***R A I  W A Y***

***Torre H=20m+palo di GALLICCHIO (PZ)***

# Rel.  RA602CL

## ALLEGATI

SOFTWARE FOR LATTICE TOWER DESIGN - ing.Losco-Milano Running:'z55reg3b'

Input/Output Resume

Library: RA602CL\co1def ..ip1-2 Final input, mm-dd-yy: 11-29-2014/13:24:58

| Beginning | Job | Height | Top Width [m] | Bodies |
|---|---|---|---|---|
| 14-11-2014 | Gallicchio | 18.65 | 1 | 4 |

SPEC - dati specifiche di calcolo del vento >> Spec. cod. .. 14 / 2 <<

| C, | fatt.diag., | ma.gh.[mm], | T[sec], | q[daN/m2] | |
|---|---|---|---|---|---|
| 2.8 | 1.15 | 0 | 0 | >> 81.55 << | |
| Ct | gammaG | psi0*Yq | Cd | Ind.sovrapp. | %-Faf |
| 1 | 1.4 | 1.5 | 1 | 5 | 0 |

Altri dati e profilo in quota da base torre.. secondo riepilogo a seguire

BODY - INPUT DATA OF PANELS [L,C, other profile, exposed height mm]

| Body | Double TAN | LEG | | Panel number | code | Height | Web | Horiz | Level midle | Level top | Progress. from top |
|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | mm | - | - | m | mm | mm | m | m | m |
| 1 | 0.000 | 2 L | 100 | 1 | 5 | 1.200 | 50 | 100 | 18.050 | 18.650 | 1.200 |
| 1 | 0.000 | 2 L | 100 | 2 | 5 | 1.600 | 50 | 100 | 16.650 | 17.450 | 2.800 |
| 1 | 0.000 | 2 L | 100 | 3 | 5 | 1.600 | 50 | 0 | 15.050 | 15.850 | 4.400 |
| 1 | 0.000 | 2 L | 100 | 4 | 5 | 1.600 | 50 | 100 | 13.450 | 14.250 | 6.000 |
| 2 | 0.070 | 2 L | 70 | 1 | 5 | 1.600 | 50 | 50 | 11.850 | 12.650 | 7.600 |
| 2 | 0.070 | 2 L | 70 | 2 | 5 | 1.700 | 50 | 0 | 10.200 | 11.050 | 9.300 |
| 2 | 0.070 | 2 L | 70 | 3 | 5 | 1.800 | 50 | 0 | 8.450 | 9.350 | 11.100 |
| 2 | 0.070 | 2 L | 70 | 4 | 7 | 0.900 | 60 | 0 | 7.100 | 7.550 | 12.000 |
| 3 | 0.070 | 2 L | 90 | 1 | 13 | 1.000 | 60 | 0 | 6.150 | 6.650 | 13.000 |
| 3 | 0.070 | 2 L | 90 | 2 | 5 | 2.100 | 60 | 0 | 4.600 | 5.650 | 15.100 |
| 3 | 0.070 | 2 L | 90 | 3 | 7 | 1.100 | 60 | 0 | 3.000 | 3.550 | 16.200 |
| 4 | 0.070 | 2 L | 90 | 1 | 13 | 1.200 | 60 | 0 | 1.850 | 2.450 | 17.400 |
| 4 | 0.070 | 2 L | 90 | 2 | 7 | 1.000 | 60 | 0 | 0.750 | 1.250 | 18.400 |
| 4 | 0.070 | 2 L | 90 | 3 | 13 | 0.250 | 60 | 0 | 0.125 | 0.250 | 18.650 |

| FACIL - Ladder code / Cable way code | s1 [m2/m] projected area | s2 [m2/m] projected area | shape factor - |
|---|---|---|---|
| 7 | 0 | 0 | 0 |
| 4 | .1 | .1 | 1 |

Platforms .. total number = 2

| Re. | type [-] | level [m] | EPA45deg, [m2] | EPA90deg, [m2] | linear [m2/m] |
|---|---|---|---|---|---|
| 1 .. | 7 | 20 | 0 | 0 | .19 |
| 2 .. | 7 | 14 | 0 | 0 | .18 |

ANT - Antennas ... number of levels = 10

| Re. | description | level | EPA45 | EPA90 | ecc. | Cables number | Data dia[mm] | Description |
|---|---|---|---|---|---|---|---|---|
| | [-] | [m] | [m2] | [m2] | [m] | number | dia[mm] | [-] |
| 1 | Palo/UHF | 21.00 | 6.00 | 5.20 | 0.35 | 1 | 25 | 1x25mm |
| 2 | 2pann.uhf+velett | 18.00 | 1.80 | 1.80 | 0.70 | 0 | 0 | - |
| 3 | 2xuhf | 16.00 | 1.25 | 1.25 | 0.00 | 0 | 0 | - |
| 4 | liv.YAGIpol.or.v | 15.00 | 1.00 | 1.00 | 0.70 | 1 | 25 | 1x25mm |
| 5 | liv.YAGIpol.or.v | 12.50 | 1.00 | 1.00 | 0.70 | 1 | 25 | 1x25mm |
| 6 | hp3m | 10.00 | 7.80 | 7.80 | 2.00 | 1 | 25 | 1x25mm |
| 7 | doppia yagi | 8.50 | 0.50 | 0.50 | 0.00 | 0 | 0 | - |
| 8 | 2standard1.5m | 5.00 | 5.80 | 5.80 | 2.00 | 2 | 50 | 2x25mm |
| 9 | yagi+passerella | 3.00 | 1.00 | 1.00 | 0.00 | 1 | 25 | - |
| 10 | NUOVA HP .6m Rai | 10.00 | 1.75 | 1.75 | 0.00 | 1 | 10 | 1x10mm |

