







|                                                                                   |                                                         |                        |                        |
|-----------------------------------------------------------------------------------|---------------------------------------------------------|------------------------|------------------------|
| Project Name                                                                      | Energy Audit                                            | AMEC Proj 23-8         | Page 12 of 12          |
| Project Address                                                                   | 100 University Boulevard South, San Francisco, CA 94133 | 11/17/2016             | 11/17/2016, 05/14/2017 |
| Contract Length                                                                   | 12 months                                               | 12/15/2016             | 12/15/2016, 05/14/2017 |
|                                                                                   |                                                         | Since 7/1/2016         | Since 7/1/2016         |
| <b>A. MECHANICAL VENTILATION AND CONTROLS (MAV) (See also AMEC 20-8 and 21-8)</b> |                                                         |                        |                        |
|                                                                                   | 1. CEILING (A6.2.2.0)                                   | 3. CONTROLS (A6.2.2.3) |                        |

[illegible][illegible]

*Building Group Efficiency: Standards* 2021 Symposium and Compliance Report Version 9522-199-01 & 0856102-7-1379  
Report Generated at: 2021-10-11 11:42:18

[illegible][illegible]

Building Group: Whistley Standards, 2018. <https://doi.org/10.1016/j.sbspro.2018.03.005>

| Project Information |                                                       | Study Design                |              | Data Collection |               | Analysis         |                    | Results     |                     | Conclusions |                                                  |
|---------------------|-------------------------------------------------------|-----------------------------|--------------|-----------------|---------------|------------------|--------------------|-------------|---------------------|-------------|--------------------------------------------------|
| Study ID            | Study Title                                           | Study Type                  | Study Period | Sample Size     | Response Rate | Statistical Test | Significance Level | Effect Size | Confidence Interval | Conclusion  | Recommendation                                   |
| 001                 | Effect of Exercise on Blood Pressure                  | Randomized Controlled Trial | 12 Weeks     | 100             | 95%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Exercise reduces blood pressure                  |
| 002                 | Impact of Diet on Weight Loss                         | Quasi-Experimental          | 8 Weeks      | 150             | 90%           | ANOVA            | 0.01               | 0.3         | 0.25, 0.35          | Significant | Diet affects weight loss                         |
| 003                 | Effect of Sleep on Cognitive Function                 | Observational               | 6 Months     | 200             | 88%           | Correlation      | 0.001              | 0.4         | 0.35, 0.45          | Significant | Sleep affects cognitive function                 |
| 004                 | Effect of Stress on Heart Rate                        | Experimental                | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Stress increases heart rate                      |
| 005                 | Effect of Music on Mood                               | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Music improves mood                              |
| 006                 | Effect of Yoga on Flexibility                         | Randomized Controlled Trial | 10 Weeks     | 120             | 95%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Yoga increases flexibility                       |
| 007                 | Effect of Meditation on Anxiety                       | Quasi-Experimental          | 8 Weeks      | 90              | 92%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Meditation reduces anxiety                       |
| 008                 | Effect of Tai Chi on Balance                          | Randomized Controlled Trial | 12 Weeks     | 110             | 95%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Tai Chi improves balance                         |
| 009                 | Effect of Acupuncture on Pain                         | Quasi-Experimental          | 6 Weeks      | 70              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Acupuncture reduces pain                         |
| 010                 | Effect of Herbal Tea on Sleep                         | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Herbal tea improves sleep                        |
| 011                 | Effect of Massage on Stress                           | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Massage reduces stress                           |
| 012                 | Effect of Aromatherapy on Mood                        | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Aromatherapy improves mood                       |
| 013                 | Effect of Sound Therapy on Sleep                      | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Sound therapy improves sleep                     |
| 014                 | Effect of Light Therapy on Mood                       | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Light therapy improves mood                      |
| 015                 | Effect of Heat Therapy on Pain                        | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Heat therapy reduces pain                        |
| 016                 | Effect of Cold Therapy on Inflammation                | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Cold therapy reduces inflammation                |
| 017                 | Effect of TENS on Pain                                | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | TENS reduces pain                                |
| 018                 | Effect of Biofeedback on Stress                       | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Biofeedback reduces stress                       |
| 019                 | Effect of Virtual Reality on Anxiety                  | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | VR reduces anxiety                               |
| 020                 | Effect of Gamification on Motivation                  | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Gamification increases motivation                |
| 021                 | Effect of Social Media on Mental Health               | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Social media affects mental health               |
| 022                 | Effect of Online Therapy on Depression                | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Online therapy improves depression               |
| 023                 | Effect of Group Therapy on Social Skills              | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Group therapy improves social skills             |
| 024                 | Effect of Individual Therapy on Self-Esteem           | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Individual therapy improves self-esteem          |
| 025                 | Effect of Family Therapy on Relationships             | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Family therapy improves relationships            |
| 026                 | Effect of Community Support on Mental Health          | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Community support improves mental health         |
| 027                 | Effect of Peer Support on Depression                  | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Peer support reduces depression                  |
| 028                 | Effect of Support Groups on Anxiety                   | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Support groups reduce anxiety                    |
| 029                 | Effect of Mindfulness on Stress                       | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Mindfulness reduces stress                       |
| 030                 | Effect of Transcendental Meditation on Blood Pressure | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Transcendental meditation reduces blood pressure |
| 031                 | Effect of Vipassana Meditation on Pain                | Quasi-Experimental          | 3 Weeks      | 60              | 90%           | t-test           | 0.05               | 0.2         | 0.15, 0.25          | Significant | Vipassana meditation reduces pain                |
| 032                 | Effect of Zen Meditation on Mood                      | Randomized Controlled Trial | 4 Weeks      | 80              | 92%           | t-test           | 0.05               | 0.1         | 0.05, 0.15          | Significant | Zen meditation improves mood                     |

[illegible]

Building Group: University Standards, 2018. <https://www.uk.compliance>

[illegible][illegible][illegible]

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 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 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 1000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |

Building Group Efficiency Standards – 2020 Harmonization Compliance Report Version WCC 499-014 (04/04/2023) 10/27

[illegible][illegible]

bioRxiv preprint doi: <https://doi.org/10.1101/154771>; this version posted May 1, 2017. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.

**ARRIS**  
STUDIO ARCHITECTURE

ARCHITECTS  
1306 JONKINSON AVENUE  
SAN LUIS OBISPO, CALIF. 95401  
805.547.2240  
ARRIS-5.STUDIO.COM

INTERIOR DESIGN ARCHITECTURE PLANNING  
UNIVERSITY OF CALIFORNIA - BERKELEY



**JVA**  
MECHANICAL  
ENGINEERING  
510 STATE STREET, SUITE 284  
SANTA BARBARA, CA 93101  
805/543-3190

CLERK

SRI KRISHNA ENTERPRISE  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080

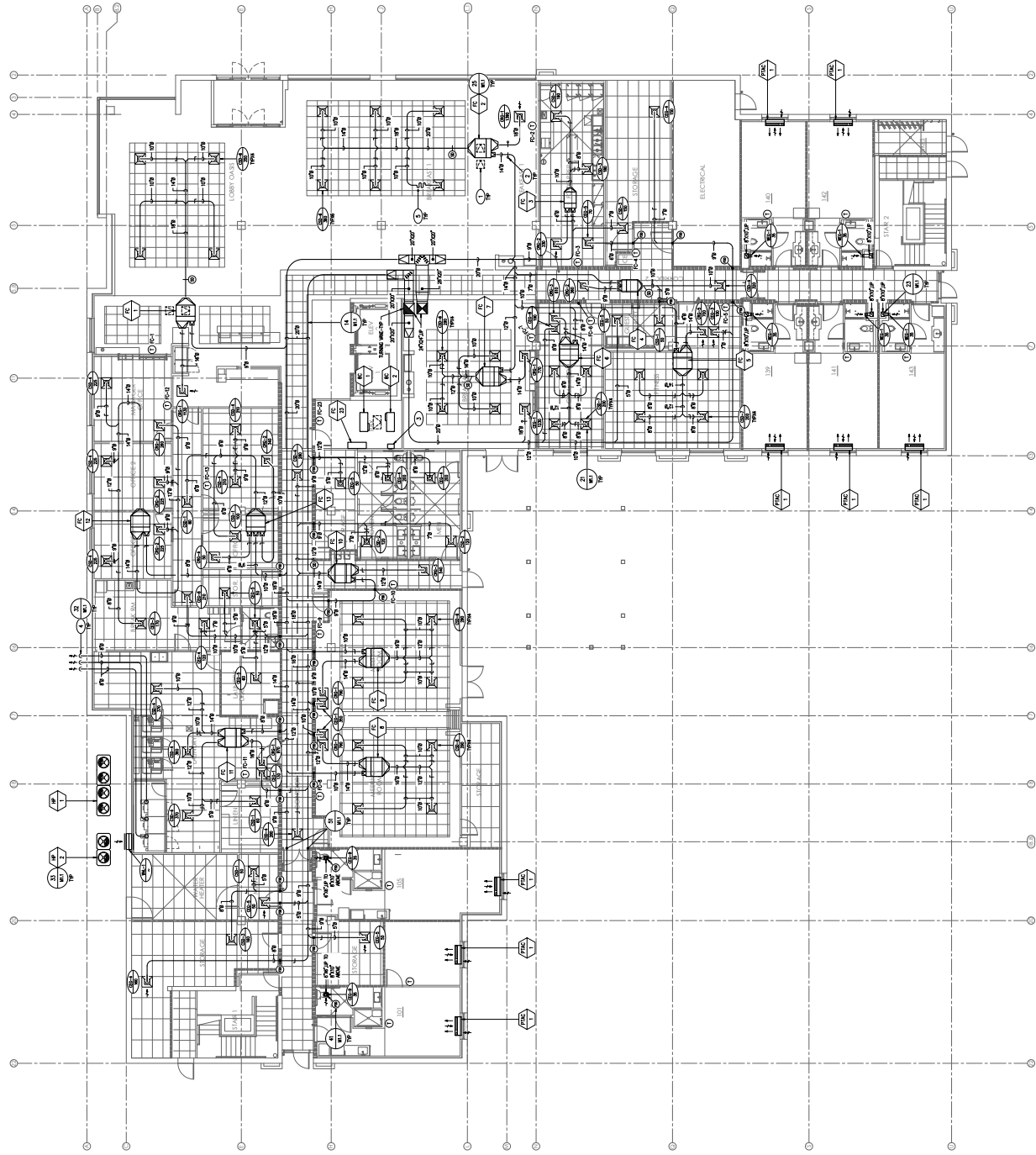
**GATEWAY HOTEL**  
550 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA  
**TITLE 24 COMPLIANCE**  
**DOCUMENTATION**

