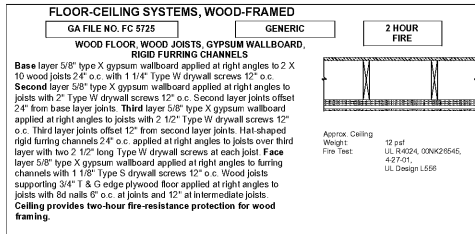


TABLE 722.2.1.1
**MINIMUM EQUIVALENT THICKNESS OF
 CAST-IN-PLACE OR PRECAST CONCRETE WALLS,
 LOAD-BEARING OR NONLOAD-BEARING**

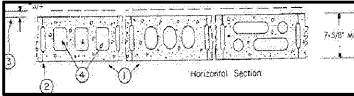
CONCRETE TYPE	MINIMUM SLAB THICKNESS (inches) FOR FIRE-RESISTANCE RATING OF				
	1 hour	1½ hours	2 hours	3 hours	4 hours
Siliceous	3.5	4.3	5.0	6.2	7.0
Carbonate	3.2	4.0	4.6	5.7	6.6
Sand-lightweight	2.7	3.3	3.8	4.6	5.4
Lightweight	2.5	3.1	3.6	4.4	5.1

For Sl: 1 inch = 25.4 mm.

**NORTH CAROLINA BUILDING CODE
 TABLE 722.2.1.1 - PRECAST CONCRETE WALL RATINGS**



**2 GA. FILE NO. FC5725
 STAR CEILING PROPRIETARY 2 HOUR**



**3 U.L. DESIGN NO. U105 - 2 HOUR WALL - STAIRS/
 ELEVATOR SHAFT**

September 11, 2015

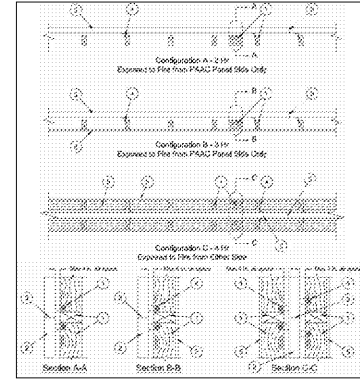
Bearing Wall Rating — 2 HR.

Nonbearing Wall Rating — 2 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 BXJY or BXJY7.

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

- Concrete Blocks* — Various designs. Classification D-2 (2 hr). See Concrete Blocks category for list of eligible manufacturers.
- Mortar — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.
- Portland Cement Stucco or Gypsum Plaster — Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).
- Loose Masonry Fill — If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellent vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.
- Foamed Plastic* — (Optional-Not Shown) — 1-1/2 in. thick max. 4 ft wide sheathing attached to concrete blocks (Item 1).
 ATLAS ROOFING CORP. — "EnergyShield Pro Wall Insulation" and "EnergyShield Pro 2 Wall Insulation"
- CARUSLE COATINGS & WATERPROOFING INC. — Type R2+ Sheath
- HUNTER PANELS — Types Xcl-Class A, Xcl 286
- RMAX OPERATING L L
 C — "TSX-8500", "TSX-8510", "Thermoshield-X®", "ECOMAX®", "Thermoshield-2", "Durashield"
- THE DOW CHEMICAL CO. — Types Thermo Sheathing, Thermo Light Duty Insulation, Thermo Heavy Duty Insulation, Thermo Metal Building Board, Thermo Insulation, Thermo Plus Exterior Insulation, Thermo XARMOR cl Exterior Insulation, Thermo Insulation, Thermo Plus Liner Panel, Thermo Heavy Duty Plus (HDR) and Thermo Insulation
- SA. Building Units — As an alternate to items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



1 UL DESIGN NO. U210 - 2 HOUR WALL

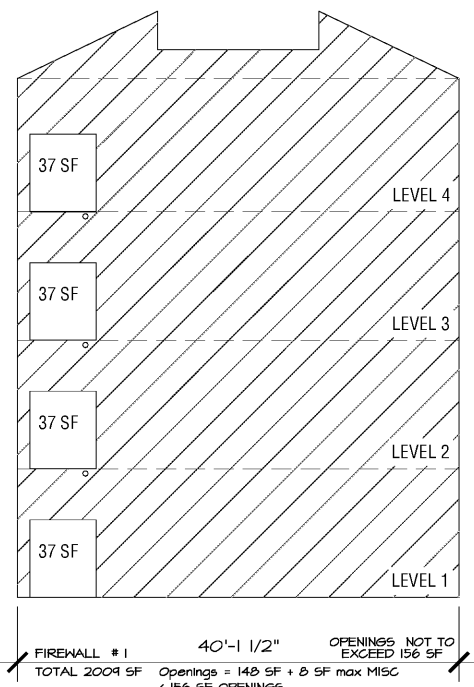
April 18, 2016

Bearing Wall Rating — 2, 3, or 4 Hr (See Items 3A, 5, 7 and 8)

