FIRE	EXTINGUISHERS SHALL BE INSTALLED & PROVIDED IN
ACCO	DRDANCE WITH NFPA 10 & 2021 IBC, SECTION 906.1.
LOCA	ATED PER CFP SHEET.
9. ALL	PENETRATIONS THRU RATED WALLS AND/OR FLOOR
ASSE	EMBLIES SHALL BE FIRESTOPPED PER APPROVED U.L.
DESI	GNS. REFERENCE SHEET A4.9 FOR FIRE PENETRATION
	MBLIED.
10. ALL	SIGNAGE MUST COMPLY W/ ADA 2010 SECTIONS 216
<u> </u>	JS FOR SIZE, LOCATION AND FABRICATION.
KEY	NOTES
\  ₁   FIR	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES
	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1.
1 FIR TO CO	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1. ORDINATE LOCATION OF BULKHEAD
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1 FIR TO CO 2 ME ME	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1. ORDINATE LOCATION OF BULKHEAD CH. CLOSET 1st FLOOR ONLY. REF. SITE PLAN & CH DWGS. FULLY INSULATE WALLS & CEILING.
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1 FIR TO CO 2 ME ME 3 RA ME	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1. ORDINATE LOCATION OF BULKHEAD CH. CLOSET 1st FLOOR ONLY. REF. SITE PLAN & CH DWGS. FULLY INSULATE WALLS & CEILING. DON PIPE THROUGH ROOF REF. N-A4.5 & CH DWGS
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1 FIR CO 2 ME 3 RA ME 4 KN 5 ME <b>APAF</b>	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1. ORDINATE LOCATION OF BULKHEAD CH. CLOSET 1st FLOOR ONLY. REF. SITE PLAN & CH DWGS. FULLY INSULATE WALLS & CEILING. DON PIPE THROUGH ROOF REF. N-A4.5 & CH DWGS OX BOX REF. SHEET A1.1 FOR LOCATION TER CENTER LOCATON REF. ELECT. DWGS
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1 FIR CO 2 ME 3 RA ME 4 KN 5 ME APAF	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1. ORDINATE LOCATION OF BULKHEAD CH. CLOSET 1st FLOOR ONLY. REF. SITE PLAN & CH DWGS. FULLY INSULATE WALLS & CEILING. DON PIPE THROUGH ROOF REF. N-A4.5 & CH DWGS OX BOX REF. SHEET A1.1 FOR LOCATION TER CENTER LOCATON REF. ELECT. DWGS RTMENT CHART SYMBOL INDICATES ACCESSIBLE UNITS A101, A102, B107
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1 FIR CO 2 ME 3 RA ME 4 KN 5 ME APAF	E LINE IN INSULATED BULKHEAD ADD'L WATER LINES BE UNDERGROUND REF. MECH DWGS & SHEET A6.1. ORDINATE LOCATION OF BULKHEAD CH. CLOSET 1st FLOOR ONLY. REF. SITE PLAN & CH DWGS. FULLY INSULATE WALLS & CEILING. DON PIPE THROUGH ROOF REF. N-A4.5 & CH DWGS OX BOX REF. SHEET A1.1 FOR LOCATION TER CENTER LOCATON REF. ELECT. DWGS <b>TIMENT CHART</b> SYMBOL INDICATES ACCESSIBLE UNITS A101, A102, B107 SYMBOL INDICATES A HEARING & VISION IMPAIRED ACCESSIBLE UNIT B103 ALL OTHER UNITS: • ADAPTABLE (TYPE-B) UNITS ON FIRST FLOOR
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# **APARTMENT GENERAL NOTES**

- . REF STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATIONS. 2. TYPICAL GROUND FLOOR FINISH FLOOR ELEVATION IS REFERENCED AS 100'-0". CONTRACTOR SHALL
- VERIFY BUILDING ELEVATION WITH SITE CIVIL DRAWINGS. REFERENCE SITE PLAN SHEET A1.1 FOR LOCATION & ORIENTATION OF BUILDINGS.
- 4. CONTRACTOR SHALL PROVIDE ADJUSTABLE PLASTIC COATED WIRE SHELVES & ROD AT ALL CLOSETS U.N.O.
- 5. CONTRACTOR SHALL PROVIDE FIREBLOCKING, ANCHOR BOLTS AND ANY REQUIRED SHEAR WALL BLOCKING AS REQUIRED BY STRUCTURAL DRAWINGS.
- 6. CONTRACTOR TO PROVIDE FIRE BLOCKING AT PARTY WALL AT 10'-0" O.C., TYPICAL. CONTRACTOR TO PROVIDE FIRE BLOCKING AT PARTY WALL AT ALL BACK TO BACK ELECTRICAL OUTLETS. PROVIDED AND INSTALL ALL FIRE BLOCKING AND DRAFTSTOPS PER 2021 IBC, SECTION 718.
- 7. FIRE EXTINGUISHERS SHALL BE INSTALLED & PROVIDED IN ACCORDANCE WITH NFPA 10, 2021 IBC, SECTION 906.1 AND SPECIFICATIONS. WALL MOUNTED EXTINGUISHERS PROVIDED IN CLOSET #108 PER FLOOR PLANS AND CFP.
- ALL PENETRATIONS THRU RATED WALLS AND/OR FLOOR ASSEMBLIES SHALL BE FIRESTOPPED PER APPROVED U.L. DESIGNS. REFERENCE SHEET A4.8 FOR FIRE PENETRATION ASSEMBLIES
   HOSE BIBS TO BE LOCATED 6"min. ABOVE WAINSCOT (30"MIN ABV. FIN. FLOOR).
   B.O. HEADER 83" ABV. FIN. FLR.
- B.O. HEADER 63 ABV. FIN. FER.
   KITCHEN RECEPTACLES TO BE @ 44"max ABOVE FIN FLR.
   SUBMIT VERIFICATION THAT ALL CONSTRUCTION MATERIAL WILL MEET US EPA CRITERIA PARTICULARLY MATERIALS THAT WILL BE OBTAINED FROM INTERNATIONAL SOURCES. ALSO PROVIDE VERIFICATION THAT THE CONSTRUCTION WILL NOT RESULT IN OR CONTAIN HAZARDOUS MATERIALS.
- 13. ALL WALL DIMENSIONS ARE TO FACE OF GYP. BD. UNLESS NOTED OTHERWISE. 14. F.O.S. = FACE OF STUD
- 15. FE = FIRE EXTINGUISHER 16. <u>HEARING/VISION IMPAIRED UNIT</u> (WHERE INDICATED ON SHEET A1.1 AND LISTED ON BUILDING PLANS): • CONTRACTOR SHALL INSTALL EQUIPMENT REQUIRED PER 2010 ADA SEC. 809.5.
- REF. ELECT. DWGS

# **STANDARD UNIT NOTES**

19. <u>STANDARD UNITS</u> (ALL SECOND & THIRD FLOOR UNITS): • CONTRACTOR TO PROVIDE 2x8 BLOCKING IN WALLS FOR COUNTERTOP & SUPPORTS. • ALL CLOSETS TO HAVE PLASTIC WRE CLOTHES SHELF & ROD WITH ADJUSTABLE BRACKETS (UNLESS OTHERWISE NOTED). MOUNT TOP OF SHELF AT 69" AFF.

# **ADAPTABLE (TYPE-B) UNIT NOTES**

20. ADAPTABLE (TYPE-B) UNITS (WHERE INDICATED ON SHEET A1.1 AND BUILDING PLANS): • REFERENCE ENLARGED PLANS AND DETAILS FOR ADDITIONAL INFORMATION

- 2-BEDROOM: CONTRACTOR TO INSTALL 2x8 BLOCKING IN WALLS FOR FUTURE GRAB BARS @ ALL TOILETS & TUBS AND COUNTERTOPS AT BATH #103
- 3-BEDROOM: CONTRACTOR TO INSTALL 2x8 BLOCKING IN WALLS FOR FUTURE GRAB BARS @ ALL TOILETS & TUBS AND COUNTERTOPS AT BATH #103 & PRIMARY BATH #118. ALL UNITS:
- TOILETS SHALL BE ADA COMPLIANT (17"-19" HIGH).
- CONTRACTOR TO INSTALL BLOCKING PER ICC/ANSI A117.1-2017.
- ALL CLOSETS TO HAVE PLASTIC WIRE CLOTHES SHELF & ROD WITH ADJUSTABLE BRACKETS (UNLESS OTHERWISE NOTED). MOUNT TOP OF SHELF AT 69" AFF.
- ALL SWITCHES, OUTLETS, THERMOSTATS, AND OTHER ENVIRONMENTAL CONTROLS MUST BE MOUNTED A MAX. OF 48" A.F.F. (NOT LESS THAN 15" A.F.F.)

# **ACCESSIBLE UNITS NOTES**

21. ACCESSIBLE UNITS (WHERE INDICATED ON SHEET A1.1 AND LISTED ON BUILDING PLANS): • REFERENCE ENLARGED PLANS AND DETAILS FOR ADDITIONAL INFORMATION • 2-BEDROOM: CONTRACTOR TO INSTALL 2x8 BLOCKING IN WALLS FOR GRAB BARS @ ALL TOILETS & TUBS AND BLOCKING @ SINKS & COUNTERTOPS AT BATH #103 • 3-BEDROOM: CONTRACTOR TO INSTALL 2x8 BLOCKING IN WALLS FOR GRAB BARS @ ALL TOILET & TUB AND BLOCKING @ COUNTERTOP AT PRIMARY BATHS #103 & #118

- ALL UNITS: OPEN KNEE SPACE SHALL BE PROVIDED OF SINK & WORK SPACE IN KITCHEN #102
   CONTRACTOR SHALL INSTALL HOT WATER & DRAIN PIPES COVERS.
   TOILETS SHALL BE ADA COMPLIANT (17"-19" HIGH).

  - CONTRACTOR TO INSTALL BLOCKING AND PROVIDE & INSTALL GRAB BARS
  - PER ICC/ANSI A117.1-2017.
  - ALL CLOSETS TO HAVE PLASTIC WIRE CLOTHES SHELF & ROD WITH ADJUSTABLE BRACKETS (UNLESS NOTED OTHERWISE). MOUNT TOP OF SHELF AT 48" AFF. • KITCHEN COUNTERTOPS SHALL BE MAX. 34" A.F.F. BATHROOM SINK RIM SHALL BE
- MAX. 34" A.F.F. MAA. 34 A.F.F.
  ALL SWITCHES, OUTLETS, THERMOSTATS, AND OTHER ENVIRONMENTAL CONTROLS MUST BE MOUNTED A MAX. OF 48" A.F.F. (NOT LESS THAN 15" A.F.F.)
  HEIGHT OF OPERABLE WINDOW PARTS (LATCHES/LOCKS, ETC.) SHALL BE LOCATED
- MAX 48" A.F.F.

PARTITION & ASSEMBLY TYPES CAN BE FOUND ON SHEET A2.4

















![](_page_75_Figure_2.jpeg)

![](_page_75_Figure_3.jpeg)

![](_page_75_Figure_4.jpeg)

![](_page_75_Figure_5.jpeg)

![](_page_75_Figure_32.jpeg)

![](_page_75_Figure_33.jpeg)

	CLUBHOUSE/BREEZEWAYS INTERIOR FINISH SCHEDULE																									
							I	FIN	IS⊦	IES	<b>8</b> c	IN	ST	RU	сті	ON	s									
P1	LATEX ENAMEL			VT	v	/INYL	TILE	E, CI		38 I	WAX			sv		SHEE	ET V	INYL			s	T	SP	RAY	TEXTURE	
P2	EPOXY PAINT			C1	С	ARP	ET #	1						LVT		LUXL	JRY	MN	/L TI	LE	:	S	SM	OOTH	4	
EP	EXTERIOR PAINT	_		C2	С	ARP	et #	2		_				СТ		CER/	AMIC	TIL	E		-	Г	TEX	XTUR	ED, LIGHT K	
NO.	DESCRIPTION		FLC	OOF	2		BA	SE		N.	WA	LL	Е.	WA	LL	s.	WA	LL	w.	WA	LL	CE		٩G	HGT.	NOTES
		VINYL PLANK FLOORING	12x12 CERAMIC TILE	CARPET	SEALED CONC.	2 1/2" WOOD	CERAMIC TILE	COMPOSITE TRIM/SIDING	4" RUBBER BASE	5/8" TYPE X G.B.	48" HIGH WAINSCOT	COMPOSITE TRIM/SIDING	5/8" TYPE X G.B.	48" HIGH WAINSCOT	COMPOSITE TRIM/SIDING	5/8" TYPE X G.B.	48" HIGH WAINSCOT	COMPOSITE TRIM/SIDING	5/8" TYPE X G.B.	48" HIGH WAINSCOT	COMPOSITE TRIM/SIDING		5/8" TYPE X G.B.	COMPOSITE TRIM/SIDING		
	JBHOUSE			1			1			D17	_		1017			1017		1	1017					_	-1 -1	
C01 C02 C03	COMMUNITY ROOM OFFICE NOT USED	LVT		C1		P1 P1																	ST ST		9'-0" 9'-0"	
C04	MECH/STOR.				٠				RB	P1			P1			P1			P1				<b>P1</b>		9'-0"	
C05	MEN		СТ				СТ			P/ <sub>1</sub>	СТ			СТ		<u>P1</u>	СТ		<u>P1</u>	СТ			ST		9'-0"	1.
C06	WOMEN		СТ				СТ			<u>P</u> V	СТ			СТ		2	СТ		2	СТ			ST		9'-0"	1.
C07	HALL	LVT				P1				Ľ			ZI,			ZI,			ZI,				ST		9'-0"	
C08	FITNESS CENTER	LVT				P1				Ľτ			Ľτ			1/1			1/1				ST		9'-0"	
C09	STORAGE				•				RB	P1			P1			P1			P1				P1		9'-0"	
C10	KITCHETTE	LVT				P1				Ζτ			7			7			7				ST		9'-0"	1.
	FZFWAYS																									
A107	MECHANICAL				•				RB	EP			EP			EP			EP				EP		9'-0"	
A110	MECHANICAL				•				RB	EP			EP			EP			EP				EP		9'-0"	
B109	MECHANICAL				•				RB	EP			EP			EP			EP				EP		9'-0"	1
B112	MECHANICAL				•				RB	EP			EP			EP			EP				EΡ		9'-0"	
A108	BREEZEWAY				•			EP				EΡ			EP			EP			EP			EΡ	9'-0"	1
A208	BREEZEWAY				•			EP				EP			EP			EP			EP			EP	9'-0"	1
A308	BREEZEWAY				٠			EP				EΡ			EP			EP			EΡ			EΡ	9'-0"	
A109	BREEZEWAY				٠			EP				EΡ			EΡ			EP			EΡ			EΡ	9'-0"	
A209	BREEZEWAY				٠			EP				EΡ			EP			EP			EP			EΡ	9'-0"	
A309	BREEZEWAY				٠			EP				EΡ			EP			EP			EP			EP	9'-0"	
B110	BREEZEWAY				٠			EP				EP			EP			EP			EP			EP	9'-0"	
B210	BREEZEWAY				٠			EP				£			Ð			EP			Ð			EP	9'-0"	
B310	BREEZEWAY				•			EP				EP			EP			EP			EP			EP	9'-0"	
B111	BREEZEWAY				٠			EP				EP			EP			EP			EP			EP	9'-0"	
B211	BREEZEWAY				٠			EP				EP			EP			EP			EP			EP	9'-0"	
B311	BREEZEWAY				٠			EP				EP			EP			EP			EP			EP	9'-0"	
FIR	F SPRINKLER (		)SF	TS																						
A111	F.S.				•				RB			EP			EP			EP			EP			EP	9'-0"	1.
B113	F.S.				•				RB			EP			EP			EP			EP			EP	9'-0"	1.
					-													<u> </u>								1
NOTES	: 1. INSTALL 5/8" TYPE	X M.F	G.B.	. • A	LL W	ET A	REAS.		1	•			<u>n</u>	L	L	<u>n</u>	L	1	<u>n</u>	L	L					<u> </u>