[illegible]





- REFERENCE NOTES**
1. "F" ACCESS PANEL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS COORDINATE WITH GC
  2. FINISHES SHALL BE AS SHOWN. "FINISHES" SHALL BE WHERE REQUIRED. PROVIDE THE COVER PLATE PAINT TO MATCH CEILING
  3. MITSUBISHI CENTRALIZED CONTROLLER
  4. COMMON USE CLOSETS (DRIVE EXHAUST) DUCTS SHALL MAINTAIN 1" FROM WALLS AND FLOOR. PROVIDE 1" MINIMUM CLEARANCE FROM WALLS. MATERIAL INSTALL DUCT IN ACCORDANCE WITH 2015 IMC 802.3.4.6.2
  5. FLEXIBLE DUCT AT END RUN CONDITION. FLEXIBLE DUCTING SHALL BE NO MORE THAN 10' LONG. FLEXIBLE DUCT SHALL NOT BE USED IN LIEU OF RIGID DUCTING. SEE DETAIL 45/41.1



**FIRST FLOOR PLAN**  
1/8" = 1'-0"

**ARRIS**  
STUDIO ARCHITECTS

1301 JOHNSON AVENUE  
SAN LUIS OBISPO, CA 95061  
805.427.2200  
ARRISSTUDIO.COM

DESIGNED BY: JVA MECHANICAL  
ENGINEERING  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080  
800.745.5119

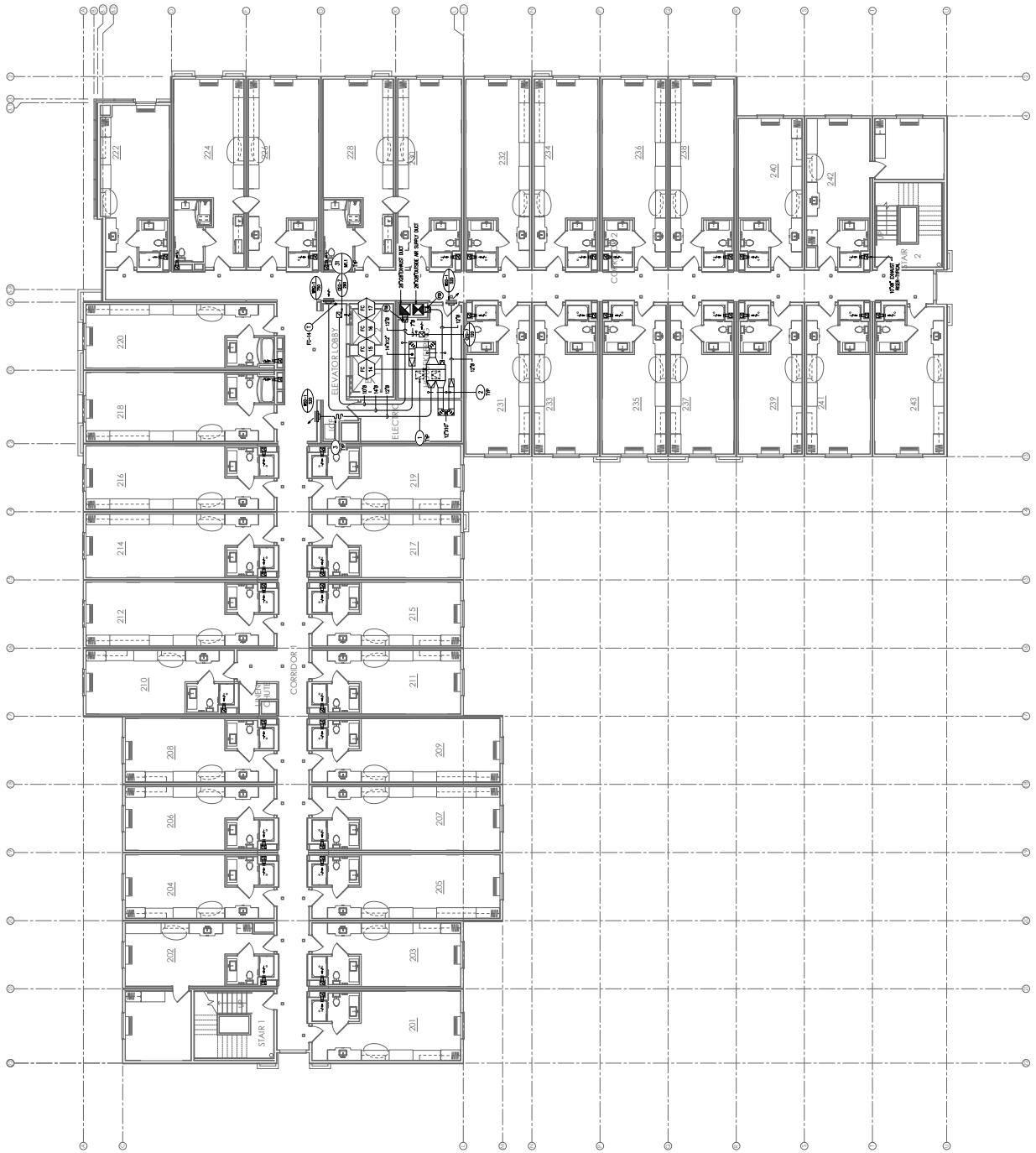
**JVA MECHANICAL ENGINEERING**  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080  
800.745.5119