GMONT,--LEG ... Weights and leg sections

```
Pesi on top ...    1120
tronco  1 .....    2520 .....  2 L 100      ...... area ..   13.82 cm2
tronco  2 .....    2520 .....  2 L  70      ...... area ..   18.80 cm2
tronco  3 .....    2520 .....  2 L  90      ...... area ..   31.00 cm2
tronco  4 .....    2520 .....  2 L  90      ...... area ..   31.00 cm2
Totale ........   11200 daN
```

X50TU6 / D.M. 24-9-2005 11-15-2014 Gallicchio
Zona 3 - Cat.esposizione 4 kr= .22 zo= .3 zmin= 8
Quota s.l.m. = 890 m Ct = 1.00 Tr=100 anni

Opzione 100 :
Modifica velocit… vento in considerazione della combin. dei carichi
AP a norme ISA e ICAO 760 mmHg a 0^C 'ro'(slm)= 1.250 (kg/m3)

Profilo del vento (Cd escluso) a passi di 5 m e dati per il calcolo:

| Quota | Coeff.ti della | Vel.media | Coeff.esp. | Vel.di picco | Coeff.esp. | Press.cinet. |
|---|---|---|---|---|---|---|
| | forma base | del vento | della vel. | del vento | pressioni | di picco |
| z | kr*ct*alfa(z) | vM(z) | Cev | vP(z) | Ce | q(z) |
| m | - | m/sec | - | m/sec | - | daN/m2 |
| 30 | 1.013 | 36.60 | 1.608 | 58.10 | 2.587 | 2109 |
| 25 | 0.973 | 35.15 | 1.564 | 56.49 | 2.445 | 1994 |
| 20 | 0.924 | 33.37 | 1.509 | 54.50 | 2.277 | 1857 |
| 15 | 0.861 | 31.09 | 1.437 | 51.92 | 2.066 | 1685 |
| 10 | 0.771 | 27.87 | 1.335 | 48.24 | 1.783 | 1454 |
| 8 | 0.722 | 26.09 | 1.278 | 46.18 | 1.634 | 1333 |

Dati per il lancio del calcolo della torre, con Q(s.l.m.)= 890 m:
vref,0= 27 vref= 34.8 vR(Tr)= 36.1224 m/sec >> q(10m,med.)= 81.55 N/m2 <<

y55run9G
Profilo del vento lungo la torre Spec.cod. 14 / 2

| tr.ma. | | z(m) | Ce | qb | Cd | YQ*PSI0 | qb*Ce*Cd*YQ*PSI0 |
|---|---|---|---|---|---|---|---|
| .. | per | TIA/G | Ke | Kzt | Kd | Gh*1.6 | Gh*1.6*qz |
| | | | - | daN/m2 | - | - | (daN/m2) |
| 1 | 1 | 18.05 | 2.20 | 179.46 | 1.00 | 1.50 | 269.18 |
| 1 | 2 | 16.65 | 2.14 | 174.64 | 1.00 | 1.50 | 261.96 |
| 1 | 3 | 15.05 | 2.07 | 168.69 | 1.00 | 1.50 | 253.03 |
| 1 | 4 | 13.45 | 1.99 | 162.16 | 1.00 | 1.50 | 243.23 |
| 2 | 1 | 11.85 | 1.90 | 154.92 | 1.00 | 1.50 | 232.38 |
| 2 | 2 | 10.20 | 1.80 | 146.51 | 1.00 | 1.50 | 219.77 |
| 2 | 3 | 8.45 | 1.67 | 136.21 | 1.00 | 1.50 | 204.32 |
| 2 | 4 | 7.10 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |
| 3 | 1 | 6.15 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |
| 3 | 2 | 4.60 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |
| 3 | 3 | 3.00 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |
| 4 | 1 | 1.85 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |
| 4 | 2 | 0.75 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |
| 4 | 3 | 0.12 | 1.63 | 133.27 | 1.00 | 1.50 | 199.90 |

FINE file IN-OUT, parte INPUT. 11-29-2014 - 13:34:51

Summary of EffettiveProjectedAreas (EPA): tower, ladder, cable running, cables/linears