CLUBHOUSE/BREEZEWAYS DOOR SCHEDULE																
DOOR FRAME																
		SIZE		м/	A TE	RIAL	TYPE	FI	NIS	зH	MA	<b>TERI</b>	۱L	FINISH		S
MARK	w	Н	Т	MTL. INSULATED	WOOD S.C.			PREFIN.	PAINT		MOOD			PAINT	DETAILS	REMARK
CLU	BHOUSE			_												
1	3'-0"	6'-8"	1 3/4"	•			A	•			•			•		1,2,5,6,7,8,9
2	3'-0"	6'-8"	1 3/4"	•			В	•			•			•		1,2,5,6,7,8,9
3	PR 3'-0"	6'-8"	1 3/4"	•			Ε	•			•			•		8,9
4	3'-0"	6'-8"	1 3/4"		$\bullet$		D		•		•			•		2,4,9
5	3'-0"	6'-8"	1 3/4"		$\bullet$		В		•		•			•		2,4,9
6	3'-0"	6'-8"	1 3/4"				D		•		•			•		3,9
BRE	EZEWAY	S/FIRE	SPRINK	LE	R	ROC	MS									
11	3'-6"	6'-8"	1 3/4"	٠			С	•			•			•		6,7,8,9
12	3'-0"	6'-8"	1 3/4"	•			Ε	•			•			•		6,8,9
13	3'-6"	6'-8"	1 3/4"				E				•			•		8,9
NOTES:	NOTES:       1. FLUSH BOLTS AND SURFACE BOLTS PROHIBITED       5. ALL GLAZING IN DOORS TO BE SAFETY GLAZED         2. KEYED LOCKSETS       3. DECORATIVE KICK PLATES, SELF CLOSING HINGES       6. PROVIDE CLOSERS         3. DECORATIVE KICK PLATES, SELF CLOSING HINGES       7. PROVIDE DECORATIVE KICK PLATES AT HALL SIDE         4. PROVIDE DECORATIVE KICK PLATES AT HALL SIDE       9. ALL DOOR HARDWARE TO BE LEVER TYPE LATCH SETS.															

![](_page_76_Figure_2.jpeg)

![](_page_76_Figure_3.jpeg)

# **CLUBHOUSE GENERAL NOTES**

- 1. REF STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATIONS. 2. TYPICAL GROUND FLOOR FINISH FLOOR ELEVATION IS REFERENCED AS 100'-0".
- CONTRACTOR SHALL VERIFY BUILDING ELEVATION W/ CIVIL DRAWINGS.
- REFERENCE SITE PLAN SHEET A1.1 FOR LOCATION & ORIENTATION OF BUILDING. CONTRACTOR SHALL PROVIDE FIREBLOCKING, ANCHOR BOLTS & ANY REQUIRED
- SHEAR WALL BLOCKING AS REQUIRED BY STRUCTURAL DRAWINGS.
- 5. FIRE EXTINGUISHERS SHALL BE INSTALLED & PROVIDED IN ACCORDANCE WITH NFPA 10 & 2021 IBC, SECTION 906.1 AND SPECIFICATIONS. LOCATED PER CFP SHEETS.
- 6. ALL PENETRATIONS THRU RATED WALLS AND/OR FLOOR ASSEMBLIES SHALL BE FIRESTOPPED PER APPROVED U.L. DESIGNS. REFERENCE SHEET A4.9 FOR FIRE PENETRATION ASSEMBLIES
- 7. B.O. HEADER 83" ABV. FIN. FLR. 8. KITCHENETTE AREA RECEPTACLES TO BE @ 44"max ABOVE FIN FLR.
- 9. ALL OPERABLE PARTS, (PER ADA SECTION 309) SHALL BE A MAX. OF 48" A.F.F. THIS INCLUDES OUTLETS, WINDOW LATCHES/LOCKS, ENVIRONMENTAL CONTROLS,
- LIGHT SWITCHES, ETC. 10. CONTRACTOR TO PROVIDE 2x8 BLOCKING IN WALLS FOR GRAB BARS, COUNTERTOPS, SUPPORTS, ETC.
- SUPPORTS, ETC. 11. SUBMIT VERIFICATION THAT ALL CONSTRUCTION MATERIAL WILL MEET <u>US EPA</u> CRITERIA PARTICULARLY MATERIALS THAT WILL BE OBTAINED FROM INTERNATIONAL SOURCES, ALSO PROVIDE VERIFICATION THAT THE CONSTRUCTION WILL NOT RESULT IN OR CONTAIN HAZARDOUS MATERIALS. 12. ALL DIMENSIONS ARE TO FACE OF GYP. BD. UNLESS NOTED OTHERWISE.
- 13. F.O.S. = FACE OF STUD 14. FEC = FIRE EXTINGUISHER CABINET, REFERENCE DETAIL N-A2.10

# **CLUBHOUSE PARTITION SCHEDULE**

### PARTITION NOTES: 1. SHEAR WALLS: REF. STRUCTURAL FOR LOCATIONS, MATERIAL & SECTIONS 2. FIRE BLOCKING REQUIRED PER 2021 IBC SEC. 708 & 718. @ 10'-0"O.C. VERT. & HORIZ. AND @ ALL BACK TO BACK ELECTRICAL OUTLETS. (1) LAYER - 5/8" TYPE X G.B. OR 1/2" PLYWOOD TO

![](_page_76_Figure_18.jpeg)

![](_page_76_Figure_19.jpeg)

![](_page_76_Figure_20.jpeg)

![](_page_76_Figure_21.jpeg)

![](_page_76_Figure_22.jpeg)

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![](_page_76_Picture_24.jpeg)

**RAMIE**,

DATE: 7-17-2024 JOB: 22-3262 SHEET NO .:

A2.10

![](_page_76_Picture_27.jpeg)

1/4"=1'-0"

![](_page_77_Figure_0.jpeg)

![](_page_77_Figure_1.jpeg)

COP YRIGH1

![](_page_78_Figure_0.jpeg)

![](_page_79_Figure_0.jpeg)

![](_page_80_Figure_0.jpeg)

<u>A. I</u>	DES	ESIGN CRITERIA		
1.	De	Design Codes:	$\sim\sim\sim$	
	a. b. c.	<ul> <li>a. City of Laramie Code Administration Division Information</li> <li>b. International Building Code: IBC 2621</li> <li>c. Minimum Design Loads for Buildings and Other Structur</li> </ul>	al Bulletin #2 1 es: ASCE 7-16	
2.	De	Design Loads:		
	a.	a. Dead Loads		
		Floors (Units) = 25 psf		
		Floors (Breezeway) = 30 psf		
		Roof = 22 psf		
	b.	b. Live Loads (reducible per code UNO) Residential = 40 psf		
		Corridors/Exits = 100 psf		
		Typical Roof = 125 psf (	non-reducible)	
	c.	c. Roof Snow Load		
		Ground Snow Load $(p_g)$ = 30 psf (P Elat Boof Snow Load $(p_i)$ = 30 psf (P	er City Bulletin #2)	
		Snow Exposure Factor ( $C_e$ ) = 0.9	er only Duiletin #2)	
		Snow Load Importance $(I_s) = 1.0$ Thermal Factor (C <sub>s</sub> ) = 1.0		
		Slope Factor ( $C_s$ ) = 1.0		
		Unbalanced Loads for Hip & Gable Roofs Windward Snow Load	= 5.7 psf	
		Leeward Snow load from ridge to 7.61	= 40.2  psf	
	Ь	d Wind Load	= 10.9 psi	
	u.	Basic Design Wind Speed, V = 115 mph	(3 sec. Gust) (Per City B	ulletin #2)
		ASD Wind Speed, V <sub>asd</sub> = 89.1 mpł Risk Category = II	I	
		Wind Exposure = C		
		Components and Cladding (psf): $\pm 0.18$		
		Zone A=10ft <sup>2</sup> A=50 ft <sup>2</sup> A=100 ft	2	
		$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
		4 +35/-38 +32/-35 +30/-33 5 +35/-47 +32/-40 +30/-37		
		Notes: 1. A is the Effective Wind Area as defined in ASCE	7 Ch. 26.	
		3. Elements with Tributary Area ( $A_t$ ) > 700 ft <sup>2</sup> shall b	e permitted to be designed u	using provisions for MWFRS.
	e.	e. Earthquake Load		
		Risk Category = II Seismic Importance Factor (I <sub>e</sub> ) = 1.0		
		$S_{s} = 0.252g$ $S_{1} = 0.063g$	technical Depart)	
		Soli Site Class: D (Per Geo $S_{DS} = 0.268$ $S_{D1} = 0.101$	itechnical Report)	
		Seismic Design Category B		
		Light-Frame Walls with shear panels	all other materials (ASC	E 7 Table 12.2-1 Line A.17)
		$R = 2.0$ $C_s = 0.134$ (Controls Dev Light-Frame Wood Walls with structur	sign) al wood shear panels (AS	SCE 7 Table 12.2-1 Line A.15)
		$R = 6.5$ $C_s = 0.041$	······ ··· ··· ··· ··· ··· ··· ··· ···	,
		Analysis Procedure = Equivale	nt Lateral Force Procedu	re (ASCE 7-16 Chapter 12.8)
	f.	f. Rain Load		
		Rain Intensity (i) = 1.8 in/hr	(Per City Bulletin #2)	
3.	Allo	Allowable Deflections:		
		Total Load Live Floor Joists/Trusses L/360	/Snow/Wind Load L/480	Absolute Maximum 1"
		Roof Joists/Trusses L/240	L/360	1.5"
		Wall Framing (fiexible finish) Wall Framing (brittle/brick finish)	L/240 L/360	0.75 0.5"
		Cantilever deflection limits are the more restrictive of 2 x	the appropriate L/ limit	t (e.g. 2L/360 = L/180) or absolute maximum value
		listed above, measured at the tip of the cantilever U.N.O		
4.	Soi	Soil Properties:		
	a. b.	<ul> <li>a. Soil properties are based on the project geotechnical rep by Terracon on June 10, 2024 (herein known as "Geotechnical rep b. Allowable Soil Bearing Pressure = 2500 psf</li> </ul>	oort entitled Grand View F chnical Report"). (Strip Footing)	Property Geotechnical Engineering Report, prepared
$\wedge$	~	c Frost Depth $= 42^{\circ}$ (por	(Square Footings) City Bulletin #2)	
∕1∖				
R	STR	TRUCTURAL ENGINEERING DESIGN NARRATIVE		
<u></u>				
1.	Mc	MCCiure Engineering Company (McClure, MEC) is the Struct	ural Engineer of Record (	(EOR) responsible for the documentation of structural (stems in their completed form, and conformance of

the structural design to the applicable building codes. These drawings produced by McClure convey the structural engineering design for the project, which includes the following components and systems:

- a. Foundations consisting of strip footings and isolated column footings.
- b. Slabs on grade. c. Residential tower framing above the slab on grade consisting of:
- Load-bearing wood wall and opening framing.

Gypcrete over wood T&G Sheathing over wood joists, floor and roof trusses. d. The lateral force resisting system of the structure consisting of sheathed gypsum and wood shear walls and wood sheathed diaphragms.

2. The following items are Deferred Submittals. Framing intent and additional requirements for these structural components are provided within these drawings\*: a. Structural steel stair framing and connections – see general notes section "Structural Steel" | see S002 for applicable design criteria

b. Wood Floor & Roof Trusses\* – see general notes section "Wood Framing and Fastening" | see S002 for applicable design criteria. c. Connections of Wood Trusses to the supporting structure\*

\* Reference section "D. Submittal Requirements." Coordinate requirements of these drawings with those of other design consultant drawings and the Project Specifications.