**SRI KRISHNA ENTERPRISE**  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080

**GATEWAY HOTEL**  
550 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA  
FIRST FLOOR PLAN

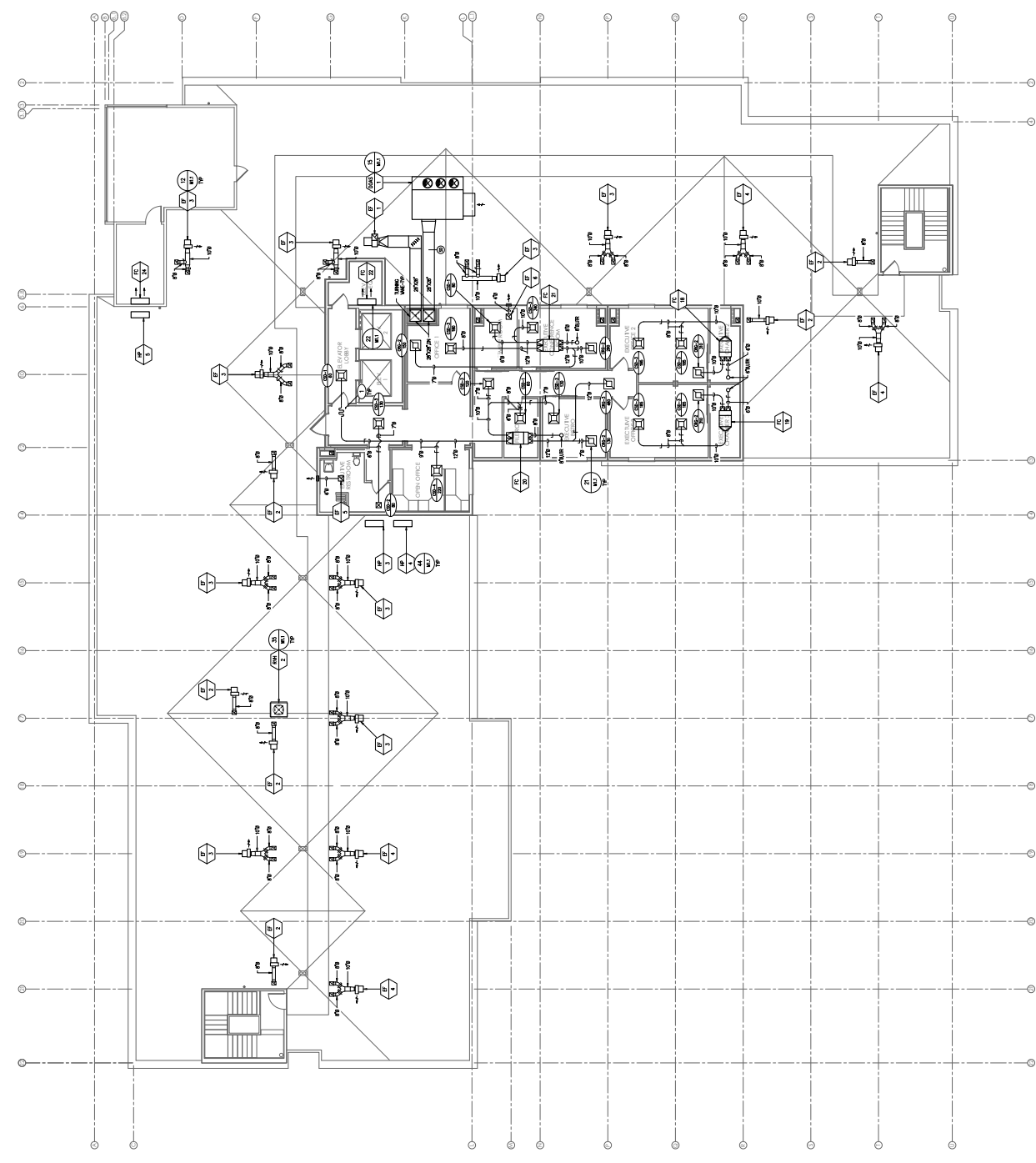
**M3.1**

DATE: 08/29/2017  
1. PLAN CHECK  
2. REVISIONS  
3. REVISIONS  
4. REVISIONS  
5. REVISIONS  
6. REVISIONS  
7. REVISIONS  
8. REVISIONS  
9. REVISIONS  
10. REVISIONS  
11. REVISIONS  
12. REVISIONS  
13. REVISIONS  
14. REVISIONS  
15. REVISIONS  
16. REVISIONS  
17. REVISIONS  
18. REVISIONS  
19. REVISIONS  
20. REVISIONS  
21. REVISIONS  
22. REVISIONS  
23. REVISIONS  
24. REVISIONS  
25. REVISIONS  
26. REVISIONS  
27. REVISIONS  
28. REVISIONS  
29. REVISIONS  
30. REVISIONS  
31. REVISIONS  
32. REVISIONS  
33. REVISIONS  
34. REVISIONS  
35. REVISIONS  
36. REVISIONS  
37. REVISIONS  
38. REVISIONS  
39. REVISIONS  
40. REVISIONS  
41. REVISIONS  
42. REVISIONS  
43. REVISIONS  
44. REVISIONS  
45. REVISIONS  
46. REVISIONS  
47. REVISIONS  
48. REVISIONS  
49. REVISIONS  
50. REVISIONS  
51. REVISIONS  
52. REVISIONS  
53. REVISIONS  
54. REVISIONS  
55. REVISIONS  
56. REVISIONS  
57. REVISIONS  
58. REVISIONS  
59. REVISIONS  
60. REVISIONS  
61. REVISIONS  
62. REVISIONS  
63. REVISIONS  
64. REVISIONS  
65. REVISIONS  
66. REVISIONS  
67. REVISIONS  
68. REVISIONS  
69. REVISIONS  
70. REVISIONS  
71. REVISIONS  
72. REVISIONS  
73. REVISIONS  
74. REVISIONS  
75. REVISIONS  
76. REVISIONS  
77. REVISIONS  
78. REVISIONS  
79. REVISIONS  
80. REVISIONS  
81. REVISIONS  
82. REVISIONS  
83. REVISIONS  
84. REVISIONS  
85. REVISIONS  
86. REVISIONS  
87. REVISIONS  
88. REVISIONS  
89. REVISIONS  
90. REVISIONS  
91. REVISIONS  
92. REVISIONS  
93. REVISIONS  
94. REVISIONS  
95. REVISIONS  
96. REVISIONS  
97. REVISIONS  
98. REVISIONS  
99. REVISIONS  
100. REVISIONS



SECOND FLOOR PLAN (THIRD, FOURTH & FIFTH FLOORS SIMILAR)

REFERENCE NOTES  
1 FLEXIBLE DUCT AT END RUN CONDITION, FLEXIBLE DUCTING SHALL BE NO LONGER THAN 10' IN LENGTH AND SHALL NOT BE USED IN LIEU OF RIGID DUCTING OR FITTINGS, SEE TABLE 404.1.1



ROOF PLAN  
1/8" = 1'-0"

**ARRIS**  
STUDIO ARCHITECTS

1304 JOHNSON AVENUE  
SAN LUIS OBISPO, CA 95061  
805.477.2240  
ARRISSTUDIO.COM  
PHOTO: JEFFREY J. FINE  
INTERIOR PHOTO: JEFFREY J. FINE

**JVA**

**JVA MECHANICAL**  
ENGINEERING  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080  
650.744.5119

**SRI KRISHNA ENTERPRISE**  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080

**GATEWAY HOTEL**  
550 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA

**ROOF PLAN**

**PROJECT**  
GATEWAY HOTEL  
550 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA

**DATE**  
10/20/17  
10/20/17  
10/20/17

**REVISIONS**  
1. REVISION  
2. REVISION

**DESIGNER**  
M. L. 10/20/17

**DATE**  
August 28, 2017

**PROJECT**  
M3.3





ARRIS  
STUDIO ARCHITECTURE  
1306 JOHNSON AVENUE  
SAN LUIS OBISPO, CA 95061  
805.547.2240  
WWW.ARRISSTUDIO.COM  
PHOTO: J. L. JONES / J. L. JONES  
DESIGNED BY: J. L. JONES / J. L. JONES  
DRAWN BY: J. L. JONES / J. L. JONES



JVA MECHANICAL  
ENGINEERING  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080  
415.747.5119

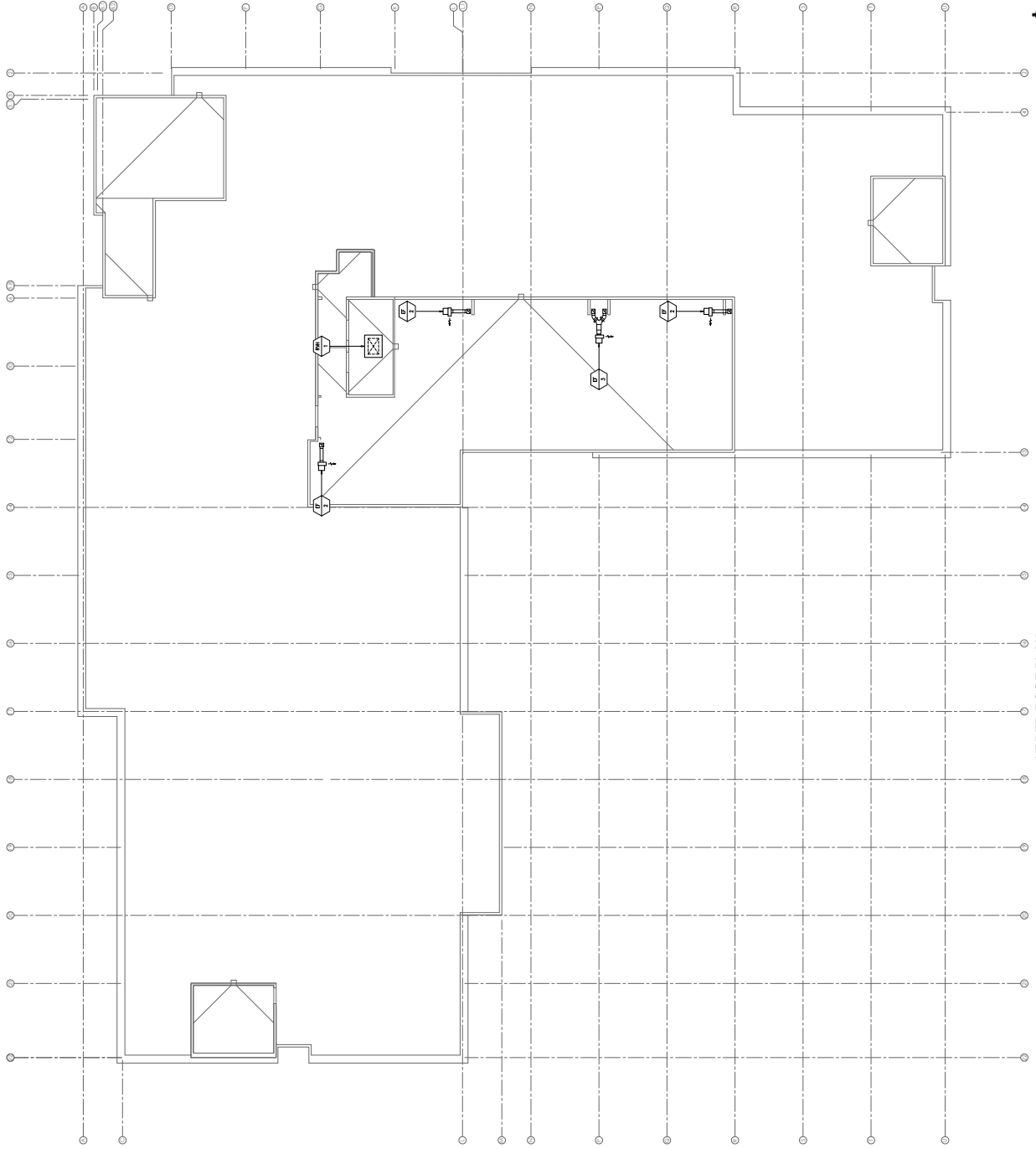
SRI KRISHNA ENTERPRISE  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080