| Body | Panel | Code | H | Midle level | qz | Ghx1.6 | Actual area | Force Coeff. | EPA ladder | EPA runn. | EPA linear | TOTAL EPA | Shiel. from app. | Hyp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | m | m | daN/m2 | - | m2 | - | m2 | m2 | m2 | m2 | 0=no | |
| Other/level 1 | | | | 20.000 | 179.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 1 |
| Other/level 1 | | | | 20.000 | 179.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 2 |
| Ant level 1 | | | | 21.000 | 179.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 6.000 | 0 | 1 |
| Ant level 1 | | | | 21.000 | 179.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 5.200 | 0 | 2 |
| Ant level 2 | | | | 18.000 | 179.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.800 | 0 | 1 |
| Ant level 2 | | | | 18.000 | 179.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.800 | 0 | 2 |
| 1 | 1 | 5 | 1.200 | 18.050 | 179.5 | 1.50 | 0.647 | 3.22 | 0.000 | 0.120 | 0.264 | 2.468 | 0 | 1 |
| 1 | 1 | 5 | 1.200 | 18.050 | 179.5 | 1.50 | 0.647 | 2.80 | 0.000 | 0.120 | 0.264 | 2.196 | 0 | 2 |
| Ant level 3 | | | | 16.000 | 174.6 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.250 | 0 | 1 |
| Ant level 3 | | | | 16.000 | 174.6 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.250 | 0 | 2 |
| 1 | 2 | 5 | 1.600 | 16.650 | 174.6 | 1.50 | 0.830 | 3.22 | 0.000 | 0.160 | 0.352 | 3.185 | 0 | 1 |
| 1 | 2 | 5 | 1.600 | 16.650 | 174.6 | 1.50 | 0.830 | 2.80 | 0.000 | 0.160 | 0.352 | 2.836 | 0 | 2 |
| Ant level 4 | | | | 15.000 | 168.7 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant level 4 | | | | 15.000 | 168.7 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 1 | 3 | 5 | 1.600 | 15.050 | 168.7 | 1.50 | 0.830 | 3.22 | 0.000 | 0.160 | 0.400 | 3.233 | 0 | 1 |
| 1 | 3 | 5 | 1.600 | 15.050 | 168.7 | 1.50 | 0.830 | 2.80 | 0.000 | 0.160 | 0.400 | 2.884 | 0 | 2 |
| Other/level 2 | | | | 14.000 | 162.2 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 1 |
| Other/level 2 | | | | 14.000 | 162.2 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 2 |
| 1 | 4 | 5 | 1.600 | 13.450 | 162.2 | 1.50 | 0.830 | 3.22 | 0.000 | 0.160 | 0.688 | 3.521 | 0 | 1 |
| 1 | 4 | 5 | 1.600 | 13.450 | 162.2 | 1.50 | 0.830 | 2.80 | 0.000 | 0.160 | 0.688 | 3.172 | 0 | 2 |
| Ant level 5 | | | | 12.500 | 154.9 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant level 5 | | | | 12.500 | 154.9 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 2 | 1 | 5 | 1.600 | 11.850 | 154.9 | 1.50 | 0.653 | 3.22 | 0.000 | 0.160 | 0.736 | 3.000 | 0 | 1 |
| 2 | 1 | 5 | 1.600 | 11.850 | 154.9 | 1.50 | 0.653 | 2.80 | 0.000 | 0.160 | 0.736 | 2.725 | 0 | 2 |
| Ant level 6 | | | | 10.000 | 146.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 7.800 | 0 | 1 |
| Ant level 6 | | | | 10.000 | 146.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 7.800 | 0 | 2 |
| Ant level 10 | | | | 10.000 | 146.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.750 | 0 | 1 |
| Ant level 10 | | | | 10.000 | 146.5 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.750 | 0 | 2 |
| 2 | 2 | 5 | 1.700 | 10.200 | 146.5 | 1.50 | 0.699 | 3.22 | 0.000 | 0.170 | 0.853 | 3.274 | 0 | 1 |
| 2 | 2 | 5 | 1.700 | 10.200 | 146.5 | 1.50 | 0.699 | 2.80 | 0.000 | 0.170 | 0.853 | 2.980 | 0 | 2 |
| Ant level 7 | | | | 8.500 | 136.2 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 0.500 | 0 | 1 |
| Ant level 7 | | | | 8.500 | 136.2 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 0.500 | 0 | 2 |
| 2 | 3 | 5 | 1.800 | 8.450 | 136.2 | 1.50 | 0.745 | 3.22 | 0.000 | 0.180 | 0.904 | 3.483 | 0 | 1 |
| 2 | 3 | 5 | 1.800 | 8.450 | 136.2 | 1.50 | 0.745 | 2.80 | 0.000 | 0.180 | 0.904 | 3.170 | 0 | 2 |
| 2 | 4 | 7 | 0.900 | 7.100 | 133.3 | 1.50 | 0.368 | 3.22 | 0.000 | 0.090 | 0.452 | 1.727 | 0 | 1 |
| 2 | 4 | 7 | 0.900 | 7.100 | 133.3 | 1.50 | 0.368 | 2.80 | 0.000 | 0.090 | 0.452 | 1.572 | 0 | 2 |
| 3 | 1 | 13 | 1.000 | 6.150 | 133.3 | 1.50 | 0.484 | 3.22 | 0.000 | 0.100 | 0.502 | 2.162 | 0 | 1 |
| 3 | 1 | 13 | 1.000 | 6.150 | 133.3 | 1.50 | 0.484 | 2.80 | 0.000 | 0.100 | 0.502 | 1.958 | 0 | 2 |
| Ant level 8 | | | | 5.000 | 133.3 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 5.800 | 0 | 1 |
| Ant level 8 | | | | 5.000 | 133.3 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 5.800 | 0 | 2 |
| 3 | 2 | 5 | 2.100 | 4.600 | 133.3 | 1.50 | 1.084 | 3.22 | 0.000 | 0.210 | 1.180 | 4.881 | 0 | 1 |
| 3 | 2 | 5 | 2.100 | 4.600 | 133.3 | 1.50 | 1.084 | 2.80 | 0.000 | 0.210 | 1.180 | 4.426 | 0 | 2 |
| Ant level 9 | | | | 3.000 | 133.3 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant level 9 | | | | 3.000 | 133.3 | 1.50 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 3 | 3 | 7 | 1.100 | 3.000 | 133.3 | 1.50 | 0.533 | 3.22 | 0.000 | 0.110 | 0.651 | 2.477 | 0 | 1 |
| 3 | 3 | 7 | 1.100 | 3.000 | 133.3 | 1.50 | 0.533 | 2.80 | 0.000 | 0.110 | 0.651 | 2.253 | 0 | 2 |
| 4 | 1 | 13 | 1.200 | 1.850 | 133.3 | 1.50 | 0.582 | 3.22 | 0.000 | 0.120 | 0.710 | 2.703 | 0 | 1 |
| 4 | 1 | 13 | 1.200 | 1.850 | 133.3 | 1.50 | 0.582 | 2.80 | 0.000 | 0.120 | 0.710 | 2.459 | 0 | 2 |
| 4 | 2 | 7 | 1.000 | 0.750 | 133.3 | 1.50 | 0.496 | 3.22 | 0.000 | 0.100 | 0.592 | 2.288 | 0 | 1 |
| 4 | 2 | 7 | 1.000 | 0.750 | 133.3 | 1.50 | 0.496 | 2.80 | 0.000 | 0.100 | 0.592 | 2.079 | 0 | 2 |
| 4 | 3 | 13 | 0.250 | 0.125 | 133.3 | 1.50 | 0.197 | 3.22 | 0.000 | 0.025 | 0.148 | 0.807 | 0 | 1 |
| 4 | 3 | 13 | 0.250 | 0.125 | 133.3 | 1.50 | 0.197 | 2.80 | 0.000 | 0.025 | 0.148 | 0.724 | 0 | 2 |