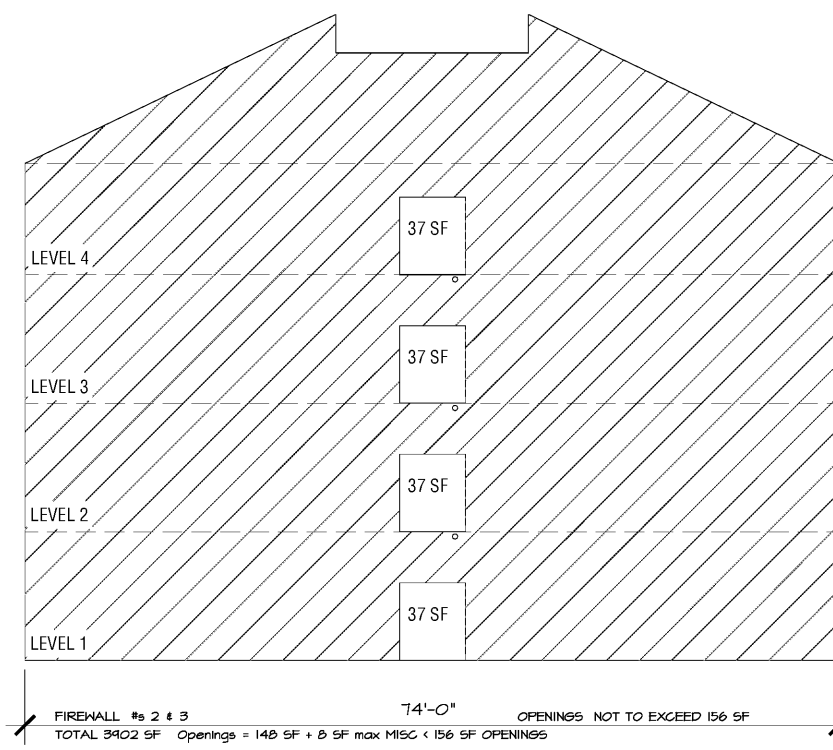
Finish Rating — See Items 3A and 9

- Wood Studs — Nom 2 in. by 4 in., spaced a max. of 16 in. OC. Studs to be effectively firestopped at top and bottom of wall with nom 2 in. by 4 in. plates. Studs effectively cross braced.
- Attachment Clips — Aluminum angles 0.048 in. to 0.060 in. thick and 2 in. wide with one leg 2-1/2 in. to 3-1/2 in. in. leg. A 0.704 in. outside diameter and 0.375 in. inside diameter rubber grommet to be attached in the 2-1/2 in. to 3-1/2 in. long leg of the angle. Clips positioned with 2 in. leg on panel side and 2-1/2 in. to 3-1/2 in. leg on stud side. Clips attached to studs (Item 1 and 1A) with one 1-5/8 in. long screw through a 3/4 in. diameter washer and rubber grommet. Clips attached to panel (Item 2) with two 1-5/8 in. long sharp point high-low thread screws spaced 3/4 in. OC at pre-drilled holes. Max. 4 in. airspace between edge of stud and panel. Panel screws angled 20 degrees from horizontal as shown. When panels are installed vertically, clips space max 16 in. from vertical joints and max 4 ft. OC vertically per panel. When panels are installed horizontally, clips spaced max 16 in. from vertical joints and max 4 ft. OC horizontally per panel. Minimum of three clips per 8 ft. long side of panel. Minimum of three clips per 10 ft. long side of panel. Configuration C — Clips staggered on opposite sides of panel to permit attachment to studs and panels.
- Gypsum Board — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos L501, 6512 or U305.
- Attachment Clips — Aluminum angles 0.048 in. to 0.060 in. thick and 2 in. wide with one leg 2-1/2 in. to 3-1/2 in. in. leg. A 0.704 in. outside diameter and 0.375 in. inside diameter rubber grommet to be attached in the 2-1/2 in. to 3-1/2 in. long leg of the angle. Clips positioned with 2 in. leg on panel side and 2-1/2 in. to 3-1/2 in. leg on stud side. Clips attached to studs (Item 1 and 1A) with one 1-5/8 in. long screw through a 3/4 in. diameter washer and rubber grommet. Clips attached to panel (Item 2) with two 1-5/8 in. long sharp point high-low thread screws spaced 3/4 in. OC at pre-drilled holes. Max. 4 in. airspace between edge of stud and panel. Panel screws angled 20 degrees from horizontal as shown. When panels are installed vertically, clips space max 16 in. from vertical joints and max 4 ft. OC vertically per panel. When panels are installed horizontally, clips spaced max 16 in. from vertical joints and max 4 ft. OC horizontally per panel. Minimum of three clips per 8 ft. long side of panel. Minimum of three clips per 10 ft. long side of panel. Configuration C — Clips staggered on opposite sides of panel to permit attachment to studs and panels.
- Finish Rating —

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