GATEWAY HOTEL  
550 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA  
UPPER ROOF PLAN

| NO. | REVISION | DATE       |
|-----|----------|------------|
| 1   | REVISION | 10/20/2017 |
| 2   | REVISION | 10/20/2017 |

PROJECT: M10095  
DATE: August 28, 2017

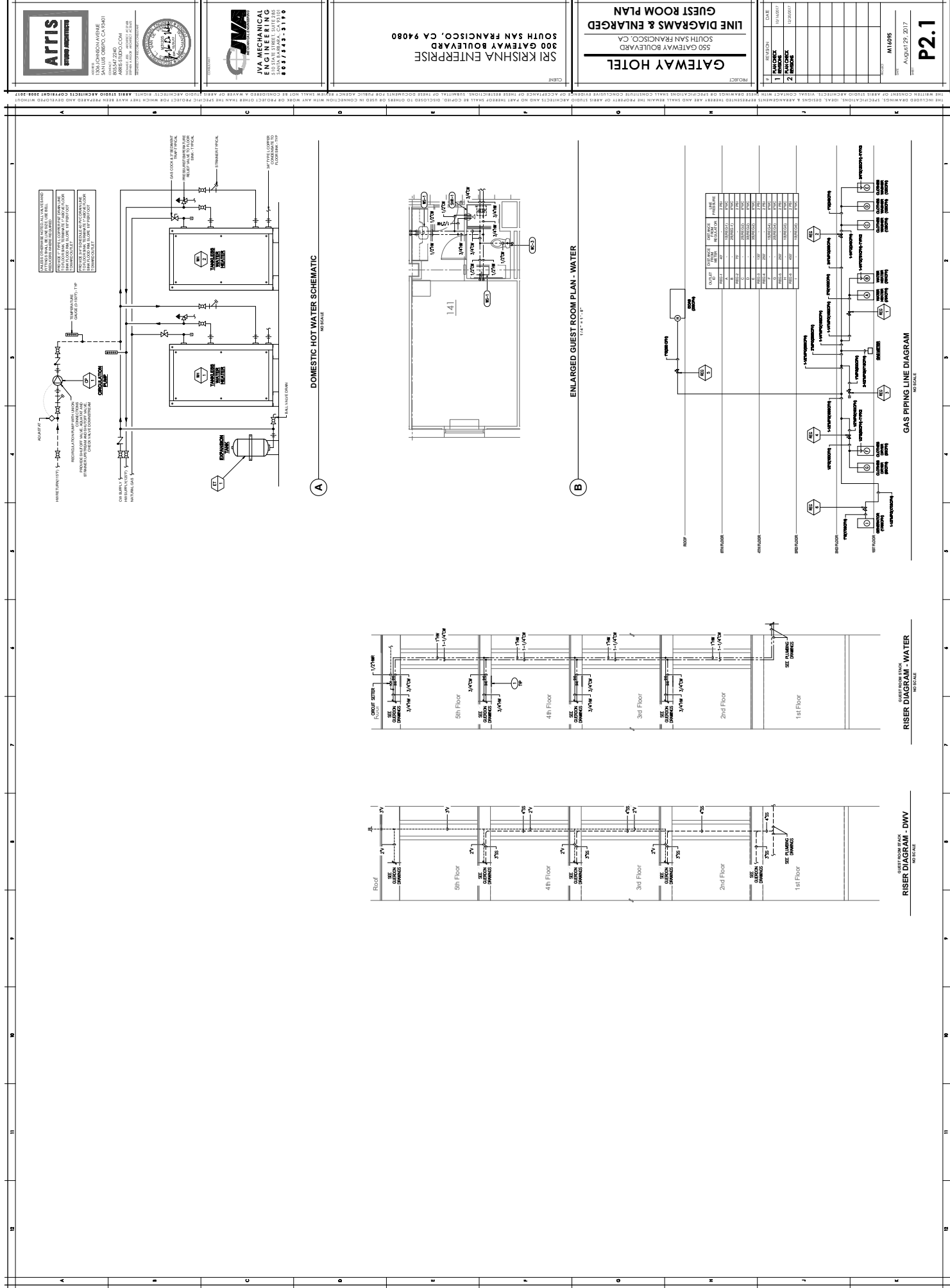
M3.4



UPPER ROOF PLAN  
1/8" = 1'-0"













ARRIS  
STUDIO ARCHITECTS  
1304 JOHNSON AVENUE  
SAN LUIS OBISPO, CA 95061  
805.477.2240  
WWW.ARRISSTUDIO.COM  
PHOTO: J. L. JONES  
RENDERING BY: J. L. JONES



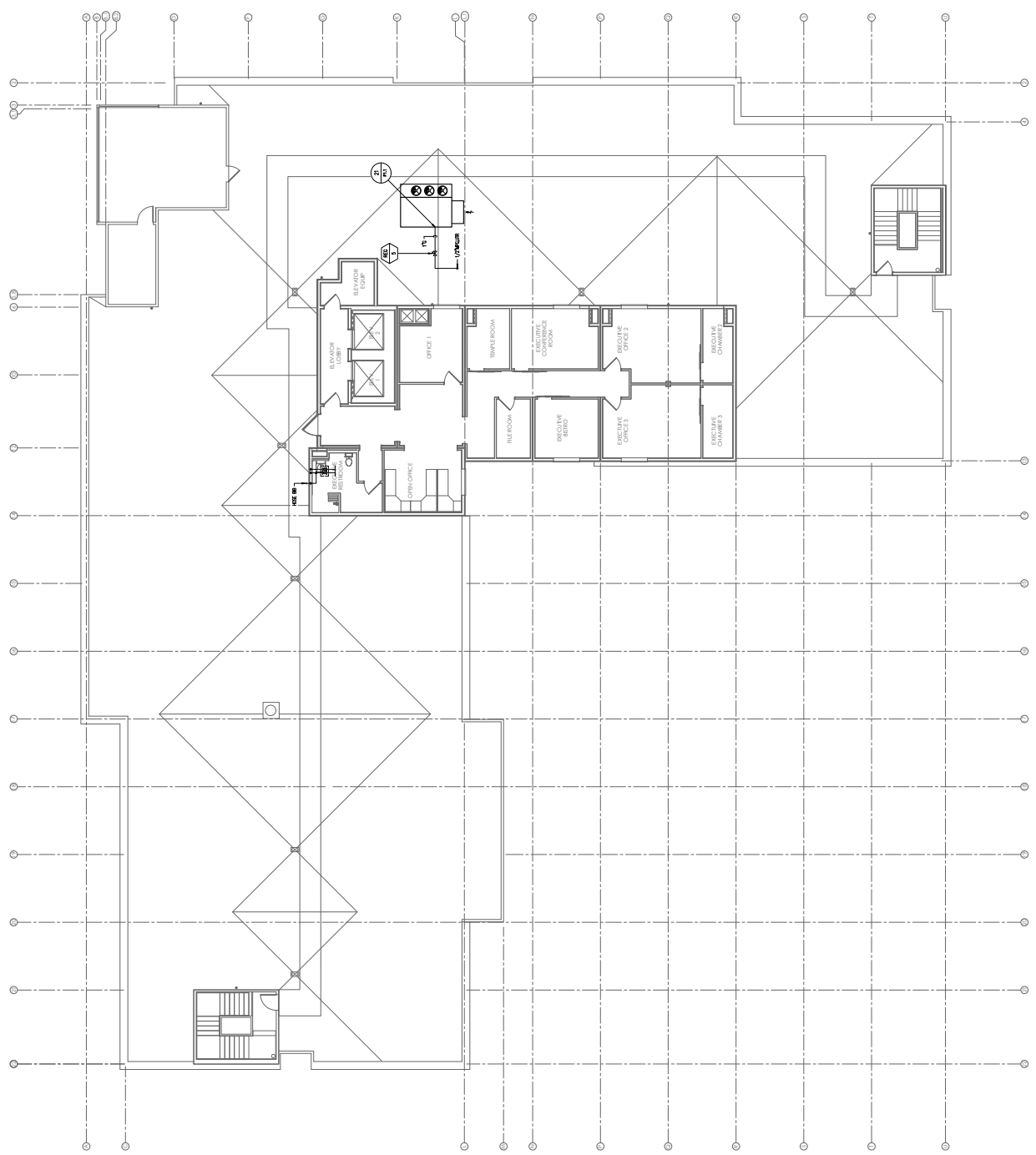
JVA MECHANICAL  
ENGINEERING  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080  
650.744.5119

SRI KRISHNA ENTERPRISE  
300 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA 94080