Input mm-dd-yy 11-29-2014/13:24:58 .. Print 11-29-2014/13:34:50

RA602CL\co1def .. dir1-2 - Summary and outputs

| Panel (*) | Wind forces due to Tower daN | Linear daN | Conc. daN | Shear pole daN | Shear base daN | Bending pole (1) daN x m | Bending base (2) daN x m | MemberForce ----- (3) daN | Others ------ (4) daN |
|---|---|---|---|---|---|---|---|---|---|
| 1/ 1 m | 561 | 103 | 485 | 1947 | 2764 | 4964 | 6399 | 4122 | -3116 |
| d | 488 | 103 | 485 | 1400 | 2475 | 339 | 0 | 984 | |
| 1/ 2 m | 700 | 134 | 327 | 3181 | 3926 | 8944 | 11537 | 7157 | -5789 |
| d | 609 | 134 | 327 | 2475 | 3546 | 339 | 0 | 1657 | |
| 1/ 3 m | 676 | 142 | 253 | 4335 | 4997 | 15005 | 18663 | 11664 | -9933 |
| d | 588 | 142 | 253 | 3546 | 4529 | 516 | 0 | 2208 | |
| 1/ 4 m | 650 | 206 | 0 | 5425 | 5853 | 23002 | 27342 | 17539 | -15446 |
| d | 565 | 206 | 0 | 4529 | 5300 | 516 | 0 | 2562 | |
| 2/ 1 m | 489 | 208 | 232 | 6434 | 6782 | 32181 | 37601 | 23117 | -20662 |
| d | 425 | 208 | 232 | 5300 | 6166 | 679 | 0 | 2008 | |
| 2/ 2 m | 495 | 225 | 2099 | 7142 | 9601 | 43364 | 51107 | 27973 | -25155 |
| d | 430 | 225 | 2099 | 6166 | 8919 | 4107 | 0 | 4244 | |
| 2/ 3 m | 490 | 221 | 102 | 10059 | 10414 | 59632 | 69125 | 34619 | -31439 |
| d | 426 | 221 | 102 | 8919 | 9669 | 4107 | 0 | 4044 | |
| 2/ 4 m | 237 | 108 | 0 | 10587 | 10760 | 78654 | 78654 | 41347 | -37805 |
| d | 206 | 108 | 0 | 9669 | 9984 | 4107 | 0 | 3756 | |
| 3/ 1 m | 312 | 120 | 0 | 10976 | 11192 | 78654 | 89629 | 41641 | -37616 |
| d | 271 | 120 | 0 | 9984 | 10375 | 4107 | 0 | 3932 | 2239 |
| 3/ 2 m | 698 | 278 | 1159 | 12839 | 13327 | 101723 | 115838 | 48879 | -44371 |
| d | 607 | 278 | 1159 | 10375 | 12419 | 6426 | 0 | 4943 | |
| 3/ 3 m | 343 | 152 | 200 | 13774 | 14022 | 130879 | 130879 | 57065 | -52074 |
| d | 298 | 152 | 200 | 12419 | 13069 | 6426 | 0 | 4852 | |
| 4/ 1 m | 374 | 166 | 0 | 14292 | 14562 | 130879 | 148030 | 57359 | -51885 |
| d | 326 | 166 | 0 | 13069 | 13561 | 6426 | 0 | 5027 | 2873 |
| 4/ 2 m | 319 | 138 | 0 | 14791 | 15019 | 162821 | 162821 | 65297 | -59340 |
| d | 277 | 138 | 0 | 13561 | 13977 | 6426 | 0 | 4300 | |
| 4/ 3 m | 127 | 35 | 0 | 15100 | 15181 | 162821 | 166596 | 65591 | -59151 |
| d | 110 | 35 | 0 | 13977 | 14121 | 6426 | 0 | 3047 | |

(*) Re.Body/Re.panel; 'm'= refer.row for leg data, 'd'=refer.row for webs
(1) Bending at the pole of the panel for leg forces calculation, or torque due to eccentric loads due to the antennas for calculation of max web forces.
(2) Bending at pier of the reference body for calculation of force in the legs or torque due to position of facilities, for calculation of max web force.
(3) Calculated axial force in the legs (row'm') or force in the webs (row"d")
(4) Max tensile force in the legs (row'm') or force in the horizontal and structural member, if present (row'd').

Run parameters (legenda and values):

A) Weights distribution type Max total weight [daN] .... % Top Conc.Weight
B) Struct.Period [SEC]= 1/f' (0 means dyn.factor=cost.) .... Dunamic factor Cd
C) Standards ............... Wind pressure qz[daN/m2]....... Ice sleeve [mm]
D) Topographic Fator ....... Overlapping members index ..... MeanMaxWindFactor

A) 3 11200 0.10; B) 0.00 1.00; C) 14/ 2 81.6 0; D) 1.00 5% 0.0

Other parameters: L min= L 40 ; Mt_facil. .. 0 ; (lo/i med) x 1.2 - 20

Leg sections and weights max/min: Body) Area(cm2) FpMax/FpMin(daN):

1) 13.82 2520/ 1620 ... 2) 18.80 2520/ 1620 ...
3) 31.00 2520/ 1620 ... 4) 31.00 2520/ 1620 ...