3. The following items are specifically excluded from McClure's design scope as represented on these drawings:

- a. Requirements for fire rating of assemblies or fire protection of structural members
- b. Global stability of soil mass c. Any exterior slabs, bollards, curbs, and any enclosures not shown on these drawings
- Interior non-load-bearing wood wall or ceiling framing
- e. Shoring design, formwork design, temporary bracing, and other means and methods items

#### C. GENERAL NOTES

1. All construction shall conform to the Design Codes in Section "A. Design Criteria," including all applicable standards and documents

referenced within those codes. 2. Plan and detail notes provided on specific sheets within these drawings supplement information in these General Notes. Always coordinate the requirements of these notes with what is shown within the drawings. 3. Unless noted specifically on a plan, all floor plans show framing for the floor indicated and vertical framing (walls, openings, posts, columns) above that floor.

4. Contract Document Coordination: a. The drawings contained herein are intended to be utilized in conjunction with other design consultant's drawings (architectural, civil, mechanical, etc.). It is the responsibility of the Contractor to coordinate the requirements of the drawings into their shop drawings and

construction. b. Refer to the architectural, mechanical, electrical, and civil drawings for location and size of block outs, inserts, openings, curbs, bases & pads, and dimensions not shown on these drawings.

c. Refer to the architectural drawings for size and location of doors and window openings, exterior wall assemblies, and floor, wall, and roof finishes. Refer to the mechanical and electrical drawings for additional information including locations of mechanical units,

generators, etc. d. Omissions or conflicts between various elements of the drawings, notes and details shall be brought to the attention of the engineer and resolved before proceeding with the work.

5. Use of Drawings in Construction: a. The Contractor shall verify all dimensions and conditions at the job site before commencing work and shall report any discrepancies to

the engineer responsible for the design of that work. b. Do not use scaled dimensions; use written dimensions or, where no dimension is provided, consult the engineer for clarification before proceeding with the work

c. Details and keynotes shown shall be incorporated into the project at all appropriate locations, whether or not they are specifically referenced on the drawings.

d. McClure may provide the contractor with electronic files for their convenience and use in the preparation of shop drawings. These electronic files are not construction documents; the contractor is not relieved of his/her duty to fully comply with the contract documents, including the need to confirm and coordinate all dimensions and details, take field measurements, verify field conditions, and coordinate the contractor's work with that of other contractors for the project. 6. Changes During Construction:

a. Openings shall not be cut or otherwise made in any structural member unless that opening is specifically shown on these drawings. The Contractor shall seek approval in writing from the engineer for any design incorporating additional openings. b. Support details shown for Architectural, Mechanical, Electrical, and Plumbing equipment as well as elevators is based upon available information from the manufacturer (if any). The Contractor shall coordinate requirements of actual equipment supplied with details and shall provide any additional framing required.

c. The Contractor has the responsibility to notify the engineer of any architectural, mechanical, electrical, or plumbing load imposed on the structure that is not documented on the Contract Documents or differs from what is originally shown. Provide documentation of location, load, size, and anchorage of all undocumented loads in excess of 250 lbs.

7. Construction Sequence and Methods:

a. These drawings and the related Specifications represent the finished structure and, except where specifically shown, do not indicate the method or means of construction. Loads on the structure during construction shall not exceed the design loads indicated in Section "A. Design Criteria" as a maximum. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.

b. The Contractor is responsible for compliance with all applicable job-related safety standards proceeding from governing organizations (e.a. OSHA).

c. It is the responsibility of the Contractor to ensure the stability of the structural elements during construction as a result of means and sequence by providing shoring, bracing, etc. as required. i. Stability considerations should include all applicable temporary construction and environmental loads per ASCE 37 which may

include wind and seismic forces. ii. Temporary bracing shall remain in place until positive connection is made between the braced element and the floor/roof diaphragm or foundation above and below, and those diaphragms in turn are structurally complete and connected to the vertical

elements of the lateral force resisting system. This is a means and methods item. The Contractor may at their discretion employ a Specialty Structural Engineer, licensed in the state where the project is located, for the design of any temporary bracing, lifting, rigging, and shoring. Any sealed drawings, calculations, reports, etc. prepared for

construction stability shall be submitted to the engineer for review. d. The Contractor shall consider the effects of thermal movements due to hot or cold weather construction and the potential for extreme temperature variations before the structure is complete.

e. The Contractor is responsible for the protection and repair of any adjacent existing structures, surfaces, and areas which may be damaged as a result of the work.

#### D. SUBMITTAL REQUIREMENTS

### 1. Submittal Procedures:

13. All

a. The Contractor shall provide all submittals in PDF format unless otherwise requested or indicated in the Project Specifications. b. All submittals must be reviewed by the Contractor prior to McClure's review. The Contractor is responsible for reviewing each submittal for basic coordination with these drawings and to verify that all the required components of the submittal are incorporated. The

submittal must bear the electronic review stamp of the Contractor before McClure will proceed with the review. c. Incomplete submittals or submittals not meeting the requirements of this section will not be reviewed. McClure will notify the contractor that the submittal is incomplete or unacceptable and that resubmission is required.

i. Submittals requiring engineering calculations for all or a portion of the work are considered incomplete without the sealed calculations and will not be reviewed.

ii. Shop Drawings shall be original drawings. Submissions incorporating any portion or reproduction of the contract documents will not be reviewed.

Deferred Submittals not meeting the seal requirements of section D.2.b are considered incomplete and will not be reviewed. Resubmittals with comments from a previous review left unaddressed or without any response will not be reviewed.

d. Allow two weeks for review of all submittals unless an agreement for expedited review is made in writing by McClure.

e. McClure's submittal review scope of work includes a single submittal review and one review of the revised submittal if required (two reviews total of the same submittal). Time required for more than two reviews of a submittal is considered an additional service and will be billed hourly. McClure reserves the right to withhold review of a submittal surpassing this allowance until proper billing to the responsible party can be established.

f. Submittals must be returned to the Contractor by McCure bearing a stamp marked "Reviewed No Exception Taken" or "Reviewed With Comments/Exceptions" prior to proceeding with the work. Submittals marked "Reject/Resubmit" must be revised according to the comments provided prior to commencing with the respective scope of work. 2. Deferred Submittals:

a. See Section "B. Structural Engineering Design Narrative" for the list of items considered Deferred Submittals. b. Deferred Submittals shall bear the seal of a professional engineer licensed in the state where the project is located. If the project requires a licensed Structural Engineer (S.E.) as the Engineer of Record according to state laws, the same qualification level applies to the engineer sealing the Deferred Submittals.

Deferred Submittal items shall not be installed until the Deferred Submittal documents have been approved by the Building Official. Submittal List

a. Submittals (product data, test records, shop drawings, and/or calculations) are required for the following:

Submittal Name	Items Required:								
	Product Data	Shop Drawings	Test Records	Engineering Drawings	Engineering Calculations				
I. Concrete Mix Designs	Х		Х						
2. Concrete Break Reports			Х						
3. Concrete Reinforcing Layout		Х							
<ol> <li>Concrete Anchor Bolts &amp; Embedded Plates</li> </ol>	X	X							
<ol> <li>Concrete Anchors (Post- Installed)</li> </ol>	X								
<ol> <li>Post-Installed Anchor Substitutions (If used)</li> </ol>	X				Х				
7. Post-Installed Connection Geometry Alteration (If used)	X			Х	Х				
<ol> <li>Steel Stair Framing incl. Connections to Supports</li> </ol>				X	Х				
9. Wood Framing Materials	Х								
<ol> <li>Wood Floor &amp; Roof Trusses incl. Reactions</li> </ol>				X					
<ol> <li>Wood Truss Connections to Supporting Structure</li> </ol>				X	Х				
<ol><li>Specialty Wood Fasteners</li></ol>	X								
<ol> <li>All Cladding Systems &amp; Attachments as Identified in the Architectural Drawings (If used)</li> </ol>	X			X	X				

b. "Product Data" may indicate mill certifications, material data sheets, Evaluation Service Reports (ESRs), etc. See requirements of each material section of the general notes for further information.

c. Where "Engineering Drawings" and/or "Engineering Calculations" are indicated, the submittal must comply with the requirements of item "2. Deferred Submittals" above. 4. Submittals For Record:

a. The following items impact the structural design and therefore must be submitted to the engineer; however, they do not require review. They will be returned stamped as "Received For Record". Mechanical Equipment Shop Drawings with Weight

ii. Brick & Stone Veneer with Weight

<u>E. C</u>	ONCRETE
1.	Reinforced concrete shall have the for a. Slab on grade, unless noted oth
2. 3.	<ul> <li>All concrete exposed to weather sha Submit mix designs for all concrete r</li> <li>a. Batch quantities including admix</li> <li>b. Strength test results for trial mix</li> <li>c. Aggregate source(s) and gradat</li> <li>d. Product data for cement, fly ash</li> <li>e. Product data for all admixtures.</li> </ul>
4.	<ul> <li>Provide protection for reinforcing bar</li> <li>a. Concrete cast against and perm</li> <li>b. Concrete exposed to earth and y</li> <li>i. #5 and smaller</li> <li>ii. #6 and larger</li> <li>c. Concrete not exposed to weather</li> <li>i. Slabs and walls</li> </ul>
5.	II. Beams and columns Interface of all slab and foundation c and free of laitance. Immediately bef
6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	and free of laitance. Immediately bef Construction joints in walls shall be k Provide PVC waterstops in all below Provide compressible filler and seala All column pockets shall be filled with Sleeves and openings in slabs not sl approved by the Structural Engineer. Conduit and pipes embedded in slab and shall be placed no closer than 3 Conduits and pipes shall not be perm Provide concrete housekeeping pads beyond equipment a nominal 6" on a reinforcing per details. At floor drains, locally slope floor tow Foundation walls shall be temporarily item.
<u>Slat</u>	o on Grade
1. 2. 3.	Slab shall be constructed as shown of Slab-on-grade shall be founded on 6 The existing fill shall be removed a n necessary to remove and replace up risk assessment and verify with owner removed and filled with 12" engineer
4. 5.	compacted to a minimum of 98% of t the 12" depth required for the low vo Provide joints at 30 x slab thickness half bays, third bays, etc.). Submit co Saw cut control joints shall be done l of the saw blade.
6.	Concrete slab to be cured according

g to ACI Standards. Concrete slab cure to be compatible with any sealer, grout, or adhesive that may be used on the floor later. . At floor drains, locally slope floor towards drain. See architectural and plumbing drawings for drain locations. Subsurface Requirements Foundation design is based on geotechnical report by Terracon, dated June 10, 2024. A geotechnical representative shall be retained on site for all construction activity to verify that all proper requirements have been met to meet the design requirements outlined in the geotechnical report. Representative shall be Terracon or someone familiar with all documents

of the geotechnical investigation provided for the project The Contractor shall provide dewatering of excavations from surface water and ground water. Do not place concrete if water is present at base of excavation. Geotechnical Testing Agency Requirements

a. If the geotechnical representative on site takes exception to anything in the Geotechnical Report and requires additional field investigation to clarify those expectations, the cost of such investigation shall be included in the additional fee for field quality control and testing and identified as such. All other exceptions, the cost of such investigation shall be included in the additional fee for field guality control and testing and identified as such. All other exceptions shall be documented and approved by the geotechnical engineer. The geotechnical representative must have read all documents pertaining to the geotechnical report for the project and understood and accepted the criteria contained in the report.

## F. REINFORCING FOR CONCRETE

Ge	nera	I
a.	All	reinforcing steel to be ASTM
	i.	Any reinforcing to be welde
	ii.	Alternatively, ASTM A615 r
		-

- Structures" specifications.
- placed will not be permitted e. Field bending of reinforcing partially embedded in concrete will not be allowed unless specifically noted on the drawings or approved by
- the Structural Engineer. f. All reinforcing bars shall be co

Tensio Deve Bar Тор Size Bar 25 #4 #5 31 #6 37 #7 54 #8 62 48 62 14 80 16 #9 70 91

![](_page_81_Figure_68.jpeg)

![](_page_81_Picture_69.jpeg)

Provide (2) #5 x 6'-0" diagonals at all corners of openings and re-entrant corners, unless noted otherwise. i. Dowels between foundation and walls shall be installed and shall be the same grade, size, and spacing as the vertical wall reinforcing, unless noted otherwise Provide corner bars to match longitudinal reinforcing in all footings. Provide (2) corner bars at tee intersections. k. Provide 200 pounds of miscellaneous straight bar reinforcing (#4 & #5) to be used in field for special conditions. Labor for placing same to be included.

2. Slabs and Slabs-on-Grade

a. All slabs on grade to be reinforced with 6x6 – W2.9xW2.9 welded wire fabric, unless noted otherwise.

g. All welded wire fabric shall be lapped 12" or 48 wire diameters, whichever is greater.

2. Standard 90 deg. hook embedment lengths are based on bar side cover ≥ 2.5" and bar end cover  $\geq$  2" without ties around hook.

 $\geq 2^*d_b$  with ties or stirrups, and bar clear cover  $\geq 1.0^*d_b$  Normal weight concrete as well

as no transverse reinforcing are both assumed.

uncoated bars assuming center-to-center bar spacing  $\geq 3^*d_h$  without ties or stirrups or

54 91 70 22 10-3/4 15 1. Straight development and Class "B" splice lengths shown in above tables are based on

48 63 81

43 72 55 12 16 14 19 9-1/2

Other	Тор	Other	Embed	Leg	Bend
Bar	Bar	Bar		Length	Dia.
13	22	17	6	6	2-1/4
17	29	22	6	8	3
22	36	28	8	10	3-3/4
26	43	33	9	12	4-1/2
37	63	49	11	14	5-1/4

2. Standard 90 deg. hook embedment lengths are based on bar side cover ≥ 2.5" and bar end cover  $\geq$  2" without ties around hook. 3. For special seismic considerations, refer to ACI 318 Code Chapter 21. All tension splices shall be Class "B" splices unless noted otherwise on plans.