GATEWAY HOTEL  
550 GATEWAY BOULEVARD  
SOUTH SAN FRANCISCO, CA  
WATER & GAS  
ROOF PLAN

| DATE     | REVISION |
|----------|----------|
| 10/20/17 | 1        |
| 10/20/17 | 2        |
| 10/20/17 | 3        |
| 10/20/17 | 4        |
| 10/20/17 | 5        |
| 10/20/17 | 6        |
| 10/20/17 | 7        |
| 10/20/17 | 8        |
| 10/20/17 | 9        |
| 10/20/17 | 10       |
| 10/20/17 | 11       |
| 10/20/17 | 12       |
| 10/20/17 | 13       |
| 10/20/17 | 14       |
| 10/20/17 | 15       |
| 10/20/17 | 16       |
| 10/20/17 | 17       |
| 10/20/17 | 18       |
| 10/20/17 | 19       |
| 10/20/17 | 20       |
| 10/20/17 | 21       |
| 10/20/17 | 22       |
| 10/20/17 | 23       |
| 10/20/17 | 24       |
| 10/20/17 | 25       |
| 10/20/17 | 26       |
| 10/20/17 | 27       |
| 10/20/17 | 28       |
| 10/20/17 | 29       |
| 10/20/17 | 30       |
| 10/20/17 | 31       |
| 10/20/17 | 32       |
| 10/20/17 | 33       |
| 10/20/17 | 34       |
| 10/20/17 | 35       |
| 10/20/17 | 36       |
| 10/20/17 | 37       |
| 10/20/17 | 38       |
| 10/20/17 | 39       |
| 10/20/17 | 40       |
| 10/20/17 | 41       |
| 10/20/17 | 42       |
| 10/20/17 | 43       |
| 10/20/17 | 44       |
| 10/20/17 | 45       |
| 10/20/17 | 46       |
| 10/20/17 | 47       |
| 10/20/17 | 48       |
| 10/20/17 | 49       |
| 10/20/17 | 50       |
| 10/20/17 | 51       |
| 10/20/17 | 52       |
| 10/20/17 | 53       |
| 10/20/17 | 54       |
| 10/20/17 | 55       |
| 10/20/17 | 56       |
| 10/20/17 | 57       |
| 10/20/17 | 58       |
| 10/20/17 | 59       |
| 10/20/17 | 60       |
| 10/20/17 | 61       |
| 10/20/17 | 62       |
| 10/20/17 | 63       |
| 10/20/17 | 64       |
| 10/20/17 | 65       |
| 10/20/17 | 66       |
| 10/20/17 | 67       |
| 10/20/17 | 68       |
| 10/20/17 | 69       |
| 10/20/17 | 70       |
| 10/20/17 | 71       |
| 10/20/17 | 72       |
| 10/20/17 | 73       |
| 10/20/17 | 74       |
| 10/20/17 | 75       |
| 10/20/17 | 76       |
| 10/20/17 | 77       |
| 10/20/17 | 78       |
| 10/20/17 | 79       |
| 10/20/17 | 80       |
| 10/20/17 | 81       |
| 10/20/17 | 82       |
| 10/20/17 | 83       |
| 10/20/17 | 84       |
| 10/20/17 | 85       |
| 10/20/17 | 86       |
| 10/20/17 | 87       |
| 10/20/17 | 88       |
| 10/20/17 | 89       |
| 10/20/17 | 90       |
| 10/20/17 | 91       |
| 10/20/17 | 92       |
| 10/20/17 | 93       |
| 10/20/17 | 94       |
| 10/20/17 | 95       |
| 10/20/17 | 96       |
| 10/20/17 | 97       |
| 10/20/17 | 98       |
| 10/20/17 | 99       |
| 10/20/17 | 100      |

PROJECT: M14025  
DATE: August 22, 2017  
P3.3



ROOF PLAN  
118' x 111' 0"

**BRANCH LINE SIZING TABLE**

IF NOT INDICATED ON PLAN, BRANCH LINE SHALL BE SIZED TO FURNISH SHOWN AS LISTED.