Total FpMax / FpMin di calcolo ........... 11200 / 7200 daN
Top weights included .. 1120 / 720 daN

E= 210.000 N/mm2 (b= 1.88 m)

Standard code 14 / 2 PSIoxYq(vento)= 1.5 Yg1=1.3(1) Yg2=1.5(0). Check: 1.4 .9

mm-gg-aaaa ... In.11-29-2014/13:24:58 El.11-29-2014/13:34:50 RA602CL\co1def dir1-2

**GEOMETRY AND LOADS AT TOWER BASE**

```
Base width for calculation = 1.8855 m

Global loads ... Wind actions in hypothesis 1
Global Bending=   64467+   19297+   82831 =   166596 daN*m
Global Shear  =    6470+    2238+    6473 =    15181 daN
Nmin =   10079  daN;        Nmax =    15679 daN

Global loads .. Wind actions in hypothesis 2
Global Bending=   56058+   19297+   78309 =   153664 daN*m
Global Shear  =    5626+    2238+    6257 =    14121 daN
Nmin =   10079  daN;        Nmax =    15679 daN

Max loads on the leg at tower pier in wind direction hyp.1
Max Compression =  66397 daN
Max Up-Lift     =  59957 daN

Max loads on the leg at tower pier in wind drection hyp.2
Max Compression =  44668 daN
Max Up-Lift     =  38228 daN
```

Spostamenti

| BODY ( -- ) | Panel ( -- ) | ROTATION on vert.axis ( ' ) | Horizontal DISPLACEMENT ( mm ) |
|---|---|---|---|
| 4 | 3 | 0.6 | 0.0 |
| 4 | 2 | 1.2 | 0.3 |
| 4 | 1 | 1.9 | 0.8 |
| 3 | 3 | 4.4 | 1.8 |
| 3 | 2 | 7.0 | 5.3 |
| 3 | 1 | 9.5 | 7.7 |
| 2 | 4 | 12.5 | 10.6 |
| 2 | 3 | 15.5 | 17.9 |
| 2 | 2 | 18.5 | 26.3 |
| 2 | 1 | 21.5 | 35.7 |
| 1 | 4 | 25.9 | 46.7 |
| 1 | 3 | 30.2 | 59.7 |
| 1 | 2 | 34.6 | 74.8 |
| 1 | 1 | 39.0 | 87.7 |

y55disp1; 11-29-2014; 13:34:51

Input/Output Resume

Library: RA602CL\co2 ..ip1-2 Final input, mm-dd-yy: 11-29-2014/13:57:00

| Beginning | Job | Height | Top Width [m] | Bodies |
|---|---|---|---|---|
| 28-11-2014 | Gallicchio-co2 | 18.75 | 1 | 4 |

SPEC - dati specifiche di calcolo del vento >> Spec. cod. .. 14 / 3 <<

| C, | fatt.diag., | ma.gh.[mm], | T[sec], | q[daN/m2] | |
|---|---|---|---|---|---|
| 2.8 | 1.15 | 12 | 0 | >> 81.55 << | |
| Ct | gammaG | psi0*Yq | Cd | Ind.sovrapp. | %-Faf |
| 1 | 1 | 1.2 | 1 | 5 | 0 |

Altri dati e profilo in quota da base torre.. secondo riepilogo a seguire

BODY - INPUT DATA OF PANELS [L,C, other profile, exposed height mm]

| Body | Double TAN | LEG | | Panel number | code | Height | Web | Horiz | Level midle | Level top | Progress. from top |
|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | mm | - | - | m | mm | mm | m | m | m |
| 1 | 0.000 | 2 L | 100 | 1 | 5 | 1.200 | 50 | 100 | 18.150 | 18.750 | 1.200 |
| 1 | 0.000 | 2 L | 100 | 2 | 5 | 1.600 | 50 | 100 | 16.750 | 17.550 | 2.800 |
| 1 | 0.000 | 2 L | 100 | 3 | 5 | 1.600 | 50 | 0 | 15.150 | 15.950 | 4.400 |
| 1 | 0.000 | 2 L | 100 | 4 | 5 | 1.600 | 50 | 100 | 13.550 | 14.350 | 6.000 |
| 2 | 0.070 | 2 L | 70 | 1 | 5 | 1.600 | 50 | 50 | 11.950 | 12.750 | 7.600 |
| 2 | 0.070 | 2 L | 70 | 2 | 5 | 1.700 | 50 | 0 | 10.300 | 11.150 | 9.300 |
| 2 | 0.070 | 2 L | 70 | 3 | 5 | 1.800 | 50 | 0 | 8.550 | 9.450 | 11.100 |
| 2 | 0.070 | 2 L | 70 | 4 | 7 | 0.900 | 60 | 0 | 7.200 | 7.650 | 12.000 |
| 3 | 0.070 | 2 L | 90 | 1 | 13 | 1.000 | 60 | 0 | 6.250 | 6.750 | 13.000 |
| 3 | 0.070 | 2 L | 90 | 2 | 5 | 2.100 | 60 | 0 | 4.700 | 5.750 | 15.100 |
| 3 | 0.070 | 2 L | 90 | 3 | 7 | 1.100 | 60 | 0 | 3.100 | 3.650 | 16.200 |
| 4 | 0.070 | 2 L | 90 | 1 | 13 | 1.200 | 60 | 0 | 1.950 | 2.550 | 17.400 |
| 4 | 0.070 | 2 L | 90 | 2 | 7 | 1.100 | 60 | 0 | 0.800 | 1.350 | 18.500 |
| 4 | 0.070 | 2 L | 90 | 3 | 13 | 0.250 | 60 | 0 | 0.125 | 0.250 | 18.750 |

| FACIL - Ladder code / Cable way code | s1 [m2/m] projected area | s2 [m2/m] projected area | shape factor - |
|---|---|---|---|
| 7 | 0 | 0 | 0 |
| 4 | .15 | .15 | 1 |

Platforms .. total number = 2

| Re. | type [-] | level [m] | EPA45deg, [m2] | EPA90deg, [m2] | linear [m2/m] |
|---|---|---|---|---|---|
| 1 .. | 7 | 20 | 0 | 0 | .4 |
| 2 .. | 7 | 14 | 0 | 0 | .19 |