17 22 10-3/4 1. Straight development and Class "B" splice lengths shown in above tables are based on uncoated bars assuming center-to-center bar spacing  $\geq 3^*d_b$  without ties or stirrups or  $\geq 2^*d_b$  with ties or stirrups, and bar clear cover  $\geq 1.0^*d_b$  Normal weight concrete as well

54 70 15 19 9-1/2 79 61 102 79

iopment	Class I	s spiice	Sianu	ara 90 aeg	. поок	
Other	Тор	Other	Embed	Leg	Bend	
Bar	Bar	Bar		Length	Dia.	
15	24	19	6	6	2-1/4	
19	32	25	7	8	3	
24	40	31	9	10	3-3/4	
29	48	37	10	12	4-1/2	
42	70	54	12	14	5-1/4	
10	00	60	11	16	6	

ntact lap spliced or doweled as follows, unless noted otherwise:										
n Development and Splice Lengths for $f_c = 4,000$ psi										
lopment	Class "B" Splice Standard 90 deg. Hook									
Other	Тор	Other	Embed	Leg	Bend					
Bar	Bar	Bar		Length	Dia.					
15	24	19	6	6	2-1/4					
19	32	25	7	8	3					
24	40	31	9	10	3-3/4					

c. All reinforcing bars to be detailed and placed in accordance with the ACI "Manual of Standard Practice for Detailing Reinforced Concrete d. All reinforcing, including dowels, shall be securely tied and cast with the lower member. Placing reinforcing after concrete has been

iii. E70 electrodes are not permitted for welding rebar. b. Welded wire fabric shall be plain wire conforming to ASTM A1064. Welded wire fabric shall be in flat sheets.

A615, Grade 60, deformed bars, unless noted otherwise. ed shall be ASTM A706 and welded with E80 electrodes. einforcing may be welded with E90 electrodes and proper preheat according to AWS D1.4.

c. The geotechnical representative must understand and be able to make decisions affecting the work for field observations and conditions described in the report during construction. The representative must be capable of advising the owner or contractor for procedures regarding, but not limited to: sub-grade preparation, dewatering activities, and other construction considerations. 

ontrol joint layout to Architect for any exposed concrete surface. late enough to prevent raveling of the cut edges and early enough to prevent cracking of the slab ahead

the ASTM D698 maximum dry Standard Proctor density. The 6" aggregate base shall not be included in lume change layer. s (+-) in both directions and located to conform to bay spacing wherever possible (at column centerlines,

red fill consisting of low volume change material such as rollstone or wastelime. Granular fill shall be

to 6ft of existing fill, consult the on-site geotechnical representative. Refer to the geotechnical report for ership what direction shall be taken. At a minimum, per the geotechnical report, the existing fill shall be

on plans.  $5^{\circ}$  deep  $\frac{3}{4}^{\circ}$  clean aggregate base. ninimum of 18" below slabs on grade and footings. The Geotechnical Report notes that it may be

all sides. Apply a bonding agent to existing concrete slab prior to pouring of housekeeping pad. Provide vards drain. See architectural and plumbing drawings for drain locations. y braced until positive attachment is made to floor framing per details. This is a means and methods

bs, walls, or grade beams shall be no larger in outside dimension than 1/3 the overall member thickness diameters or widths on center. mitted in concrete pilasters or columns. s under all mechanical, plumbing, fire protection, and electrical equipment per plans. Pads shall extend

hown on structural drawings or outside the parameters of typical sleeve details are not permitted, unless

grade construction joints and at other locations as shown. ant in all slab-on-grade and wall and column interfaces that are not doweled together. h concrete after column is erected.

1-1/2" construction joints shall be roughened with 1/4" amplitude. Surface of construction joints shall be clean fore new concrete is placed, construction joints shall be wetted and standing water removed. keyed and placed at locations approved by the Architect and Structural Engineer.

3/4'

her and not in contact with ground:

1 - 1/2'

nanently exposed to earth weather (formed)

ixture dosage rates. tion(s). and other cementitious materials. ars as follows:

4000 psi normal weight nerwise 5000 psi normal weight all have 6% (+- 1%) air entrainment. mixes prior to placement. All submittals shall include the following:

ollowing minimum 28 day compressive strengths:

![](_page_81_Figure_141.jpeg)

S00<sup>-</sup>

2001 W Broadway

Columbia, MO 65203

P 573-814-1568

Wood Wall Leastion		Wall Stu	Shoothing & Eastoning II		
		Level 1	Level 2	Level 3	Sileatining & Fasterining U.I
Exterior & Breezeway Wa	alls (1)	2x6 @ 24" o.c.	(1) 2x6 @ 24" o.c.	(1) 2x6 @ 24" o.c.	15/32" Structural wood sheathing 6" o.c. edge fastening, 12"
Interior Unit Walls (indicat	ed) (2)	2x4 @ 12" o.c.	(1) 2x4 @ 12" o.c.	(1) 2x4 @ 16" o.c.	5/8" Gypsum wallboard fastened v 7" o.c. edge fastening, 7" o
Unit Separation Walls	(1)	2x4 @ 16" o.c.	(1) 2x4 @ 16" o.c.	(1) 2x4 @ 16" o.c.	5/8" Gypsum wallboard fastened v 7" o.c. edge fastening, 7" o

Notes:

1. Wall stud spacing is to be per schedule unless noted otherwise.

2. Bottom sill plates at foundation to be fastened w/ 3/8"Ø x 6" Hilti Kwik HUS-EZ Bolts @ 48" o.c. U.N.O.

3. Bottom sill plate connections shall have a 3"x3" steel plate washer at each anchor bolt on shear walls only.

4. Sill and top plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O. 5. Shear walls shall be sheathed & fastened per shear wall schedule

6. Non-load bearing walls not shown, refer to architectural drawings.

7. All top plates are to be continuous. Splice per 4/S500

8. U.N.O. bottom sill plates shall be (1) 2x member matching wall thickness, and top plates shall be (2) 2x members.

WOOD COLUMN SCHEDULE									
Mark	Level 1	Level 2	Level 3						
C1	(3) 2x6	(3) 2x6	(3) 2x6						
C2	(4) 2x4	(3) 2x4	(3) 2x4						
Notes:									

1. All exterior columns are to be pressure treated

		WOOD BEAM SCHEDU	LE
Mark	Max. Span (ft-in)	Beam Size	Hanger
B1	8'-6"	(2) 2x12 1	Simpson U210-
B2	16'-3" (	(2) 1-3/4"x11-1/4" LVL	Simpson HU212
B3	8'-6"	ر (2) 1-3/4"x11-1/4" LVL	Simpson HGUS4
B4	4'-2"	(2) 2x10	Simpson HUCQ210-2
B6	8'-6"	(3) 2x12	Simpson HUCQ210-3
Notes:			

1. All exterior beams are to be pressure treated.

2. All LVL shall be stress class 2.0E-2500F

3. Hangers to be installed with typical fasteners per manufacturer product data

	WOOD SHEAR WALL SCHEDULE							
Mark	Level	Sheathing/ Fastener Layout	Post	Hold-Down	Min. Sill/Top Plate	Base Connection		
	Level 3	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening Unblocked	(2) 2x6	MSTA 49 w/ (26) 0.148X2-1/2" nails	(1) 2x6	(2) 16d nails @ 12" o.c.		
SW1	Level 2	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening	(2) 2x6	MST48 w/ (34) 0.162x2-1/2" nails	(1) 2x6	(2) 16d nails @ 6" o.c.		
	Level 1	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 3" Edge fastening	(2) 2x6	HTT4 w/ (18) SD #10x1-1/2 & 5/8"Ø Anchor Rod	(1) 2x6	(1) HILTI KH-EZ 3/8"Øx 6" @ 12" o.c.		
	Level 3	(1) Sided, Gypsum Wallboard - 1/2" Thick, 5d Nail, 7" Edge Fastening, 16" O.C.	(2) 2x4	LSTA9 w/ (8) 0.148"x2-1/2" nails	(1) 2x4	(2) 16d nails @ 16" o.c.		
SW2	Level 2	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening	(2) 2x4	MSTA 49 w/ (26) 0.148X2-1/2" nails	(1) 2x4	(2) 16d nails @ 12" o.c.		
	Level 1	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening	(3) 2x4	HTT4 w/ (18) SD #10x1-1/2 & 5/8"Ø Anchor Rod	(1) 2x4	(1) HILTI KH-EZ 3/8"Øx 6" @ 24" o.c.		
SW3	Level 3	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening	(2) 2x6	MSTA 49 w/ (26) 0.148X2-1/2" nails	(1) 2x6	(2) 16d nails @ 12" o.c.		
	Level 2	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 3" Edge fastening	(2) 2x6	MST60 w/ (46) 0.162x2-1/2" nails	(1) 2x6	(2) 16d nails @ 4" o.c.		
	Level 1	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 2" Edge fastening	(2) 2x6	HDU8-SDS2.5 w/ (20) 1/4"Øx2-1/2"SDS Screws & 7/8"Ø Anchor Rod	(1) 2x6	(1) HILTI KH-EZ 3/8"Øx 6" @ 8" o.c.		

1. See S530 for typical shear wall framing

2. All threaded rods shall be F1554 GR105

3. Floor to floor strap ties at top of wall shall match that of the floor above.

4. All hold downs and strap ties are Simpson Strong-Tie brand, U.N.O.

5. Bottom sill plate connections shall have a 3"x3"x1/4" steel plate washer at each anchor bolt on shear walls only.

6. All drag trusses shall be connected to shear walls per detail 4/S530.

7. Provide floor to floor strapping on the same side as the OSB sheathing.

8. Field fastening for all sheathing to be 12" O.C. U.N.O

9. All shear walls to be blocked at all panel joints unless noted "Unblocked."

## .N.O. (See Note 5) g fastened w/ 10d nails. o.c. field fastening w/ 1 5/8" Type W screws. o.c. field fastening w/ 1 5/8" Type W screws. o.c. field fastening

	TYPICAL WALL HEADER SCHEDULE (STACKED OPENINGS)											
Oraniaa	Max Chan		Header					Kings	& Jacks			Sills*
Opening	(ft_in)				Header Plates*	Lev	/el 1	Lev	/el 2	Lev	el 3	All Levels
INICIA	(11-11)	Level I	Leverz	Level 5	(All Levels)	Kings	Jacks	Kings	Jacks	Kings	Jacks	(if applicable)
H1	4'-2"	(2) 2x10	(2) 2x10	(2) 2x8		(3) 2x4	(1) 2x4	(2) 2x4	(1) 2x4	(1) 2x4	(1) 2x4	(1) 2x4
H2	3'-4"	(2) 2x8	(2) 2x8	(2) 2x8		(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6
H3	6'-4"	(2) LVL 1-3/4 x 11-7/8 (2)	) LVL 1-3/4 x 11-7/8	(3) 2x10	(1) 2x6 T&B	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6
H4	9'-8"	(3) LVL 1-3/4 x 11-7/8			(1) 2x6 T&B	(2) 2x6	(1) 2x6					(2) 2x6
H5	6'-4"		(3) 2x10	(3) 2x10	(1) 2x6 T&B	(2) 2x6	(1) 2x6					
🌾 H6 3	6'-4"	(3) 2x10	(3) 2x10	(3) 2x12	(1) 2x6 T&B	(2) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6
H=Ano	pening whic	h requires a header				Notes:						

notes

2. All openings should stack according to the plans. 3. Coordinate all dimensions and elevations with architectural drawings.

Mark

J1

![](_page_82_Picture_33.jpeg)

Туре	Membrane/Sheathing	Fastening	Concrete/Topping	Reinforcing	
Slab on Grade	12mil Vapor Retarder	Taped Edges	4" NW Concrete U.N.O.	See General Notes	
Breezeway Floor	3/4" Plywood	10d @ 6/12	1 1/2" Gypcrete Toping	See General Notes	
Interior Floors	3/4" Plywood	10d @ 6/12	3/4" Gypcrete Topping		
Roof	15/32" Plywood	10d @ 6/12 UNO			

1. Vapor barrier to be placed over compacted fill per general notes.

2. Plywood sheathing to be fastened per detail 2/S500

3. Floor/Roof diaphragm are unblocked unless noted otherwise on plan.

4. Plywood to be Structural Grade 1 Material

5. See architectural drawings for full floor and roof assemblies including nonstructural elements.

1. See S500 for typical opening framing.

4. Cripple studs should match the adjacent wall framing.

5. \* Header top and bottom plates and sills should match the wall stud depths.

6. All LVL shall be stress class 2.0E-2500F

JOIST & HA	NGER SCHEDULE
Joist Size	Hanger
2x12	Simpson LUS28

1. Hangers to be installed with typical fasteners per manufacturer product data 2. All exterior members are to be pressure treated

![](_page_82_Picture_47.jpeg)

![](_page_83_Figure_0.jpeg)

![](_page_83_Picture_1.jpeg)

 (H?#)
 HEADER/OPENING PER OPENING SCHEDULE

 (SW?)
 SHEAR WALL TYPE, SHEAR WALL INDICATED BY

 (F?)
 INDICATES FOOTING TYPE

- C# INDICATES COLUMN TYPE
- B# INDICATES BEAM TYPE
- P\* JAMB FROM OPENING ABOVE
- BREEZEWAY SHEATHING ELEVATION VARIES FROM TYP. SEE ARCH. & SCHEDULES
- E.O.S. INDICATES EDGE OF CONCRETE SLAB

![](_page_83_Figure_10.jpeg)

### FOUNDATION PLAN NOTES:

- SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS) • T.O. SLABE-ON-GRADE: 100'-0" PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER DETAIL 5/S501 AND
- PER GENERAL NOTES. 3. COORDINATE PLUMBING FIXTURES AND FLOOR DRAINS WITH ARCH. & MEP DRAWINGS.
- ALL EXTERIOR AND INTERIOR LOAD BARING WALLS ARE PER WALL SCHEDULE ON SHEET S003. SEE ARCHITECTURAL FLOOR PLAN FOR
- NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
- SEE SHEET S501 & S502 FOR DETAILS.