| PIPE TYPE | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" | 30" | 36" | 42" | 48" | 60" | 72" | 84" | 96" | 108" | 120" | 144" | 168" | 192" | 216" | 240" | 288" | 336" | 384" | 432" | 480" | 528" | 576" | 624" | 672" | 720" | 768" | 816" | 864" | 912" | 960" | 1008" | 1056" | 1104" | 1152" | 1200" | 1248" | 1296" | 1344" | 1392" | 1440" | 1488" | 1536" | 1584" | 1632" | 1680" | 1728" | 1776" | 1824" | 1872" | 1920" | 1968" | 2016" | 2064" | 2112" | 2160" | 2208" | 2256" | 2304" | 2352" | 2400" | 2448" | 2496" | 2544" | 2592" | 2640" | 2688" | 2736" | 2784" | 2832" | 2880" | 2928" | 2976" | 3024" | 3072" | 3120" | 3168" | 3216" | 3264" | 3312" | 3360" | 3408" | 3456" | 3504" | 3552" | 3600" | 3648" | 3696" | 3744" | 3792" | 3840" | 3888" | 3936" | 3984" | 4032" | 4080" | 4128" | 4176" | 4224" | 4272" | 4320" | 4368" | 4416" | 4464" | 4512" | 4560" | 4608" | 4656" | 4704" | 4752" | 4800" | 4848" | 4896" | 4944" | 4992" | 5040" | 5088" | 5136" | 5184" | 5232" | 5280" | 5328" | 5376" | 5424" | 5472" | 5520" | 5568" | 5616" | 5664" | 5712" | 5760" | 5808" | 5856" | 5904" | 5952" | 6000" | 6048" | 6096" | 6144" | 6192" | 6240" | 6288" | 6336" | 6384" | 6432" | 6480" | 6528" | 6576" | 6624" | 6672" | 6720" | 6768" | 6816" | 6864" | 6912" | 6960" | 7008" | 7056" | 7104" | 7152" | 7200" | 7248" | 7296" | 7344" | 7392" | 7440" | 7488" | 7536" | 7584" | 7632" | 7680" | 7728" | 7776" | 7824" | 7872" | 7920" | 7968" | 8016" | 8064" | 8112" | 8160" | 8208" | 8256" | 8304" | 8352" | 8400" | 8448" | 8496" | 8544" | 8592" | 8640" | 8688" | 8736" | 8784" | 8832" | 8880" | 8928" | 8976" | 9024" | 9072" | 9120" | 9168" | 9216" | 9264" | 9312" | 9360" | 9408" | 9456" | 9504" | 9552" | 9600" | 9648" | 9696" | 9744" | 9792" | 9840" | 9888" | 9936" | 9984" | 10032" | 10080" | 10128" | 10176" | 10224" | 10272" | 10320" | 10368" | 10416" | 10464" | 10512" | 10560" | 10608" | 10656" | 10704" | 10752" | 10800" | 10848" | 10896" | 10944" | 10992" | 11040" | 11088" | 11136" | 11184" | 11232" | 11280" | 11328" | 11376" | 11424" | 11472" | 11520" | 11568" | 11616" | 11664" | 11712" | 11760" | 11808" | 11856" | 11904" | 11952" | 12000" | 12048" | 12096" | 12144" | 12192" | 12240" | 12288" | 12336" | 12384" | 12432" | 12480" | 12528" | 12576" | 12624" | 12672" | 12720" | 12768" | 12816" | 12864" | 12912" | 12960" | 13008" | 13056" | 13104" | 13152" | 13200" | 13248" | 13296" | 13344" | 13392" | 13440" | 13488" | 13536" | 13584" | 13632" | 13680" | 13728" | 13776" | 13824" | 13872" | 13920" | 13968" | 14016" | 14064" | 14112" | 14160" | 14208" | 14256" | 14304" | 14352" | 14400" | 14448" | 14496" | 14544" | 14592" | 14640" | 14688" | 14736" | 14784" | 14832" | 14880" | 14928" | 14976" | 15024" | 15072" | 15120" | 15168" | 15216" | 15264" | 15312" | 15360" | 15408" | 15456" | 15504" | 15552" | 15600" | 15648" | 15696" | 15744" | 15792" | 15840" | 15888" | 15936" | 15984" | 16032" | 16080" | 16128" | 16176" | 16224" | 16272" | 16320" | 16368" | 16416" | 16464" | 16512" | 16560" | 16608" | 16656" | 16704" | 16752" | 16800" | 16848" | 16896" | 16944" | 16992" | 17040" | 17088" | 17136" | 17184" | 17232" | 17280" | 17328" | 17376" | 17424" | 17472" | 17520" | 17568" | 17616" | 17664" | 17712" | 17760" | 17808" | 17856" | 17904" | 17952" | 18000" | 18048" | 18096" | 18144" | 18192" | 18240" | 18288" | 18336" | 18384" | 18432" | 18480" | 18528" | 18576" | 18624" | 18672" | 18720" | 18768" | 18816" | 18864" | 18912" | 18960" | 19008" | 19056" | 19104" | 19152" | 19200" | 19248" | 19296" | 19344" | 19392" | 19440" | 19488" | 19536" | 19584" | 19632" | 19680" | 19728" | 19776" | 19824" | 19872" | 19920" | 19968" | 20016" | 20064" | 20112" | 20160" | 20208" | 20256" | 20304" | 20352" | 20400" | 20448" | 20496" | 20544" | 20592" | 20640" | 20688" | 20736" | 20784" | 20832" | 20880" | 20928" | 20976" | 21024" | 21072" | 21120" | 21168" | 21216" | 21264" | 21312" | 21360" | 21408" | 21456" | 21504" | 21552" | 21600" | 21648" | 21696" | 21744" | 21792" | 21840" | 21888" | 21936" | 21984" | 22032" | 22080" | 22128" | 22176" | 22224" | 22272" | 22320" | 22368" | 22416" | 22464" | 22512" | 22560" | 22608" | 22656" | 22704" | 22752" | 22800" | 22848" | 22896" | 22944" | 22992" | 23040" | 23088" | 23136" | 23184" | 23232" | 23280" | 23328" | 23376" | 23424" | 23472" | 23520" | 23568" | 23616" | 23664" | 23712" | 23760" | 23808" | 23856" | 23904" | 23952" | 24000" | 24048" | 24096" | 24144" | 24192" | 24240" | 24288" | 24336" | 24384" | 24432" | 24480" | 24528" | 24576" | 24624" | 24672" | 24720" | 24768" | 24816" | 24864" | 24912" | 24960" | 25008" | 25056" | 25104" | 25152" | 25200" | 25248" | 25296" | 25344" | 25392" | 25440" | 25488" | 25536" | 25584" | 25632" | 25680" | 25728" | 25776" | 25824" | 25872" | 25920" | 25968" | 26016" | 26064" | 26112" | 26160" | 26208" | 26256" | 26304" | 26352" | 26400" | 26448" | 26496" | 26544" | 26592" | 26640" | 26688" | 26736" | 26784" | 26832" | 26880" | 26928" | 26976" | 27024" | 27072" | 27120" | 27168" | 27216" | 27264" | 27312" | 27360" | 27408" | 27456" | 27504" | 27552" | 27600" | 27648" | 27696" | 27744" | 27792" | 27840" | 27888" | 27936" | 27984" | 28032" | 28080" | 28128" | 28176" | 28224" | 28272" | 28320" | 28368" | 28416" | 28464" | 28512" | 28560" | 28608" | 28656" | 28704" | 28752" | 28800" | 28848" | 28896" | 28944" | 28992" | 29040" | 29088" | 29136" | 29184" | 29232" | 29280" | 29328" | 29376" | 29424" | 29472" | 29520" | 29568" | 29616" | 29664" | 29712" | 29760" | 29808" | 29856" | 29904" | 29952" | 30000" | 30048" | 30096" | 30144" | 30192" | 30240" | 30288" | 30336" | 30384" | 30432" | 30480" | 30528" | 30576" | 30624" | 30672" | 30720" | 30768" | 30816" | 30864" | 30912" | 30960" | 31008" | 31056" | 31104" | 31152" | 31200" | 31248" | 31296" | 31344" | 31392" | 31440" | 31488" | 31536" | 31584" | 31632" | 31680" | 31728" | 31776" | 31824" | 31872" | 31920" | 31968" | 32016" | 32064" | 32112" | 32160" | 32208" | 32256" | 32304" | 32352" | 32400" | 32448" | 32496" | 32544" | 32592" | 32640" | 32688" | 32736" | 32784" | 32832" | 32880" | 32928" | 32976" | 33024" | 33072" | 33120" | 33168" | 33216" | 33264" | 33312" | 33360" | 33408" | 33456" | 33504" | 33552" | 33600" | 33648" | 33696" | 33744" | 33792" | 33840" | 33888" | 33936" | 33984" | 34032" | 34080" | 34128" | 34176" | 34224" | 34272" | 34320" | 34368" | 34416" | 34464" | 34512" | 34560" | 34608" | 34656" | 34704" | 34752" | 34800" | 34848" | 34896" | 34944" | 34992" | 35040" | 35088" | 35136" | 35184" | 35232" | 35280" | 35328" | 35376" | 35424" | 35472" | 35520" | 35568" | 35616" | 35664" | 35712" | 35760" | 35808" | 35856" | 35904" | 35952" | 36000" | 36048" | 36096" | 36144" | 36192" | 36240" | 36288" | 36336" | 36384" | 36432" | 36480" | 36528" | 36576" | 36624" | 36672" | 36720" | 36768" | 36816" | 36864" | 36912" | 36960" | 37008" | 37056" | 37104" | 37152" | 37200" | 37248" | 37296" | 37344" | 37392" | 37440" | 37488" | 37536" | 37584" | 37632" | 37680" | 37728" | 37776" | 37824" | 37872" | 37920" | 37968" | 38016" | 38064" | 38112" | 38160" | 38208" | 38256" | 38304" | 38352" | 38400" | 38448" | 38496" | 38544" | 38592" | 38640" | 38688" | 38736" | 38784" | 38832" | 38880" | 38928" | 38976" | 39024" | 39072" | 39120" | 39168" | 39216" | 39264" | 39312" | 39360" | 39408" | 39456" | 39504" | 39552" | 39600" | 39648" | 39696" | 39744" | 39792" | 39840" | 39888" | 39936" | 39984" | 40032" | 40080" | 40128" | 40176" | 40224" | 40272" | 40320" | 40368" | 40416" | 40464" | 40512" | 40560" | 40608" | 40656" | 40704" | 40752" | 40800" | 40848" | 40896" | 40944" | 40992" | 41040" | 41088" | 41136" | 41184" | 41232" | 41280" | 41328" | 41376" | 41424" | 41472" | 41520" | 41568" | 41616" | 41664" | 41712" | 41760" | 41808" | 41856" | 41904" | 41952" | 42000" | 42048" | 42096" | 42144" | 42192" | 42240" | 42288" | 42336" | 42384" | 42432" | 42480" | 42528" | 42576" | 42624" | 42672" | 42720" | 42768" | 42816" | 42864" | 42912" | 42960" | 43008" | 43056" | 43104" | 43152" | 43200" | 43248" | 43296" | 43344" | 43392" | 43440" | 43488" | 43536" | 43584" | 43632" | 43680" | 43728" | 43776" | 43824" | 43872" | 43920" | 43968" | 44016" | 44064" | 44112" | 44160" | 44208" | 44256" | 44304" | 44352" | 44400" | 44448" | 44496" | 44544" | 44592" | 44640" | 44688" | 44736" | 44784" | 44832" | 44880" | 44928" | 44976" | 45024" | 45072" | 45120" | 45168" | 45216" | 45264" | 45312" | 45360" | 45408" | 45456" | 45504" | 45552" | 45600" | 45648" | 45696" | 45744" | 45792" | 45840" | 45888" | 45936" | 45984" | 46032" | 46080" | 46128" | 46176" | 46224" | 46272" | 46320" | 46368" | 46416" | 46464" | 46512" | 46560" | 46608" | 46656" | 46704" | 46752" | 46800" | 46848" | 46896" | 46944" | 46992" | 47040" | 47088" | 47136" | 47184" | 47232" | 47280" | 47328" | 47376" | 47424" | 47472" | 47520" | 47568" | 47616" | 47664" | 47712" | 47760" | 47808" | 47856" | 47904" | 47952" | 48000" | 48048" | 48096" | 48144" | 48192" | 48240" | 48288" | 48336" | 48384" | 48432" | 48480" | 48528" | 48576" | 48624" | 48672" | 48720" | 48768" | 48816" | 48864" | 48912" | 48960" | 49008" | 49056" | 49104" | 49152" | 49200" | 49248" | 49296" | 49344" | 49392" | 49440" | 49488" | 49536" | 49584" | 49632" | 49680" | 49728" | 49776" | 49824" | 49872" | 49920" | 49968" | 50016" | 50064" | 50112" | 50160" | 50208" | 50256" | 50304" | 50352" | 50400" | 50448" | 50496" | 50544" | 50592" | 50640" | 50688" | 50736" | 50784" | 50832" | 50880" | 50928" | 50976" | 51024" | 51072" | 51120" | 51168" | 51216" | 51264" | 51312" | 51360" | 51408" | 51456" | 51504" | 51552" | 51600" | 51648" | 51696" | 51744" | 51792" | 51840" | 51888" | 51936" | 51984" | 52032" | 52080" | 52128" | 52176" | 52224" | 52272" | 52320" | 52368" | 52416" | 52464" | 52512" | 52560" | 52608" | 52656" | 52704" | 52752" | 52800" | 52848" | 52896" | 52944" | 52992" | 53040" | 53088" | 53136" | 53184" | 53232" | 53280" | 53328" | 53376" | 53424" | 53472" | 53520" | 53568" | 53616" |
|-----------|------|------|----|--------|--------|----|--------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|-----------|------|------|----|--------|--------|----|--------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|