ANT - Antennas ... number of levels = 10

| Re. | description | level | EPA45 | EPA90 | ecc. | CablesData/Description | | |
|---|---|---|---|---|---|---|---|---|
| | [-] | [m] | [m2] | [m2] | [m] | number | dia[mm] | [-] |
| 1 | Palo/UHF | 21.00 | 6.90 | 6.00 | 0.40 | 1 | 25 | 1x25mm |
| 2 | 2pann.uhf+velett | 18.00 | 2.10 | 2.10 | 0.70 | 0 | 0 | - |
| 3 | 2xuhf | 16.00 | 1.35 | 1.35 | 0.00 | 0 | 0 | - |
| 4 | liv.YAGIpol.or.v | 15.00 | 2.00 | 2.00 | 0.70 | 1 | 25 | 1x25mm |
| 5 | liv.YAGIpol.or.v | 12.50 | 2.00 | 2.00 | 0.70 | 1 | 25 | 1x25mm |
| 6 | hp3m | 10.00 | 8.10 | 8.10 | 2.00 | 1 | 25 | 1x25mm |
| 7 | doppia yagi | 8.50 | 1.00 | 1.00 | 0.00 | 0 | 0 | - |
| 8 | 2standard1.5m | 5.00 | 6.00 | 6.00 | 2.00 | 2 | 50 | 2x25mm |
| 9 | yagi+passerella | 3.00 | 1.30 | 1.30 | 0.00 | 1 | 25 | - |
| 10 | NUOVA HP .6m Rai | 10.00 | 1.80 | 1.80 | 0.00 | 1 | 10 | 1x10mm |

GMONT,--LEG ... Weights max/min and section of leg profiles

```
Weights over top..    1450/    830
tronco/body  1 .....    3270/   1860       2 L 100          Area =   13.82 cm2
tronco/body  2 .....    3270/   1860       2 L  70          Area =   18.80 cm2
tronco/body  3 .....    3270/   1860       2 L  90          Area =   31.00 cm2
tronco/body  4 .....    3270/   1860       2 L  90          Area =   31.00 cm2
Totali max/min.   14530/   8270 daN
```

```
X55dm08G / D.M. vigente                    mm/gg/aaaa:11-28-2014    Gallicchio-co2
Zona 3 - Cat.esposizione 4                            kr= .22   zo= .3   zmin= 8
Quota s.l.m.  =  890 m                                Ct = 1.00     Tr=100 anni
AP a norme ISA e ICAO 760 mmHg a  0^C                 'ro'(slm) = 1.250 (kg/m3)

         Profilo del vento a passi di 5 m e dati per il calcolo

Nota: le pressioni tabellate non includono i fattori Cd e gammaQ, applicati
successivamente, nel calcolo delle forze.
```

| Quota 'z' m | Coeff.ti della forma base kr*ct*a(z) - | Vel. media del vento vM(z) m/sec | Coeff. espos. della veloc. Cev - | Vel.di picco del vento vP(z) m/sec | Coeff. espos. delle press. Ce - | Press. cinet. di picco q(z) N/m2 | Fatt.di combin. azioni del vento PSI0 - | Press. di calcolo per comb. carichi N/m2 | incluso fatt.di raffica in quota - |
|---|---|---|---|---|---|---|---|---|---|
| 30 | 1.013 | 36.60 | 1.608 | 58.10 | 2.587 | 2109 | 0.800 | 1688 | 1.42 |
| 25 | 0.973 | 35.15 | 1.564 | 56.49 | 2.445 | 1994 | 0.800 | 1595 | 1.44 |
| 20 | 0.924 | 33.37 | 1.509 | 54.50 | 2.277 | 1857 | 0.800 | 1485 | 1.46 |
| 15 | 0.861 | 31.09 | 1.437 | 51.92 | 2.066 | 1685 | 0.800 | 1348 | 1.49 |
| 10 | 0.771 | 27.87 | 1.335 | 48.24 | 1.783 | 1454 | 0.800 | 1163 | 1.55 |
| 8 | 0.722 | 26.09 | 1.278 | 46.18 | 1.634 | 1333 | 0.800 | 1066 | 1.58 |

```
Dati per il lancio del calcolo della torre, con Q(s.l.m.)= 890 m:
vref,0= 27 vref= 34.8  vR(Tr)= 36.1224 m/sec  >> q(10m,med.)= 81.55  N/m2 <<
```

```
55run9G
Profilo del vento lungo la torre            Spec.cod. 14 / 3
```

| tr. | ma. .. per | z(m) TIA/G | Ce Ke - | qb Kzt daN/m2 | Cd Kd - | YQ*PSI0 Gh*1.6 - | qb*Ce*Cd*YQ*PSI0 Gh*1.6*qz (daN/m2) |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 18.15 | 2.20 | 179.79 | 1.00 | 1.20 | 215.75 |
| 1 | 2 | 16.75 | 2.15 | 175.00 | 1.00 | 1.20 | 209.99 |
| 1 | 3 | 15.15 | 2.07 | 169.07 | 1.00 | 1.20 | 202.89 |
| 1 | 4 | 13.55 | 1.99 | 162.58 | 1.00 | 1.20 | 195.10 |
| 2 | 1 | 11.95 | 1.91 | 155.39 | 1.00 | 1.20 | 186.47 |
| 2 | 2 | 10.30 | 1.80 | 147.05 | 1.00 | 1.20 | 176.46 |
| 2 | 3 | 8.55 | 1.68 | 136.85 | 1.00 | 1.20 | 164.22 |
| 2 | 4 | 7.20 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |
| 3 | 1 | 6.25 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |
| 3 | 2 | 4.70 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |
| 3 | 3 | 3.10 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |
| 4 | 1 | 1.95 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |
| 4 | 2 | 0.80 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |
| 4 | 3 | 0.12 | 1.63 | 133.27 | 1.00 | 1.20 | 159.92 |

```
FINE file IN-OUT, parte INPUT.     11-29-2014 - 13:57:18
```