FOUNDATION SCHEDULE						
Mark	Mark Size Reinforcing					
F1	2'-6"x2'-6"x1'-0"	(3) #4 BARS Top & Bottom (Each Way)				
Notes:	Notes:					

1. All footings must be centered on walls and columns U.N.O.

![](_page_83_Picture_19.jpeg)

![](_page_84_Figure_0.jpeg)

![](_page_84_Picture_1.jpeg)

H?#)	HEADER/OPENING PER OPENING SCHEDULE
SW?	SHEAR WALL TYPE, SHEAR WALL INDICATED BY
F?	INDICATES FOOTING TYPE
C#	INDICATES COLUMN TYPE

- B# INDICATES BEAM TYPE
- P\* JAMB FROM OPENING ABOVE
- BREEZEWAY SHEATHING ELEVATION VARIES FROM TYP. SEE ARCH. & SCHEDULES
- E.O.S. INDICATES EDGE OF CONCRETE SLAB

	INOTES:	
1.	<ul> <li>SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS)</li> <li>T.O. SLAB-ON-GRADE: 100'-0"</li> <li>LEVEL 2 F.F.: 110'-5 7/8"</li> <li>LEVEL 3 F.F.: 120'-11 3/4"</li> <li>TRUSS BRG: 130'-0 7/8"</li> </ul>	2001 W Broadway
2.	FLOOR SHEATHING: 15/32" STRUCTURAL GRADE PLYWOOD. FASTEN TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD.	P 573-814-1568
3.	ROOF SHEATHING: 15/32" STRUCTURAL GRADE PLYWOOD. FASTEN TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD.	
4.	COORDINATE PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS WITH ARCH. & MEP DRAWINGS.	
5.	ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S003. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS	
6.	FLOOR PLAN SHOWS FRAMING FOR THE FLOOR INDICATED & VERTICAL FRAMING (WALLS, HEADERS, POSTS, COLUMNS) SUPPORTING THAT FLOOR.	
7.	SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.	
8.	REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.	NOTICE:
9.	ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.	McClure Engineering Co. is not
10.	WOOD FLOOR TRUSSES TO BE DESIGNED BY MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA	claims, damages, or losses (collectively "Losses") which arise from failure to follo
11.	TRUSS MANUFACTURER TO DESIGN & PROVIDE GIRDER TRUSSES AT ALL FLOOR OPENINGS & SPECIFY HANGERS FOR GIRDERS & SUPPORTED FRAMING.	these Plans, Specifications, and the engineering intent they convey, or for
12.	REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.	Losses which arise from failure to obtain and/or follow the engineers' or surveyors
13.	COLUMN FRAMING MAY BE USED IN LIEU OF SHEAR WALL END POST FRAMING AT END OF SHEAR WALLS.	guidance with respect to any alleged errors, omissions, inconsistencies, ambiguities, or conflicts contained withi the Plans or Specifications.

![](_page_84_Picture_11.jpeg)

EXPIRES: DECEMBER 31, 2025

![](_page_85_Figure_0.jpeg)

![](_page_85_Picture_1.jpeg)

 (H?#)
 HEADER/OPENING PER OPENING SCHEDULE

 (SW?)
 SHEAR WALL TYPE, SHEAR WALL INDICATED BY

 (F?)
 INDICATES FOOTING TYPE

- C# INDICATES COLUMN TYPE
- B# INDICATES BEAM TYPE
- P\* JAMB FROM OPENING ABOVE
- BREEZEWAY SHEATHING ELEVATION VARIES FROM TYP. SEE ARCH. & SCHEDULES
- E.O.S. INDICATES EDGE OF CONCRETE SLAB

	PLAN NOTES:         1.       SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS)         •       T.O. SLAB-ON-GRADE: 100'-0"         •       LEVEL 2 F.F.:         •       LEVEL 3 F.F.:         •       TRUSS BRG:	LINE COLURE ™ Columbia, MO 65203 P 573-814-1568
1	<ol> <li>ROOF SHEATHING: 15/32" STRUCTURAL GRADE PLYWOOD. FASTEN TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD.</li> <li>COORDINATE PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS WITH ARCH. &amp; MEP DRAWINGS.</li> <li>ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S003. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.</li> <li>FLOOR PLAN SHOWS FRAMING FOR THE FLOOR INDICATED &amp; VERTICAL FRAMING (WALLS, HEADERS, POSTS, COLUMNS) SUPPORTING THAT FLOOR.</li> <li>SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.</li> <li>REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS &amp; OTHER CONNECTIONS.</li> <li>ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.</li> <li>WOOD FLOOR TRUSSES TO BE DESIGNED BY MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.</li> <li>TRUSS MANUFACTURER TO DESIGN &amp; PROVIDE GIRDER TRUSSES AT ALL FLOOR OPENINGS &amp; SPECIFY HANGERS FOR GIRDERS &amp; SUPPORTED FRAMING.</li> <li>REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.</li> <li>REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.</li> <li>COLUMN FRAMING MAY BE USED IN LIEU OF SHEAR WALL END POST FRAMING AT END OF SHEAR WALLS.</li> </ol>	NOTICE: McClure Engineering Co. is not responsible or liable for any issues, claims, damages, or losses (collectively, "Losses") which arise from failure to follow these Plans, Specifications, and the engineering intent they convey, or for Losses which arise from failure to obtain and/or follow the engineers' or surveyors' guidance with respect to any alleged errors, omissions, inconsistencies, ambiguities, or conflicts contained within the Plans or Specifications. WYOMING CERTIFICATE OF AUTHORITY NO. E-1790 EXPIRES: DECEMBER 31, 2025
)		Image: Solution of the state of the sta
3 (S520)		PROJECT NUMBER SET ISSUE DATE 2024000185 07/17/2024
	RAG BLOCKING @ SHADED END VALLS TO TRANSFER THE OLLOWING ASD LOADS: VL: 240PLF L: 175PLF	ENGINEER DRAWN BY CHECKED BY MDH CEL IWC
		JONES GILLAM RENZ THE RESERVES AT GRAND VIEW HEIGHT LARMIE, WY BUILDING A - LEVEL 2 & 3
		S112

![](_page_86_Figure_0.jpeg)

![](_page_86_Picture_1.jpeg)

(H?#) HEADER/OPENING PER OPENING SCHEDULE (SW?) SHEAR WALL TYPE, SHEAR WALL INDICATED BY (F?) INDICATES FOOTING TYPE

- C# INDICATES COLUMN TYPE
- B# INDICATES BEAM TYPE
- P\* JAMB FROM OPENING ABOVE
- BREEZEWAY SHEATHING ELEVATION VARIES FROM TYP. SEE ARCH. & SCHEDULES

E.O.S. INDICATES EDGE OF CONCRETE SLAB

![](_page_86_Figure_10.jpeg)

FOUNDAT 1. SE EL • 2. PF 3. CC MI 4. AL SC NC	ION PLAN NOTES: E ARCHITECTURAL DRAV EVATION. FOR REFERENC EVATIONS AND DIMENSIO T.O. SLABE-ON-GRA OVIDE CONTROL JOINTS R GENERAL NOTES. DORDINATE PLUMBING FIX P DRAWINGS. L EXTERIOR AND INTERIO HEDULE ON SHEET S003 DN-BEARING WALL, DOOR	VINGS FOR SITE PLAN BENCHMARK CE ELEVATIONS, SEE BELOW (VERIFY ALL ONS WITH ARCHITECTURAL DRAWINGS) DE: 100'-0" IN SLAB ON GRADE PER DETAIL 5/S501 AND KTURES AND FLOOR DRAINS WITH ARCH. & OR LOAD BARING WALLS ARE PER WALL . SEE ARCHITECTURAL FLOOR PLAN FOR & AND WINDOW LOCATIONS.					
6. SE	TIES, HOLD DOWNS & OTHER CONNECTIONS. 6. SEE SHEET S501 & S502 FOR DETAILS.						
	FOUND	ATION SCHEDULE					
Mark	Size	Reinforcing					

Notes: 1. All footings must be centered on walls and columns U.N.O.

![](_page_86_Figure_13.jpeg)

![](_page_87_Figure_0.jpeg)

![](_page_87_Picture_1.jpeg)

( <u>H?</u> #)	HEADER/OPENING PER OPENING SCHEDULE
SW?) S	SHEAR WALL TYPE, SHEAR WALL INDICATED I
F?	NDICATES FOOTING TYPE

- C# INDICATES COLUMN TYPE
- B# INDICATES BEAM TYPE
- P\* JAMB FROM OPENING ABOVE BREEZEWAY SHEATHING ELEVATION VARIES FROM
- TYP. SEE ARCH. & SCHEDULES
- E.O.S. INDICATES EDGE OF CONCRETE SLAB

![](_page_87_Figure_10.jpeg)

DRAWING NO.

S121

![](_page_88_Figure_0.jpeg)

![](_page_88_Picture_1.jpeg)

![](_page_88_Picture_2.jpeg)

(H?#) HEADER/OPENING PER OPENING SCHEDULE (SW?) SHEAR WALL TYPE, SHEAR WALL INDICATED BY (F?) INDICATES FOOTING TYPE

- C# INDICATES COLUMN TYPE
- B# INDICATES BEAM TYPE
- P\* JAMB FROM OPENING ABOVE
- BREEZEWAY SHEATHING ELEVATION VARIES FROM TYP. SEE ARCH. & SCHEDULES
- E.O.S. INDICATES EDGE OF CONCRETE SLAB

PLAN	NOTES:			
<ol> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> <li>8.</li> <li>9</li> </ol>	SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS) • T.O. SLAB-ON-GRADE: 100'-0" • LEVEL 2 F.F.: 110'-5 7/8" • LEVEL 3 F.F.: 120'-11 3/4" • TRUSS BRG: 130'-0 7/8" FLOOR SHEATHING: 15/32" STRUCTURAL GRADE PLYWOOD. FASTEN TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD. ROOF SHEATHING: 15/32" STRUCTURAL GRADE PLYWOOD. FASTEN TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD. ROOF SHEATHING: 15/32" STRUCTURAL GRADE PLYWOOD. FASTEN TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD. COORDINATE PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS WITH ARCH. & MEP DRAWINGS. ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S003. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS. FLOOR PLAN SHOWS FRAMING FOR THE FLOOR INDICATED & VERTICAL FRAMING (WALLS, HEADERS, POSTS, COLUMNS) SUPPORTING THAT FLOOR. SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED		2001 W Broadv Columbia, MO 68 P 573-814-156	Vay 5203 58 Co. is not
9. 10. 11. 12. 13.	ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED. WOOD FLOOR TRUSSES TO BE DESIGNED BY MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA. TRUSS MANUFACTURER TO DESIGN & PROVIDE GIRDER TRUSSES AT ALL FLOOR OPENINGS & SPECIFY HANGERS FOR GIRDERS & SUPPORTED FRAMING. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA. COLUMN FRAMING MAY BE USED IN LIEU OF SHEAR WALL END POST FRAMING AT END OF SHEAR WALLS.	l cla "Los t e Los and g and	responsible or liable for ims, damages, or losse ises") which arise from hese Plans, Specification ngineering intent they c ses which arise from fa l/or follow the engineers uidance with respect to errors, omissions, incor biguities, or conflicts co the Plans or Specifi	any issues, s (collectively, failure to follow ons, and the onvey, or for ailure to obtain or surveyors' any alleged nsistencies, ontained within cations.
			NO. E-1790 EXPIRES: DECEMBE	R 31, 2025
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	S122	2	D-12021000

PROJECT NUMBER

2024000185

JONES GILLAM RENZ THE RESERVES AT GRAND VIEW HEIGHTS

![](_page_89_Figure_0.jpeg)

![](_page_90_Figure_0.jpeg)

![](_page_91_Picture_0.jpeg)

9 FRAMING AT PARTY WALL - JOIST PARALLEL \$510 1" = 1'-0"

SHEAR WALL

PER PLAN

BLOCKING @ 48" O.C.

BLOCKING

@ 48" O.C.

WIND: 165PLF

SEISMIC: 325PLF

DRAG TRUSS TO TRANSFER THE FOLLOWING ASD DRAG LOADS:

![](_page_91_Figure_2.jpeg)

![](_page_91_Figure_3.jpeg)

![](_page_91_Figure_4.jpeg)

![](_page_91_Figure_5.jpeg)

10 FRAMING AT PARTY WALL - JOIST BEARING \$510 1" = 1'-0"

JOIST PER

MFR

SHEAR WALL

PER PLAN

JOIST PER

MFR

![](_page_91_Figure_12.jpeg)

![](_page_92_Figure_0.jpeg)

![](_page_92_Figure_1.jpeg)

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GILLAM ESERVES

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![](_page_93_Figure_0.jpeg)

P:\2024000185-000 - JGR - The Reserves at Grand View Heights\04-Drawings\2024000185 - JGR - THE RESERVES AT GRAND VIEW HEIGHT

![](_page_94_Figure_0.jpeg)

# **BUILDING - A WATER RISER CLOSET**

![](_page_94_Figure_2.jpeg)

![](_page_94_Figure_3.jpeg)

![](_page_94_Figure_4.jpeg)

![](_page_94_Figure_5.jpeg)

![](_page_94_Picture_6.jpeg)

#### LST Consulting Engineers, PA MANHATTAN 4809 Vue Du Lac Place, Suite 201 Manhattan, KS 66503 125 S. Washington, Suite 150 Wichita, Kansas 67202