**BRANCH LINE SIZING TABLE**

IF NOT INDICATED ON PLAN, BRANCH LINE SHALL BE SIZED TO FURNISH SHOWN AS LISTED

| PIPE SIZE | MAX. DISTANCE | MAX. FLOW | MAX. HEAD |
|-----------|---------------|-----------|-----------|
| 1/2"      | 10'           | 10 GPM    | 10'       |
| 3/4"      | 15'           | 15 GPM    | 15'       |
| 1"        | 20'           | 20 GPM    | 20'       |
| 1 1/4"    | 30'           | 30 GPM    | 30'       |
| 1 1/2"    | 40'           | 40 GPM    | 40'       |
| 2"        | 60'           | 60 GPM    | 60'       |
| 2 1/2"    | 80'           | 80 GPM    | 80'       |
| 3"        | 100'          | 100 GPM   | 100'      |
| 3 1/2"    | 120'          | 120 GPM   | 120'      |
| 4"        | 150'          | 150 GPM   | 150'      |
| 4 1/2"    | 180'          | 180 GPM   | 180'      |
| 5"        | 200'          | 200 GPM   | 200'      |
| 5 1/2"    | 220'          | 220 GPM   | 220'      |
| 6"        | 250'          | 250 GPM   | 250'      |
| 6 1/2"    | 280'          | 280 GPM   | 280'      |
| 7"        | 300'          | 300 GPM   | 300'      |
| 7 1/2"    | 320'          | 320 GPM   | 320'      |
| 8"        | 350'          | 350 GPM   | 350'      |
| 8 1/2"    | 380'          | 380 GPM   | 380'      |
| 9"        | 400'          | 400 GPM   | 400'      |
| 9 1/2"    | 420'          | 420 GPM   | 420'      |
| 10"       | 450'          | 450 GPM   | 450'      |
| 10 1/2"   | 480'          | 480 GPM   | 480'      |
| 11"       | 500'          | 500 GPM   | 500'      |
| 11 1/2"   | 520'          | 520 GPM   | 520'      |
| 12"       | 550'          | 550 GPM   | 550'      |
| 12 1/2"   | 580'          | 580 GPM   | 580'      |
| 13"       | 600'          | 600 GPM   | 600'      |
| 13 1/2"   | 620'          | 620 GPM   | 620'      |
| 14"       | 650'          | 650 GPM   | 650'      |
| 14 1/2"   | 680'          | 680 GPM   | 680'      |
| 15"       | 700'          | 700 GPM   | 700'      |
| 15 1/2"   | 720'          | 720 GPM   | 720'      |
| 16"       | 750'          | 750 GPM   | 750'      |
| 16 1/2"   | 780'          | 780 GPM   | 780'      |
| 17"       | 800'          | 800 GPM   | 800'      |
| 17 1/2"   | 820'          | 820 GPM   | 820'      |
| 18"       | 850'          | 850 GPM   | 850'      |
| 18 1/2"   | 880'          | 880 GPM   | 880'      |
| 19"       | 900'          | 900 GPM   | 900'      |
| 19 1/2"   | 920'          | 920 GPM   | 920'      |
| 20"       | 950'          | 950 GPM   | 950'      |
| 20 1/2"   | 980'          | 980 GPM   | 980'      |
| 21"       | 1000'         | 1000 GPM  | 1000'     |
| 21 1/2"   | 1020'         | 1020 GPM  | 1020'     |
| 22"       | 1050'         | 1050 GPM  | 1050'     |
| 22 1/2"   | 1080'         | 1080 GPM  | 1080'     |
| 23"       | 1100'         | 1100 GPM  | 1100'     |
| 23 1/2"   | 1120'         | 1120 GPM  | 1120'     |
| 24"       | 1150'         | 1150 GPM  | 1150'     |
| 24 1/2"   | 1180'         | 1180 GPM  | 1180'     |
| 25"       | 1200'         | 1200 GPM  | 1200'     |
| 25 1/2"   | 1220'         | 1220 GPM  | 1220'     |
| 26"       | 1250'         | 1250 GPM  | 1250'     |
| 26 1/2"   | 1280'         | 1280 GPM  | 1280'     |
| 27"       | 1300'         | 1300 GPM  | 1300'     |
| 27 1/2"   | 1320'         | 1320 GPM  | 1320'     |
| 28"       | 1350'         | 1350 GPM  | 1350'     |
| 28 1/2"   | 1380'         | 1380 GPM  | 1380'     |
| 29"       | 1400'         | 1400 GPM  | 1400'     |
| 29 1/2"   | 1420'         | 1420 GPM  | 1420'     |
| 30"       | 1450'         | 1450 GPM  | 1450'     |
| 30 1/2"   | 1480'         | 1480 GPM  | 1480'     |
| 31"       | 1500'         | 1500 GPM  | 1500'     |
| 31 1/2"   | 1520'         | 1520 GPM  | 1520'     |
| 32"       | 1550'         | 1550 GPM  | 1550'     |
| 32 1/2"   | 1580'         | 1580 GPM  | 1580'     |
| 33"       | 1600'         | 1600 GPM  | 1600'     |
| 33 1/2"   | 1620'         | 1620 GPM  | 1620'     |
| 34"       | 1650'         | 1650 GPM  | 1650'     |
| 34 1/2"   | 1680'         | 1680 GPM  | 1680'     |
| 35"       | 1700'         | 1700 GPM  | 1700'     |
| 35 1/2"   | 1720'         | 1720 GPM  | 1720'     |
| 36"       | 1750'         | 1750 GPM  | 1750'     |
| 36 1/2"   | 1780'         | 1780 GPM  | 1780'     |
| 37"       | 1800'         | 1800 GPM  | 1800'     |
| 37 1/2"   | 1820'         | 1820 GPM  | 1820'     |
| 38"       | 1850'         | 1850 GPM  | 1850'     |
| 38 1/2"   | 1880'         | 1880 GPM  | 1880'     |
| 39"       | 1900'         | 1900 GPM  | 1900'     |
| 39 1/2"   | 1920'         | 1920 GPM  | 1920'     |
| 40"       | 1950'         | 1950 GPM  | 1950'     |
| 40 1/2"   | 1980'         | 1980 GPM  | 1980'     |
| 41"       | 2000'         | 2000 GPM  | 2000'     |
| 41 1/2"   | 2020'         | 2020 GPM  | 2020'     |
| 42"       | 2050'         | 2050 GPM  | 2050'     |
| 42 1/2"   | 2080'         | 2080 GPM  | 2080'     |
| 43"       | 2100'         | 2100 GPM  | 2100'     |
| 43 1/2"   | 2120'         | 2120 GPM  | 2120'     |
| 44"       | 2150'         | 2150 GPM  | 2150'     |
| 44 1/2"   | 2180'         | 2180 GPM  | 2180'     |
| 45"       | 2200'         | 2200 GPM  | 2200'     |
| 45 1/2"   | 2220'         | 2220 GPM  | 2220'     |
| 46"       | 2250'         | 2250 GPM  | 2250'     |
| 46 1/2"   | 2280'         | 2280 GPM  | 2280'     |
| 47"       | 2300'         | 2300 GPM  | 2300'     |
| 47 1/2"   | 2320'         | 2320 GPM  | 2320'     |
| 48"       | 2350'         | 2350 GPM  | 2350'     |
| 48 1/2"   | 2380'         | 2380 GPM  | 2380'     |
| 49"       | 2400'         | 2400 GPM  | 2400'     |
| 49 1/2"   | 2420'         | 2420 GPM  | 2420'     |
| 50"       | 2450'         | 2450 GPM  | 2450'     |
| 50 1/2"   | 2480'         | 2480 GPM  | 2480'     |
| 51"       | 2500'         | 2500 GPM  | 2500'     |
| 51 1/2"   | 2520'         | 2520 GPM  | 2520'     |
| 52"       | 2550'         | 2550 GPM  | 2550'     |
| 52 1/2"   | 2580'         | 2580 GPM  | 2580'     |
| 53"       | 2600'         | 2600 GPM  | 2600'     |
| 53 1/2"   | 2620'         | 2620 GPM  | 2620'     |
| 54"       | 2650'         | 2650 GPM  | 2650'     |
| 54 1/2"   | 2680'         | 2680 GPM  | 2680'     |
| 55"       | 2700'         | 2700 GPM  | 2700'     |
| 55 1/2"   | 2720'         | 2720 GPM  | 2720'     |
| 56"       | 2750'         | 2750 GPM  | 2750'     |
| 56 1/2"   | 2780'         | 2780 GPM  | 2780'     |
| 57"       | 2800'         | 2800 GPM  | 2800'     |
| 57 1/2"   | 2820'         | 2820 GPM  | 2820'     |
| 58"       | 2850'         | 2850 GPM  | 2850'     |
| 58 1/2"   | 2880'         | 2880 GPM  | 2880'     |
| 59"       | 2900'         | 2900 GPM  | 2900'     |
| 59 1/2"   | 2920'         | 2920 GPM  | 2920'     |
| 60"       | 2950'         | 2950 GPM  | 2950'     |
| 60 1/2"   | 2980'         | 2980 GPM  | 2980'     |
| 61"       | 3000'         | 3000 GPM  | 3000'     |