Summary of EffettiveProjectedAreas (EPA): tower, ladder, cable running, cables/linears

| Body | Panel | Code | H | Midle level | qz | Ghx1.6 | Actual area | Force Coeff. | EPA ladder | EPA runn. | EPA linear | TOTAL EPA | Shiel. from app. | Hyp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | m | m | daN/m2 | - | m2 | - | m2 | m2 | m2 | m2 | 0=no | |
| Other/level | | 1 | | 20.000 | 179.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 1 |
| Other/level | | 1 | | 20.000 | 179.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 2 |
| Ant | level | 1 | | 21.000 | 179.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 6.900 | 0 | 1 |
| Ant | level | 1 | | 21.000 | 179.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 6.000 | 0 | 2 |
| Ant | level | 2 | | 18.000 | 179.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 2.100 | 0 | 1 |
| Ant | level | 2 | | 18.000 | 179.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 2.100 | 0 | 2 |
| 1 | 1 | 5 | 1.200 | 18.150 | 179.8 | 1.20 | 0.783 | 3.22 | 0.000 | 0.180 | 0.551 | 3.251 | 0 | 1 |
| 1 | 1 | 5 | 1.200 | 18.150 | 179.8 | 1.20 | 0.783 | 2.80 | 0.000 | 0.180 | 0.551 | 2.922 | 0 | 2 |
| Ant | level | 3 | | 16.000 | 175.0 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.350 | 0 | 1 |
| Ant | level | 3 | | 16.000 | 175.0 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.350 | 0 | 2 |
| 1 | 2 | 5 | 1.600 | 16.750 | 175.0 | 1.20 | 1.000 | 3.22 | 0.000 | 0.240 | 0.734 | 4.194 | 0 | 1 |
| 1 | 2 | 5 | 1.600 | 16.750 | 175.0 | 1.20 | 1.000 | 2.80 | 0.000 | 0.240 | 0.734 | 3.774 | 0 | 2 |
| Ant | level | 4 | | 15.000 | 169.1 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 2.000 | 0 | 1 |
| Ant | level | 4 | | 15.000 | 169.1 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 2.000 | 0 | 2 |
| 1 | 3 | 5 | 1.600 | 15.150 | 169.1 | 1.20 | 1.000 | 3.22 | 0.000 | 0.240 | 0.828 | 4.288 | 0 | 1 |
| 1 | 3 | 5 | 1.600 | 15.150 | 169.1 | 1.20 | 1.000 | 2.80 | 0.000 | 0.240 | 0.828 | 3.868 | 0 | 2 |
| Other/level | | 2 | | 14.000 | 162.6 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 1 |
| Other/level | | 2 | | 14.000 | 162.6 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 2 |
| 1 | 4 | 5 | 1.600 | 13.550 | 162.6 | 1.20 | 1.000 | 3.22 | 0.000 | 0.240 | 1.132 | 4.592 | 0 | 1 |
| 1 | 4 | 5 | 1.600 | 13.550 | 162.6 | 1.20 | 1.000 | 2.80 | 0.000 | 0.240 | 1.132 | 4.172 | 0 | 2 |
| Ant | level | 5 | | 12.500 | 155.4 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 2.000 | 0 | 1 |
| Ant | level | 5 | | 12.500 | 155.4 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 2.000 | 0 | 2 |
| 2 | 1 | 5 | 1.600 | 11.950 | 155.4 | 1.20 | 0.825 | 3.22 | 0.000 | 0.240 | 1.226 | 4.123 | 0 | 1 |
| 2 | 1 | 5 | 1.600 | 11.950 | 155.4 | 1.20 | 0.825 | 2.80 | 0.000 | 0.240 | 1.226 | 3.776 | 0 | 2 |
| Ant | level | 6 | | 10.000 | 147.1 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 8.100 | 0 | 1 |
| Ant | level | 6 | | 10.000 | 147.1 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 8.100 | 0 | 2 |
| Ant | level | 10 | | 10.000 | 147.1 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.800 | 0 | 1 |
| Ant | level | 10 | | 10.000 | 147.1 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.800 | 0 | 2 |
| 2 | 2 | 5 | 1.700 | 10.300 | 147.1 | 1.20 | 0.883 | 3.22 | 0.000 | 0.255 | 1.472 | 4.570 | 0 | 1 |
| 2 | 2 | 5 | 1.700 | 10.300 | 147.1 | 1.20 | 0.883 | 2.80 | 0.000 | 0.255 | 1.472 | 4.199 | 0 | 2 |
| Ant | level | 7 | | 8.500 | 136.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant | level | 7 | | 8.500 | 136.8 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 2 | 3 | 5 | 1.800 | 8.550 | 136.8 | 1.20 | 0.942 | 3.22 | 0.000 | 0.270 | 1.559 | 4.861 | 0 | 1 |
| 2 | 3 | 5 | 1.800 | 8.550 | 136.8 | 1.20 | 0.942 | 2.80 | 0.000 | 0.270 | 1.559 | 4.466 | 0 | 2 |
| 2 | 4 | 7 | 0.900 | 7.200 | 133.3 | 1.20 | 0.457 | 3.22 | 0.000 | 0.135 | 0.779 | 2.386 | 0 | 1 |
| 2 | 4 | 7 | 0.900 | 7.200 | 133.3 | 1.20 | 0.457 | 2.80 | 0.000 | 0.135 | 0.779 | 2.194 | 0 | 2 |
| 3 | 1 | 13 | 1.000 | 6.250 | 133.3 | 1.20 | 0.626 | 3.22 | 0.000 | 0.150 | 0.866 | 3.033 | 0 | 1 |
| 3 | 1 | 13 | 1.000 | 6.250 | 133.3 | 1.20 | 0.626 | 2.80 | 0.000 | 0.150 | 0.866 | 2.770 | 0 | 2 |
| Ant | level | 8 | | 5.000 | 133.3 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 6.000 | 0 | 1 |
| Ant | level | 8 | | 5.000 | 133.3 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 6.000 | 0 | 2 |
| 3 | 2 | 5 | 2.100 | 4.700 | 133.3 | 1.20 | 1.315 | 3.22 | 0.000 | 0.315 | 2.066 | 6.616 | 0 | 1 |
| 3 | 2 | 5 | 2.100 | 4.700 | 133.3 | 1.20 | 1.315 | 2.80 | 0.000 | 0.315 | 2.066 | 6.063 | 0 | 2 |
| Ant | level | 9 | | 3.000 | 133.3 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.300 | 0 | 1 |
| Ant | level | 9 | | 3.000 | 133.3 | 1.20 | cavi o equiv.in SRFlin di maglia | | | | | 1.300 | 0 | 2 |
| 3 | 3 | 7 | 1.100 | 3.100 | 133.3 | 1.20 | 0.641 | 3.22 | 0.000 | 0.165 | 1.147 | 3.377 | 0 | 1 |
| 3 | 3 | 7 | 1.100 | 3.100 | 133.3 | 1.20 | 0.641 | 2.80 | 0.000 | 0.165 | 1.147 | 3.107 | 0 | 2 |
| 4 | 1 | 13 | 1.200 | 1.950 | 133.3 | 1.20 | 0.752 | 3.22 | 0.000 | 0.180 | 1.251 | 3.853 | 0 | 1 |
| 4 | 1 | 13 | 1.200 | 1.950 | 133.3 | 1.20 | 0.752 | 2.80 | 0.000 | 0.180 | 1.251 | 3.537 | 0 | 2 |
| 4 | 2 | 7 | 1.100 | 0.800 | 133.3 | 1.20 | 0.648 | 3.22 | 0.000 | 0.165 | 1.147 | 3.400 | 0 | 1 |
| 4 | 2 | 7 | 1.100 | 0.800 | 133.3 | 1.20 | 0.648 | 2.80 | 0.000 | 0.165 | 1.147 | 3.127 | 0 | 2 |
| 4 | 3 | 13 | 0.250 | 0.125 | 133.3 | 1.20 | 0.299 | 3.22 | 0.000 | 0.038 | 0.261 | 1.261 | 0 | 1 |
| 4 | 3 | 13 | 0.250 | 0.125 | 133.3 | 1.20 | 0.299 | 2.80 | 0.000 | 0.038 | 0.261 | 1.136 | 0 | 2 |