316.285.0696

www.LSTengineers.com mail@LSTengineers.com Project 24037 July 2023

785.587.8042

# M/E NOTES BY SYMBOL

- PROVIDE PHOTOCELL ON NORTH SIDE OF BUILDING FOR OPERATION OF BREEZEWAY AND BUILDING MOUNTED LIGHTS, SEE DETAIL 2:E6.1 FOR MORE INF ORMATION.
   PROVIDE SMOKE DETECTOR ABOVE FACP AND CONNECT TO FIRE ALARM SYSTEM.
- 3. CONNECT FIRE SPRINKLER FLOW AND TAMPER SWITCHES TO FIRE ALARM SYSTEM.
- 4. FIRST FLOOR ONLY: ELECTRIC SERVICE AND METER. SEE RISER DIAGRAMS ON SHEET E6.2. SEE M/E SITE PLAN FOR EXACT LOCATION AT EACH BUILDING AND COORDINATE EXACT LOCATION WITH UTILITY COMPANY.
- 5. HOUSE PANEL 'HA'. PROVIDE RESERVED SPACE TO ALLOW INSTALLATION OF A 2-POLE BREAKER FOR FUTURE SOLAR POWER SYSTEM. THIS SPACE IS TO BE LABELED 'FOR FUTURE SOLAR ELECTRIC'. THE RESERVED SPACE IS TO BE POSITIONED AT THE END OF THE PANEL THAT IS OPPOSITE FROM THE PANEL SUPPLY CONDUCTOR CONNECTION.
- 6. HOUSE PANEL 'HB'. PROVIDE RESERVED SPACE TO ALLOW INSTALLATION OF A 2-POLE BREAKER FOR FUTURE SOLAR POWER SYSTEM. THIS SPACE IS TO BE LABELED 'FOR FUTURE SOLAR ELECTRIC'. THE RESERVED SPACE IS TO BE POSITIONED AT THE END OF THE PANEL THAT IS OPPOSITE FROM THE PANEL SUPPLY CONDUCTOR CONNECTION.
- 7. EXTERIOR FIRE ALARM BELL, CONNECT TO FIRE ALARM PANEL SYSTEM COORDINATE LOCATION WITH AUTHORITY HAVING JURISDICTION.
- 8. PROVIDE (2) PHONE LINES FOR MONITORING OF FIRE SPRINKLER SYSTEM. REFERENCE SPECIFICATION NOTES FOR ADDITIONAL INFORMATION.
- 9. 4" PVC PIPE FOR FUTURE RADON SYSTEM BY OTHERS. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH ARCHITECT. PROVIDE OUTLET IN ATTIC NEAR RADON PIPE FOR FUTURE RADON FAN.
- 10. CONNECT NON-FREEZE WALL HYDRANT WITH 1/2" CW BRANCH TO SERVICE PIPING AHEAD OF TENANT WATER METER AND PROVIDE SHUT-OFF VALVE ACCESSIBLE IN MECHANICAL CLOSET. REFERENCE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT AND COORDINATE WITH G.C. (TYPICAL)
- 11. FIRE PROTECTION RISER SEE DETAIL ON P6.1.
- 12. SEE OVERALL PLAN ON THIS SHEET FOR CONTINUATION. COORDINATE FINAL ROUTING OF MAIN WATER PIPING WITH G.C. PRIOR TO ROUGHING IN. (TYPICAL)
- 13. CONNECT EMERGENCY LIGHT/EXIT SIGN TO UNSWITCHED CIRCUITRY SERVING LIGHTING IN BREEZEWAY.
- 14. EXTERIOR LIGHTS TO BE CONTROLLED VIA PHOTOCELL AND CON TACTOR, SEE DETAIL 2:E6.1 FOR MORE INFORMATION.
- 15. WHERE FIRE PROTECTION PIPING MUST CROSS HALLWAY, ROUTE IN SOFFIT. PROVIDE HEAT TRACE AND INSULATE PIPING IN SOFFIT PER HEAT TRACE MANUFACTURER'S INSTRUCTIONS. PROVIDE ALL REQUIRED HEAT TRACE COMPONENTS AND CONTROLS FOR FREEZE PROTECTION OF WATER PIPING. COORDINATE WITH E.C.
- 16. COLD WATER RISER, SEE RISER DIAGRAM S ON SHEET P5.2 FOR MORE INFORMATION.
- 17. TO LIGHTS ON 2ND FLOOR BREEZEWAY.
- 18. FROM LIGHTS ON 1ST FLOOR BREEZEWAY
- 19. TO LIGHTS ON 3RD FLOOR BREEZEWAY.
- 20. FROM LIGHTS ON 2ND FLOOR BREEZEWAY.
- DOWNLIGHTS TO BE INSTALLED IN SOFFIT ABOVE THIRD FLOOR. (TYPICAL)
   PROVIDE MANUAL PULL STATION AT FACP CLOSET AND CONNECT TO FIRE ALARM
- SYSTEM. 23. COORDINATE EXACT LOCATION OF FIRE DEPARTMENT CONNECTION WITH AUTHORITY HAVING JURISDICTION.
- 24. CONNECT HEAT TRACE FOR PIPING IN SOFFIT. COORDINATE REQUIREMENTS WITH OTHER TRADES.
- 25. TELEPHONE TERMINAL BOARD: COVER WALL AS INDICATED ON PLAN WITH 4'x8'x3/4" ACX FIRE RETARDANT PLYWOOD SHEETS INSTALLED VERTICALLY WITH BOTTOM AT 6" AFF. PLYWOOD SHALL BE PERMANENTLY FASTENED TO THE WALL BY MEANS OF WALL ANCHORS UTILIZING GALVANIZED, ZINC PLATED, OR STAINLESS STEEL HARDWARE WITH A FLAT HEAD. FINISHED INSTALLATION SHALL HAVE FLUSH APPEARANCE WITH COUNTERSUNK SCREW HEADS TO PREVENT SPLITTING OF THE PLYWOOD. DRYWALL SCREWS ARE NOT ACCEPTABLE. PAINT WITH TWO COATS OF LIGHT GRAY FIRE RETARDANT SEALER PRIOR TO INSTALLATION OF ANY EQUIPMENT.
- 26. TELECOMMUNICATION GROUND BAR AT 18" AFF SHALL BE 13-1/4"W x 2"H x 1/4" THICK ELECTRO-TIN PLATED COPPER BUS BAR, COMPETE WITH INSULATED STAND-OFFS AND STAINLESS STEEL BRACKETS, ERICO #TGBA14LO6PT OR EQUAL. BOND TO EQUIPMENT GROUND BUS AT METER CENTER MAIN AND HOUSE PANEL WITH #4 AWG INSULATED STRANDED COPPER. INSTALL GROUNDING / BONDING CONDUCTORS IN 3/4" CONDUIT WHERE EXPOSED AND WHERE SUBJECT TO PHYSICAL DAMAGE. ALL CONNECTION TO GROUND BAR SHALL BE MEADE USING COMPRESSION TYPE LUGS (MECHANICAL LUGS ARE NOT ACCEPTABLE).
- 27. (2) 2" CONDUITS FOR COMMUNICATIONS SERVICES. SEE SITE PLAN, E1.0 FOR CONTINUATION.
- 28. PROVIDE JUNCTION BOX IN SOFFIT FOR FUTURE ROOF AND GUTTER DE-ICING CABLE. PROVIDE 1" CONDUIT WITH PULL STRING FROM JUNCTION BOX TO HOUSE PANEL. PROVIDE JUNCTION BOX WITH WEATHER PROOF BLANK COVER.
- 29. CIRCUIT BREEZWAY LIGHTS FOR CONTINUOUS OPERATION.

NOTE: ALL AREAS OF BUILDINGS TO BE PROTECTED WITH SPRINKLER SYSTEM DESIGNED IN ACCORDANCE WITH NFPA 13R. FIRE PROTECTION CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS TO AHJ FOR APPROVAL. BREEZEWAYS, BALCONIES, AND OTHER UNHEATED AREAS ARE TO BE PROVIDED WITH FREEZE-PROOF HEADS AND PIPING.

SEE SHEET P4.1 FOR DOMESTIC WATER DISTRIBUTION IN INDIVIDUAL APARTMENTS.

![](_page_94_Figure_39.jpeg)

![](_page_94_Figure_40.jpeg)

![](_page_94_Picture_41.jpeg)

![](_page_94_Picture_42.jpeg)

![](_page_95_Figure_0.jpeg)

3 2 BEDROOM ENLARGED FLOOR PLAN - 1ST & 2ND FLOORS

![](_page_95_Figure_2.jpeg)

![](_page_95_Figure_3.jpeg)

![](_page_95_Figure_4.jpeg)

 $4 \frac{3 BEDROOM ENLARGED FLOOR PLAN - 1ST & 2ND FLOORS}{1/4" = 1'-0"}$ 

![](_page_95_Picture_6.jpeg)

#### LST Consulting Engineers, PA MANHATTAN 4809 Vue Du Lac Place, Suite 201 Manhattan, KS 66503 785.587.8042 UWW.LSTengineers.com

mail@LSTengineers.com
Project 24037 July 2023

# MECHANICAL NOTES BY SYMBOL NOTES SHOWN ARE TYPICAL FOR ALL APARTMENTS WHERE APPLICABLE.

1. ROUTE 3/4" CONDENSATE DRAIN FROM VTAC TO ABOVE FLOOR DRAIN.

2. PROVIDE UL LISTED DRYER BOX EQUAL TO IN-O-VATE TECHNOLOGIES IN WALL INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND ROUTE 4"Ø DRYER EXHAUST DUCT BELOW FLOOR TO WALL CAP WITH BACKDRAFT DAMPER. MANUFACTURER'S MAXIMUM ALLOWABLE DUCT LENGTH = 45' WITH TWO 90' ELBOW. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT PROVIDED. PROVIDE PERMANENT LABEL IDENTIFYING EQUIVALENT LENGTH OF DRYER DUCT INSTALLED PER IMC 504.

<u>NOTE:</u> ANNULAR SPACE AROUND DUCT IS TO BE SEALED AT ALL PENETRATIONS OF FLOORS AND CEILINGS WITH U.L. LISTED FIRE STOPPING SYSTEM.

- 3. ROUTE 4"Ø EXHAUST DUCT TO SOFFIT VENT EQUAL TO PANASONIC EZSOFFIT VENT.
- 4. ROUTE 6"Ø EXHAUST DUCT FROM EXHAUST FAN TO SOFFIT VENT EQUAL TO PANASONIC EZSOFFIT VENT. TRANSITION TO CONNECTIONS AT SOFFIT VENT AND FAN.
- 5. ROUTE ALL SUPPLY AND RETURN DUCTWORK ON 3RD FLOOR APARTMENTS IN SOFFITS OR DROPPED CEILING AREAS. SUPPLY AND RETURN DUCTWORK SHALL BE ROUTED BELOW DRYWALL AT BOTTOM OF ROOF TRUSSES WITHIN BUILDING AIR BARRIER AND THERMAL ENVELOPE. COORDINATE EXACT SOFFIT LOCATION WITH ARCHITECT AND G.C.
- ROUTE 4"Ø EXHAUST DUCT TO WALL CAP WITH BIRD SCREEN AND BACKDRAFT DAMPER.
- 7. ROUTE 6"Ø EXHAUST DUCT TO WALL CAP WITH BIRD SCREEN AND BACKDRAFT DAMPER.
- TRANSITION FROM CONNECTION AT VTAC TO 12/12 SUPPLY DUCT.
   TRANSITION FROM CONNECTION AT VTAC TO SUPPLY DUCT.
- PROVIDE UL LISTED DRYER BOX EQUAL TO IN-O-VATE TECHNOLOGIES IN WALL INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND ROUTE 4"Ø DRYER EXHAUST DUCT TO WALL CAP WITH BACKDRAFT DAMPER. MANUFACTURER'S MAXIMUM ALLOWABLE DUCT LENGTH = 45' WITH TWO 90° ELBOW. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT PROVIDED. PROVIDE PERMANENT LABEL IDENTIFYING EQUIVALENT LENGTH OF DRYER DUCT INSTALLED PER IMC 504.

NOTE: ANNULAR SPACE AROUND DUCT IS TO BE SEALED AT ALL PENETRATIONS OF FLOORS AND CEILINGS WITH U.L. LISTED FIRE STOPPING

- 11. PROVIDE U.L. LISTED RADIATION DAMPER AT ALL MEMBRANE PENETRATIONS OF FLOOR CEILING ASSEMBLY. REFERENCE DETAIL 3 SHEET M6.1 FOR MORE INFORMATION.
- 12. MOUNT RETURN GRILLES ON BOTH SIDES OF WALL. CENTER RETURN GRILLE BETWEEN CEILING AND TOP OF DOOR. PROVIDE TRANSFER DUCT BETWEEN GRILLES.
- 13. ENSURE VTAC, WALL SLEEVE, AND LOUVER ARE SEALED TO MAINTAIN INTEGRITY OF AIR BARRIER.
- 14. TWO SPEED KITCHEN EXHAUST FAN UTILIZED AS VENTILATION FAN PER REQUIREMENTS OF IMC AND ENERGY STAR. FAN SHALL OPERATE CONTINUOUSLY AT AIRFLOW INDICATED ON PLANS. COORDINATE WITH ELECTRICAL CONTRACTOR TO PROVIDE OVERRIDE SWITCH TO ALLOW OCCUPANT TO INCREASE FAN AIRFLOW TO 100 CFM FOR INTERMITTENT OPERATION.

NOTES:

- ALL PENETRATIONS OF APARTMENT AIR BARRIERS SHALL BE SEALED TO MAINTAIN INTEGRITY OF AIR BARRIER. COORDINATE WITH G.C.
- ALL DUCTWORK SHALL BE SEALED PER ENERGY STAR REQUIREMENTS. COORDINATE REQUIREMENTS WITH ENERGY RATER.
- DUCTWORK AT SUPPLY, RETURN, AND TRANSFER AIR REGISTERS SHALL BE SEALED TO FLOOR, WALL, OR CEILING USING HVAC TAPE.