| 61 1/2"   | 3020'         | 3020 GPM  | 3020'     |
| 62"       | 3050'         | 3050 GPM  | 3050'     |
| 62 1/2"   | 3080'         | 3080 GPM  | 3080'     |
| 63"       | 3100'         | 3100 GPM  | 3100'     |
| 63 1/2"   | 3120'         | 3120 GPM  | 3120'     |
| 64"       | 3150'         | 3150 GPM  | 3150'     |
| 64 1/2"   | 3180'         | 3180 GPM  | 3180'     |
| 65"       | 3200'         | 3200 GPM  | 3200'     |
| 65 1/2"   | 3220'         | 3220 GPM  | 3220'     |
| 66"       | 3250'         | 3250 GPM  | 3250'     |
| 66 1/2"   | 3280'         | 3280 GPM  | 3280'     |
| 67"       | 3300'         | 3300 GPM  | 3300'     |
| 67 1/2"   | 3320'         | 3320 GPM  | 3320'     |
| 68"       | 3350'         | 3350 GPM  | 3350'     |
| 68 1/2"   | 3380'         | 3380 GPM  | 3380'     |
| 69"       | 3400'         | 3400 GPM  | 3400'     |
| 69 1/2"   | 3420'         | 3420 GPM  | 3420'     |
| 70"       | 3450'         | 3450 GPM  | 3450'     |
| 70 1/2"   | 3480'         | 3480 GPM  | 3480'     |
| 71"       | 3500'         | 3500 GPM  | 3500'     |
| 71 1/2"   | 3520'         | 3520 GPM  | 3520'     |
| 72"       | 3550'         | 3550 GPM  | 3550'     |
| 72 1/2"   | 3580'         | 3580 GPM  | 3580'     |
| 73"       | 3600'         | 3600 GPM  | 3600'     |
| 73 1/2"   | 3620'         | 3620 GPM  | 3620'     |
| 74"       | 3650'         | 3650 GPM  | 3650'     |
| 74 1/2"   | 3680'         | 3680 GPM  | 3680'     |
| 75"       | 3700'         | 3700 GPM  | 3700'     |
| 75 1/2"   | 3720'         | 3720 GPM  | 3720'     |
| 76"       | 3750'         | 3750 GPM  | 3750'     |
| 76 1/2"   | 3780'         | 3780 GPM  | 3780'     |
| 77"       | 3800'         | 3800 GPM  | 3800'     |
| 77 1/2"   | 3820'         | 3820 GPM  | 3820'     |
| 78"       | 3850'         | 3850 GPM  | 3850'     |
| 78 1/2"   | 3880'         | 3880 GPM  | 3880'     |
| 79"       | 3900'         | 3900 GPM  | 3900'     |
| 79 1/2"   | 3920'         | 3920 GPM  | 3920'     |
| 80"       | 3950'         | 3950 GPM  | 3950'     |
| 80 1/2"   | 3980'         | 3980 GPM  | 3980'     |
| 81"       | 4000'         | 4000 GPM  | 4000'     |
| 81 1/2"   | 4020'         | 4020 GPM  | 4020'     |
| 82"       | 4050'         | 4050 GPM  | 4050'     |
| 82 1/2"   | 4080'         | 4080 GPM  | 4080'     |
| 83"       | 4100'         | 4100 GPM  | 4100'     |
| 83 1/2"   | 4120'         | 4120 GPM  | 4120'     |
| 84"       | 4150'         | 4150 GPM  | 4150'     |
| 84 1/2"   | 4180'         | 4180 GPM  | 4180'     |
| 85"       | 4200'         | 4200 GPM  | 4200'     |
| 85 1/2"   | 4220'         | 4220 GPM  | 4220'     |
| 86"       | 4250'         | 4250 GPM  | 4250'     |
| 86 1/2"   | 4280'         | 4280 GPM  | 4280'     |
| 87"       | 4300'         | 4300 GPM  | 4300'     |
| 87 1/2"   | 4320'         | 4320 GPM  | 4320'     |
| 88"       | 4350'         | 4350 GPM  | 4350'     |
| 88 1/2"   | 4380'         | 4380 GPM  | 4380'     |
| 89"       | 4400'         | 4400 GPM  | 4400'     |
| 89 1/2"   | 4420'         | 4420 GPM  | 4420'     |
| 90"       | 4450'         | 4450 GPM  | 4450'     |
| 90 1/2"   | 4480'         | 4480 GPM  | 4480'     |
| 91"       | 4500'         | 4500 GPM  | 4500'     |
| 91 1/2"   | 4520'         | 4520 GPM  | 4520'     |
| 92"       | 4550'         | 4550 GPM  | 4550'     |
| 92 1/2"   | 4580'         | 4580 GPM  | 4580'     |
| 93"       | 4600'         | 4600 GPM  | 4600'     |
| 93 1/2"   | 4620'         | 4620 GPM  | 4620'     |
| 94"       | 4650'         | 4650 GPM  | 4650'     |
| 94 1/2"   | 4680'         | 4680 GPM  | 4680'     |
| 95"       | 4700'         | 4700 GPM  | 4700'     |
| 95 1/2"   | 4720'         | 4720 GPM  | 4720'     |
| 96"       | 4750'         | 4750 GPM  | 4750'     |
| 96 1/2"   | 4780'         | 4780 GPM  | 4780'     |
| 97"       | 4800'         | 4800 GPM  | 4800'     |
| 97 1/2"   | 4820'         | 4820 GPM  | 4820'     |
| 98"       | 4850'         | 4850 GPM  | 4850'     |
| 98 1/2"   | 4880'         | 4880 GPM  | 4880'     |
| 99"       | 4900'         | 4900 GPM  | 4900'     |
| 99 1/2"   | 4920'         | 4920 GPM  | 4920'     |
| 100"      | 4950'         | 4950 GPM  | 4950'     |
| 100 1/2"  | 4980'         | 4980 GPM  | 4980'     |
| 101"      | 5000'         | 5000 GPM  | 5000'     |
| 101 1/2"  | 5020'         | 5020 GPM  | 5020'     |
| 102"      | 5050'         | 5050 GPM  | 5050'     |
| 102 1/2"  | 5080'         | 5080 GPM  | 5080'     |
| 103"      | 5100'         | 5100 GPM  | 5100'     |
| 103 1/2"  | 5120'         | 5120 GPM  | 5120'     |
| 104"      | 5150'         | 5150 GPM  | 5150'     |
| 104 1/2"  | 5180'         | 5180 GPM  | 5180'     |
| 105"      | 5200'         | 5200 GPM  | 5200'     |
| 105 1/2"  | 5220'         | 5220 GPM  | 5220'     |
| 106"      | 5250'         | 5250 GPM  | 5250'     |
| 106 1/2"  | 5280'         | 5280 GPM  | 5280'     |
| 107"      | 5300'         | 5300 GPM  | 5300'     |
| 107 1/2"  | 5320'         | 5320 GPM  | 5320'     |
| 108"      | 5350'         | 5350 GPM  | 5350'     |
| 108 1/2"  | 5380'         | 5380 GPM  | 5380'     |
| 109"      | 5400'         | 5400 GPM  | 5400'     |
| 109 1/2"  | 5420'         | 5420 GPM  | 5420'     |
| 110"      | 5450'         | 5450 GPM  | 5450'     |
| 110 1/2"  | 5480'         | 5480 GPM  | 5480'     |
| 111"      | 5500'         | 5500 GPM  | 5500'     |
| 111 1/2"  | 5520'         | 5520 GPM  | 5520'     |
| 112"      | 5550'         | 5550 GPM  | 5550'     |
| 112 1/2"  | 5580'         | 5580 GPM  | 5580'     |
| 113"      | 5600'         | 5600 GPM  | 5600'     |
| 113 1/2"  | 5620'         | 5620 GPM  | 5620'     |
| 114"      | 5650'         | 5650 GPM  | 5650'     |
| 114 1/2"  | 5680'         | 5680 GPM  | 5680'     |
| 115"      | 5700'         | 5700 GPM  | 5700'     |
| 115 1/2"  | 5720'         | 5720 GPM  | 5720'     |
| 116"      | 5750'         | 5750 GPM  | 5750'     |
| 116 1/2"  | 5780'         | 5780 GPM  | 5780'     |
| 117"      | 5800'         | 5800 GPM  | 5800'     |
| 117 1/2"  | 5820'         | 5820 GPM  | 5820'     |
| 118"      | 5850'         | 5850 GPM  | 5850'     |
| 118 1/2"  | 5880'         | 5880 GPM  | 5880'     |
| 119"      | 5900'         | 5900 GPM  | 5900'     |
| 119 1/2"  | 5920'         | 5920 GPM  | 5920'     |
| 120"      | 5950'         | 5950 GPM  | 5950'     |
| 120 1/2"  | 5980'         | 5980 GPM  | 5980'     |
| 121"      | 6000'         | 6000 GPM  | 6000'     |
| 121 1/2"  | 6020'         | 6020 GPM  | 6020'     |
| 122"      | 6050'         | 6050 GPM  | 6050'     |
| 122 1/2"  | 6080'         | 6080 GPM  | 6080'     |
| 123"      | 6100'         | 6100 GPM  | 6100'     |
| 123 1/2"  | 6120'         | 6120 GPM  | 6120'     |
| 124"      | 6150'         | 6150 GPM  | 6150'     |
| 124 1/2"  | 6180'         | 6180 GPM  | 6180'     |
| 125"      | 6200'         | 6200 GPM  | 6200'     |
| 125 1/2"  | 6220'</       |           |           |