![](_page_95_Picture_29.jpeg)

 REVISION:

 1
 9-27-2024

DATE:	7–17–2024
JOB:	22-3262
SHEET NO .:	
M4	.1

![](_page_95_Figure_32.jpeg)

MECH	ANICAL SYMBOLS
Û	THERMOSTAT
$\bowtie$	SQUARE SUPPLY DIFFUSER - TYPE AND AIRFLOW INDICATED
	SQUARE RETURN GRILLE - TYPE INDICATED
l	MANUAL BALANCING DAMPER
<	FLEXIBLE DUCTWORK - MAX. 5'
XX-X XXX	DIFFUSER DESIGNATION AIRFLOW INDICATED
	RECTANGULAR RETURN OR RELIEF AIR DUCT UP
X	RECTANGULAR SUPPLY AIR DUCT UP
X	RECTANGULAR SUPPLY AIR DUCT DOWN
	RECTANGULAR RETURN OR EXHAUST AIR DUCT DOWN
₫→	WALL DIFFUSER
Q	ROUND DUCT UP
<u> </u>	PIPE TURNING UP
e—	PIPE TURNING DOWN
	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
CD	CEILING RADIATION DAMPER
18	CONTROL CABLE, VERIFY TYPE WITH EQUIPMENT MANUFACTURER

V	/ERTIC	CAL PACK	(AGED TE	ERM	INAL	AIR	COND	ΙΤΙΟ	NER SCHE	DULE									
						COOLIN	IG		F	IEATING	$\sim$			FΔN			ΜΑΧ		
		MANUFATURER	MODEL NUMBER	OA DB	ENT DB/WB	SENSIBLE COOLING	TOTAL COOLING	SEER2	TOTAL HEATING	HSPF2	ELECTRIC HEAT OUTPUT	AIRFLOW	ESP	SPEED	OA CFM	AMPS	OCPD	CHARACTERISTICS	NOTES
ſ	VTAC-18	FREIDRICH	VHA18K-75RTQ	85	75/63	12,945	17,980	11.9	16,000	6.3	6.1kW	550	0.3"	HIGH	0	41.8	45	208V-1PH	1,2,3,4,5
	VTAC-24	FREIDRICH	VHA24K-75RTQ	85	75/63	14,980	21,400	11.9	18,500	6.3	6.1kW	600	0.3"	HIGH	0	41.8	45	208V-1PH	1,2,3,4,5
N	OTES:													$\overline{\mathbf{x}}$			$\sim$		

1. PROVIDE WITH ACCESS PANEL WITH RETURN AIR GRILLE. PROVIDE FILTER BRACKET AT UNIT WITH MIN. MERV 6 FILTER.

2. PROVIDE WITH ACCESSORY DRAIN PAN. 3. PROVIDE WITH WALL PLENUM AND ACCESSORY ARCHITECTURAL LOUVER IN COLOR AS SELECTED BY ARCHITECT

4. PROVIDE WITH WIRED PROGRAMMABLE THERMOSTAT.

5. MOUNT ON 24" TALL METAL PLATFORM - COORDINATE MOUNTING HEIGHT OF UNIT AND EXTERIOR LOUVER WITH G.C. 6. PERMANENTLY SEAL FRESH AIR OPENING IN VTAC UNIT. OUTSIDE AIR IS PROVIDED TO SPACE VIA 'EF-2'.

![](_page_96_Figure_8.jpeg)

EXHA	AUST FAN	SCHEDUL	E				
MARK	MANUFACTURER	MODEL	CFM	ESP (" wg)	POWER	VOLTS/ PHASE	NOTES
EF-1	PANASONIC	FV-0810VSS1	50	0.45"	21 W	120 / 1	1,2,3,4,5,6
EF-2	PANASONIC	FV-0511VK2	110	0.45"	21 W	120 / 1	1,2,3,4,5,6,7

NOTES:

1. Fixture shall be Energy Star listed.

2. Fixture shall operate at <1 SONE

3. Provide with ec motor with integral disconnect.

4. Provide manufacturer's wall cap or roof jack, see plans.

5. Provide integral backdraft damper.

6. Provide with manufacturer's ceiling radiation damper. Omit radiation dampers where rated ceilings are not present, coordinate with Arch. 7. Provide Panasonic FV-VS15VK1 multi-speed with time delay module set to provide cfm as listed on

drawings continuously with a max of 110 cfm for 15min (adj) when wall switch is turned on.

		IEK S	CHEDU	'LE			
MARK	MANUF.	MODEL	MOUNTING	WATTS	VOLTAGE/PHASE	DESCRIPTION	NOTES
EWH	TRANE	UHAA	WALL	3,000	208/1	Architectural fan forced wall heater	1,2,3
EH-1	BERKO	RUX30081 2	WALL	3,000	208/1	Explosion proof heater	1,2,3,4

1. Provide with integral thermostat, high temp. thermal cutout and fan delay.

2. Provide with unit mounted disconnect switch.

3. Provide with surface mounting frame.

CHEDUL	Ε												
MODEL	NOMINAL		COO	OLING CAPAC	ITY		HEAT	ING CAPAC	ITY	MIN	EI	ECTRICA	۱L
MODEL	TONS	OA DB	ENT AIR DB/WB	SENS MBH	тот мвн	MIN SEER	OA DB	ENT AIR DB	ТОТ МВН	HSPF	MCA	МОСР	V/PH
4TWR4030H1	2.5	85	75/63	20.9	28.4	16	47	70	28.4	9.75	15	25	208/1

1. Refrigerant lines shall be field fabricated. Coordinate line sizing requirements with equipment manufacturer for length of run for each apartment. Provide suction

/-/	 ne	5.

BLOWE	R COIL	SCHEDUL	Ε							
MADIZ	MANUE	MODEL		FAN		HEATING	V//Dh	MOTOR	МСА	MOCR
MARK	MANUF.	MODEL	CFM	ESP	SPEED	KW	v/r11	FLA	MCA	MOCP
ВС	TRANE	TEM6A0B30H21	1000	0.7	HIGH	7.2/3.6	208/1	4.3	49/22	50/25
Notes:										
1.	Single point o	connection required,	coordinate t	he exact elec	trical require	ements of e	quipment	provided v	vith E.C.	
2.	Electric heate	er shall not operate si	multaneousl	y with heat p	ump. Electri	c heater sh	all be use	d as back-ı	up heat only.	
3.	Provide with	integral factory insta	lled disconne	ect swtich.						

AIR	DEVICE S	CHEL	DU	'LE	Ξ							
			A	PPLIC	CATIC	ON						
MARK	MANUFATURER	MODEL	SUPPLY	RETURN	EXHAUST	TRANSFER	FINISH	MOUNTING	DAMPER	FACE SIZE	DESCRIPTION	NOTES
SD-A	HART & COOLEY	684	•				WHITE	SURFACE	YES	12"x12"	Steel square louvered 4-way suppply register	1
SD-B	HART & COOLEY	684	•				WHITE	SURFACE	YES	10"x10"	Steel square louvered 4-way suppply register	1
SD-C	HART & COOLEY	684	•				WHITE	SURFACE	YES	8"x8"	Steel square louvered 4-way suppply register	1
SD-D	HART & COOLEY	661	•				WHITE	SURFACE	YES	12"x6"	Steel wall mounted louvered 2-way supply register	1
SD-E	HART & COOLEY	661	•				WHITE	SURFACE	YES	12"x4"	Steel wall mounted louvered 2-way supply register	1
SD-F	HART & COOLEY	661	•				WHITE	SURFACE	YES	6"x4"	Steel wall mounted louvered 2-way supply register	1
RG-A	HART & COOLEY	650		•		•	WHITE	SURFACE	NO	20"x8"	Louvered face return grille	
RG-B	HART & COOLEY	650		•		•	WHITE	SURFACE	NO	12"x8"	Louvered face return grille	
RG-C	HART & COOLEY	650		•		•	WHITE	SURFACE	NO	8"×8"	Louvered face return grille	1

GENERAL NOTES

• Maximum noise criteria shall be 25. • Runouts to diffusers shall be same size as neck, U.N.O.

NOTES:

![](_page_96_Picture_37.jpeg)

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1. Provide transition to neck of diffuser for runout size as indicated on plans.

![](_page_96_Figure_43.jpeg)

# TYPICAL VTAC COIL DETAIL

NO SCALE

![](_page_96_Picture_46.jpeg)

![](_page_96_Figure_47.jpeg)

![](_page_96_Picture_48.jpeg)

SHEET NO .:

![](_page_97_Figure_0.jpeg)

![](_page_97_Figure_1.jpeg)

![](_page_97_Figure_2.jpeg)

![](_page_97_Picture_3.jpeg)

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# PLUMBING SIZING SYMBOLS

(X")	DRAIN (X = SIZE)
X"	VENT (X = SIZE)
X"	WASTE STACK VENT (X = SIZE)

# W&V PLAN GENERAL NOTES

- 1. SEE PLUMBING ROUGH-IN SCHEDULE ON SHEET P6.1 FOR INDIVIDUAL FIXTURE CONNECTION SIZES AND ADDITIONAL INFO.
- 2. SEE WASTE AND VENT ISOMETRICS ON SHEET P5.1 FOR ADDITIONAL INFO. 3. PIPING SHALL NOT BE ROUTED VERTICALLY IN FIREWALLS SEPARATING UNITS. ALL PIPING SHALL BE ROUTED VERTICALLY IN FURRED OUT WALLS AS INDICATED ON PLANS. VERIFY DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
- 4. ALL PENETRATIONS OF APARTMENT AIR BARRIERS SHALL BE SEALED TO MAINTAIN INTEGRITY OF AIR BARRIER. COORDINATE WITH G.C.

# **W&V PLAN NOTES BY SYMBOL**

- 1. SEE CIVIL DRAWINGS FOR CONTINUATION.
- 2. CONNECT DISHWASHER DRAIN TO INDIRECT CONNECTION AT GARBAGE DISPOSER. COORDINATE EXACT REQUIREMENTS WITH DISHWASHER PROVIDED BY OTHERS.

![](_page_97_Figure_15.jpeg)

![](_page_97_Figure_16.jpeg)

![](_page_98_Figure_0.jpeg)

![](_page_98_Figure_1.jpeg)

![](_page_98_Figure_2.jpeg)

![](_page_98_Picture_3.jpeg)

![](_page_98_Picture_5.jpeg)

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# PLUMBING PLAN NOTES BY SYMBOL

- 1. SEE OVERALL DOMESTIC WATER PLANS FOR CONTINUATION.
- 2. PROVIDE 1-1/4" WATER SERVICE TO APARTMENT WITH SHUT-OFF VALVE. SEE DOMESTIC RISER DIAGRAMS ON SHEET P5.2 FOR ADDITIONAL INFORMATION.
- 3. CONNECT 1" CW AND HW TO HOT WATER HEATER 'HWH-A' SEE DETAIL X:P6.1.
- 4. PROVIDE 1/2" VALVED BRANCH BELOW SINK AND CONNECT DISHWASHER. ROUTE PIPING ALONG BACK OF CABINETRY, COORDINATE EXACT ROUTING WITH G.C. COORDINATE EXACT REQUIREMENTS WITH DISHWASHER PROVIDED.

![](_page_98_Figure_13.jpeg)

![](_page_98_Figure_14.jpeg)

![](_page_98_Picture_15.jpeg)

7-17-2024 22-3262 DATE: JOB: SHEET NO .: **P4.1** 

#### PLUMBING SYMBOLS **0**— PIPE TURNING UP с— PIPE TURNING DOWN — · —— COLD WATER PIPING FIRE PROTECTION SERVICE PIPING - WASTE PIPING ABOVE GRADE VENT PIPING G — G A NATURAL GAS PIPING Ν CHECK VALVE $\overline{\mathbf{N}}$ GATE VALVE BALL VALVE • ψ UNION T/P RELIEF VALVE $\sim$ DC DOUBLE CHECK BACKFLOW PREVENTOR RP REDUCED PRESSURE BACKFLOW PREVENTOR

![](_page_99_Figure_2.jpeg)

![](_page_99_Figure_3.jpeg)

![](_page_99_Figure_4.jpeg)

![](_page_99_Figure_5.jpeg)

				TRIM		ROUGH-IN	N SIZES		
MARK	MANUFACTURER	DESCRIPTION	MANUFACTURER	DESCRIPTION	WASTE	VENT	CW	нw	NOTES
WC-A	KOHLER	Model 5296 "Highline" ADA compliant flush tank water closet, white vitreous china, two piece, 12" rough-in, elongated 16-1/2" high bowl, siphon jet flushing action, 1.28 GPF, polished chrome actuator located on open side of room.	KOHLER	K-5588 Purefresh white, elongated closed front seat and cover	4"	2"	1/2"		
WC-B	KOHLER	Model 5296 "Highline" ADA compliant flush tank water closet, white vitreous china, two piece, 12" rough-in, elongated 16-1/2" high bowl, siphon jet flushing action, 1.28 GPF, polished chrome actuator located on open side of room.	KOHLER	K-5588 Purefresh white, elongated closed front seat and cover	4"	2"	1/2"		1
LAV-A	KOHLER	Model 2196-4-0 self-rimming lavatory, white vitreous china, 20"W x 17", faucet holes on 4" centers.	KOHLER	Model 15182-4DRA, 0.5 GPM, single handle faucet. Provide pop-up drain.	2"	1-1/2"	1/2"	1/2"	2,4
LAV-B	KOHLER	Model 2005-0 wall hung lavatory, white vitrous china, 18-1/4"W x 17-1/4", faucet holes on 4" centers.	KOHLER	Model 15199-4DRA, 0.5 GPM, single handle faucet. Provide pop-up drain.	2"	1-1/2"	1/2"	1/2"	1,2,3,4
LAV-C	KOHLER	Model 2196-4-0 self-rimming lavatory, white vitreous china, 20"W x 17", faucet holes on 4" centers.	KOHLER	Model 15182-4NDRA single handle faucet. Provide grid drain. Provide point of use tempering valve.	2"	1-1/2"	1/2"	1/2"	1,2,3,4
KS-A	JUST	Model DL-2233-A-GR two compartment 18 GA stainless steel sink, self rimming, 14"x16"x8"D inside, fully undercoated, faucet holes as req.	KOHLER IN-SINK-ERATOR	Model K-10412, 1.5 GPM, single handle kitchen sink faucet with hose spray attachment. Chrome finish. Provide basket strainer. "Badger 5" garbage disposal, 1/2hp, 120V,	2"	1-1/2"	1/2"	1/2"	2,4
KS-B	JUST	Model DL-ADA-2233-A-GR two compartment 18 GA stainless steel sink, self rimming, 14"x16"x5"D inside, fully undercoated, faucet holes as req., and drain holes center rear.	KOHLER IN-SINK-ERATOR	Model K-10412, 1.5 GPM, single handle kitchen sink faucet with hose spray attachment. Chrome finish. Provide basket strainer.	2"	1-1/2"	1/2"	1/2"	1,3,2,4
BT-A	AQUARIUS	Model G 6063 TS reinforced fiberglass tub/shower, 60"W x35-3/4"D x76-1/2"H, with integral soap/toiletry shelves, right or left hand rough-in as required, white finish.	DELTA	Model R10000-UNWS/T13H232 single handle pressure-balancing valve with metal tub filler with pull diverter, 1.5 GPM push-clean showerhead and pop-up drain with overflow.	2"	1-1/2"	1/2"	1/2"	2,4,5
BT-B	AQUARIUS	Model S 6000 TS OT reinforced fiberglass ADA tub/shower, 60"W x33"D x82"H, with integral soap/toiletry shelves and grab bars in accordance with ADA requirements, seat at end of tub, right or left hand rough-in as required, white finish. Coordinate blocking for grab bars and fold up seat per ANSI A117.1 requirements with G.C.	DELTA	Model R10000-UNWS/T13H252 pressure balancing tub/shower valve with non-positive shut-off control and temperature control to ensure maximum 120° water with single metal lever handle, 1.5 GPM handshower with double check valves, flexible hose, 24" stainless steel slide bar, metal lever handshower, diverter valve, and shower head with arm.	2"	1-1/2"	1/2"	1/2"	1,2,4,5
SH-A	AQUARIUS	Model G-3679-SH cast acrylic shower, 36"W x36"D x79"H, with integral soap/toiletry shelves, right or left hand rough-in as required, center drain, white finish.	DELTA	Model R10000-UNWS/T13H132 single handle pressure-balancing valve, 1.5 GPM push-clean showerhead.	2"	1-1/2"	1/2"	1/2"	5
SH-B	AQUARIUS	Model G-3682 BF ANSI A117.1 compliant cast acrylic shower, 36" square inside, 18 gauge stainless steel grab bars, fold up padded seat, molded soap shelves, brass drain w/chrome strainer, collapsible water dam, right or left hand rough-in as required. Coordinate blocking for grab bars and fold up seat per ANSI A117.1 requirements with G.C.	DELTA	Model R10000-UNWS/T13220-H2OT pressure balancing shower valve with integral temperature limits, single metal lever handle, 1.5 GPM handshower with double check valves, flexible hose, and 24" stainless steel slide bar.	2"	1-1/2"	1/2"	1/2"	1,5
55	FIAT	Model MSB-2424 one piece molded stone mop basin, 24" square, stainless steel integral drain body with caulk connection, stainless steel wall guards.	DELTA	Model 28T9 faucet with hose thread outlet, vacuum breaker, pail hook, wall brace, metal lever handles.	3"	1-1/2"	3/4"	3/4"	4
EWC	ELKAY	Model EMABFTLDDWSLK ADA compliant dual heigh and side push bar actuator, lead-free, 120 volts. Pr Model 98313C Accessory Apron.	t, self-contained wa ovide unit with EZF	ater cooler with stainless steel basin, front 120 bottle filling station. Provide unit with	2"	1-1/2"	1/2"		
WH	WOODFORD	Model 25 frost proof wall hydrant with anti-siphon	vacuum breaker, n	netal handle.			3/4"		
ССВ	IPS CORP.	Model W4700 recessed washing machine box with turn adaptor ball valves, sweat connection.	2"PVC/ABS drain co	oupling and knockout test cap. Two, 1/4	2"	2"	1/2"	1/2"	
ICB	IPS CORP.	Model FRIB12 ice maker connection box with 1/4 t	urn ball valve and 1	/2" sweat copper connection.			1/2"		
FD	SIOUX CHIEF	Series 833 adjustable floor drain with nickel bronz	e strainer. Provide	Proset Trapguard trap protection device.	2"				
FS	SIOUX CHIEF	Series 861 PVC floor sink with PVC strainer. Provid	le Proset Trapguard	trap protection device.	4"				
-		Model ENJ-40, 40 gallon electric water heater, 0.93	UEF, 4500 watts, 2	208 volts heating element, 21 GPH recovery @	90°F temp	 o rise. Sup	 plied wi	l th	

Provide fixtures with all trim necessary for complete installation

NOTES:

1. Fixture and installation to meet accessibility requirements of the Fair Housing Act.

2. Provide 1/4 turn angle stops with escutcheon plates, and chrome plated or braided stainless steel supplies, and 1-1/4" cast brass p-trap.

3. Insulate water and waste piping below lavatory. Utilize insulation kit equivalent to LavGuard by Truebro.

4. Trim shall be provided with polished chrome finish.

5. Fixture shall be WaterSense labeled.

![](_page_99_Picture_16.jpeg)

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Project 24037

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![](_page_99_Picture_21.jpeg)

![](_page_100_Figure_0.jpeg)

![](_page_100_Picture_6.jpeg)

July 2023

OMING F C  $\succ$ Т Ш Ο **G**R RTME S NEV Ш > SER Ц Ш RAMIE, ΗH **REVISION:** 

DATE: 7–17–2024 22-3262 JOB: SHEET NO .:

9-27-2024

![](_page_100_Picture_9.jpeg)

Area:	23820	SF (Dwelling	Units Only)						
								Connected Load (VA)	Demand Load (V <i>A</i>
Feede	er & Servio	e Loads per	NEC 220.84	Part IV					
C1	General Lo	oads (220.84 (	C)(1))						
а	Lighting &	Receptacles		3	VA/SF	23820	SF	71,460	
C2	Required 0	Circuits (220.8	4 (C)(2))						
а	Laundry C	ircuit		1,500	VA/Circuit	24	Circuit	36,000	
b	Kitchen Ci	rcuits		1,500	VA/Circuit	48	Circuit	72,000	
C3	Nameplate	e Ratings of E	quipment (220	D.84 (C)(3))					
a1	Microwave			1,000	VA/Circuit	24	ea	24,000	
a2	Dishwashe	er		840	VA/Circuit	24	ea	20,160	
a3	Disposal			1175	VA/Circuit	24	ea	28,200	
a4	Refrigerato	or		1200	VA/Circuit	24	ea	28,800	
b	Electric Ra	ange		8,000	VA/Circuit	24	ea	192,000	
С	Electric Cl	othes Dryer		5,000	VA/Circuit	24	ea	120,000	
d	Water Hea	ater		4,500	VA/Circuit	24	ea	108,000	
C4	Nameplate	e Ratings of M	otors (220.84	(C)(4))					
	VTAC Blow	ver		150	VA/Circuit	24	ea	3,600	
	Exhaust F	an - Kitchen		20	VA/Circuit	24	ea	480	
	Exhuast F	an - RR		20	VA/Circuit	48	ea	960	
C5	Larger of H	leating and A/	C load (220.8	34 (C)(5))	$\sim$	$\sim$	$\sim$	$\sim$	$\sim$
	2BR Elect	ric Heat + Def	rost	8,694	VA/Circuit	12	ea	104,328	
	3BR Elect	ric Heat + Def	rost	8,694	VA/Circuit	12	ea	104,328	
					Conr	nected Lo	ad Total	914,316	
			Dwellir	ng Unit Den	nand Load f	rom Table	e 220.84	35%	320,01
				Building Se	ervice NEC	Demand	Load (VA	) Sub-Total	320,0 <sup>-</sup>
				Total A	Aparment \$	Service I	Demand	Load (VA)	320,01
		Total Buil	ding Sonvior	Demand	Panel HB \$	Service I	Demand		31,40
						ueres w	200/120	v-3F11, 44VV	970

FINISHED GRADE

APARTMENT FEEDER SCHEDULE

	Apartment #	Feeder Size					
5	A103, A104, A105, A106, A203, A204, A303, A304, A205, A206, A305, A306, B105, B106, B107, B108, B205, B206, B207, B208, B305, B306, B307, B308	BASE BID (COPPER): (3)#1,#6G IN 1-1/4" C OR MC CABLE ALTERNATE BID (ALUMINUM): (3)#1/0, #4G IN 1-1/2" C OR MC CABLE					
•	A101, A102, A201, A202, A301, A302, B103, B104, B203, B204, B303, B304	BASE BID (COPPER): (3)#1/0,#4G IN 1-1/2" C. OR MC CABLE ALTERNATE BID (ALUMINUM): (3)#3/0, #2G IN 2" C OR MC CABLE					
	B101, B102, B201, B202, B301, B302	BASE BID (COPPER): (3)#1/0,#4G IN 1-1/2" C. OR MC CABLE ALTERNATE BID (ALUMINUM): (3)#4/0, #1G IN 2" C OR MC CABLE					
	NOTES: 1. Voltage drop has been accounted for in sizes indicated, further up-sizing of feeders is not necessary						

2. Ensure panel lugs are adequately sized to handle up-sized feeders. Provide lug adapter kits if required.

		Of (Dwenning	Units Only)						
								Connected	Demand
								Load (VA)	Load (VA
Feede	er & Servio	e Loads per	NEC 220.84	Part IV					
C1	General Lo	ads (220.84 (	C)(1))						
а	Lighting &	Receptacles		3	VA/SF	17190	SF	51,570	
C2	Required (	Circuits (220.8	4 (C)(2))						
	Laundry C	ircuit	1 (0)(2))	1 500	VA/Circuit	18	Circuit	27 000	
b	Kitchen Ci	rcuits		1,500	VA/Circuit	36	Circuit	54,000	
C3	Namenlate	Ratings of F	quinment (220	) 84 (C)(3))					
a1	Microwave				VA/Circuit	18	ea	18 000	
a2	Dishwashe	er		840	VA/Circuit	18	ea	15 120	
 a3	Disposal			1175	VA/Circuit	18	ea	21,150	
a4	Refrigerato	pr		1200	VA/Circuit	18	ea	21.600	
b	Electric Ra	ange		8,000	VA/Circuit	18	ea	144,000	
С	Electric Cl	othes Dryer		5,000	VA/Circuit	18	ea	90,000	
d	Water Hea	iter		4,500	VA/Circuit	18	ea	81,000	
C4	Namenlate Ratings of Motors (220.84 (C)(4))								
	VTAC Blov	ver		150	VA/Circuit	18	ea	2,700	
	Exhaust F	an - Kitchen		20	VA/Circuit	18	ea	360	
	Exhuast F	an - RR		20	VA/Circuit	36	ea	720	
C5	Larger of H	leating and A/	C load (220.8	4 (C)(5))	$\sim\sim$	$\sim$	$\sim$	$\sim$	$\sim$
	2BR Elect	ric Heat + Def	frost	8,694	VA/Circuit	12	ea	104.328	
	3BR Elect	ric Heat + Def	frost	8,694	VA/Circuit	6	ea	52,164	
					Con	nected Lo	ad Total	683,712	-
			Dwellin	ng Unit Den	nand Load t	from Tabl	e 220.84	38%	239,29
				Building Se	ervice NEC	Demand	Load (VA	) Sub-Total	239.29
				Total A	Aparment	Service	Demand	Load (VA)	239,29
				Clubhouse Service Demand Load (VA)					
	Panel HA Service Demand Load (VA)							28,74	
	Drouido 10000 Motor Contor							853	

## NOTES

- See sheets E1.0 and ME1.1, ME1.2 for meter center locations.
- Main disconnect section shall be rated for maximum 42,000A peak let through.
- All conductor sizes are based on copper, U.N.O. Entire installation shall comply with NEC.
- Coordinate all responsibilities and requirements with utility company and pay associated fees. Contact Information:
  - Thayne Cranford Rocky Mountain Power thayne.cranford@pacificorp.com
  - 307-721-7916
- utility company. Provide shop drawings of proposed equipment whether as specified or substituted to
- utility company for approval. All meter center components shall be NEMA 3R All dimensions based on Square D equipment, it is the contractor's responsibility to verify the
- dimensions of substitute equipment and receive approval from utility for substitution. For each meter, provide a permanent brass, copper or aluminum tag identifying the apartment served.
- Tags shall be securely fastened to the meter base and be stamped with 1/8" letters, minimum.

![](_page_101_Figure_17.jpeg)

![](_page_101_Figure_19.jpeg)

![](_page_102_Figure_0.jpeg)

![](_page_102_Figure_1.jpeg)

![](_page_103_Figure_0.jpeg)

GENERAL NOTES:

1.	CIVIL SITE WORK AND UTILITY INSTALLATION SHALL FOL
	WYOMING PUBLIC WORKS 2015 STANDARD SPECIFICATIO
	with city of laramie provisions and standard
	DETAILS.

- 2. BACKFILL AND PREPARATION UNDER FOUNDATIONS SHALL FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT (PROJECT NO. 24245022) PREPARED BY TERRACON DATED June 10, 2024
- 3. NEW CURB AND GUTTER ON SITE SHALL BE CITY OF LARAMIE ROLL-OVER CURB.
- 4. PARKING LOT STRIPING SHALL BE 4' WIDE STRIPES USING WHITE PAINT PER LMC 15.14.040.C.11.C Rev 1 \_\_\_\_\_

Арр	roximate Cut/Fill Quantiti
	To bottom of sub grade
Cut	6500 Cubic Ya
Fill	4800 Cubic Ya

# Approximate Road Base Fill Req 1300 Cubic Yards | Fi |

Approximate Asphalt Quantity 2950 Square Yards

# TYPICAL CROSS SECTION FOR SITE SURFACING

/---ROLL-OVER CURB (TYP) – 4" ASPHALT PAVING, 1" NOMINAL GRADING

SLOPE AND WIDTH VARY, SEE PLAN

# 

— 6" MINIMUM GRÁDE L ROAD BASE, COMPACTED TO 95% STANDARD PROCTOR

-SCARIFY AND RECOMPACT 6" MINIMUM NATIVE FILL MATERIAL UNDER ALL PAVED OR CONCRETE SURFACES

2" MINIMUM SOD OR OTHER LANDSCAPE SURFACE, SEE LANDSCAPE PLANS

![](_page_104_Figure_16.jpeg)