Input mm-dd-yy 11-29-2014/13:57:00 .. Print 11-29-2014/13:57:18

RA602CL\co2 .. dir1-2 - Summary and outputs

| Panel (*) | Wind forces due to Tower daN | Linear daN | Conc. daN | Shear pole daN | Shear base daN | Bending pole (1) daN x m | Bending base (2) daN x m | MemberForce ----- (3) daN | Others ------ (4) daN |
|---|---|---|---|---|---|---|---|---|---|
| 1/ 1 m | 544 | 158 | 453 | 1839 | 2643 | 4453 | 5761 | 3716 | -2825 |
| d | 473 | 158 | 453 | 1294 | 2378 | 317 | 0 | 929 | |
| 1/ 2 m | 676 | 205 | 283 | 3083 | 3807 | 8227 | 10708 | 6589 | -5378 |
| d | 588 | 205 | 283 | 2378 | 3454 | 317 | 0 | 1592 | |
| 1/ 3 m | 653 | 217 | 406 | 4242 | 5083 | 14102 | 17759 | 10947 | -9415 |
| d | 568 | 217 | 406 | 3454 | 4644 | 601 | 0 | 2289 | |
| 1/ 4 m | 628 | 268 | 0 | 5531 | 5979 | 22184 | 26609 | 16867 | -15014 |
| d | 546 | 268 | 0 | 4644 | 5458 | 601 | 0 | 2666 | |
| 2/ 1 m | 495 | 273 | 373 | 6736 | 7120 | 31619 | 37293 | 22629 | -20456 |
| d | 431 | 273 | 373 | 5458 | 6535 | 862 | 0 | 2250 | |
| 2/ 2 m | 502 | 305 | 1747 | 7524 | 9674 | 43364 | 51044 | 27846 | -25353 |
| d | 436 | 305 | 1747 | 6535 | 9023 | 3721 | 0 | 4119 | |
| 2/ 3 m | 498 | 300 | 164 | 10073 | 10636 | 59669 | 69316 | 34497 | -31682 |
| d | 433 | 300 | 164 | 9023 | 9921 | 3721 | 0 | 3996 | |
| 2/ 4 m | 235 | 146 | 0 | 10827 | 11018 | 79060 | 79060 | 41391 | -38256 |
| d | 205 | 146 | 0 | 9921 | 10272 | 3721 | 0 | 3737 | |
| 3/ 1 m | 323 | 162 | 0 | 11261 | 11503 | 79060 | 90321 | 41663 | -38101 |
| d | 280 | 162 | 0 | 10272 | 10715 | 3721 | 0 | 3932 | 2239 |
| 3/ 2 m | 677 | 381 | 960 | 12992 | 13521 | 102601 | 116883 | 49076 | -45086 |
| d | 589 | 381 | 960 | 10715 | 12644 | 5640 | 0 | 4779 | |
| 3/ 3 m | 330 | 210 | 208 | 13998 | 14268 | 132146 | 132146 | 57365 | -52948 |
| d | 287 | 210 | 208 | 12644 | 13349 | 5640 | 0 | 4732 | |
| 4/ 1 m | 387 | 229 | 0 | 14577 | 14885 | 132146 | 149638 | 57638 | -52793 |
| d | 337 | 229 | 0 | 13349 | 13915 | 5640 | 0 | 4933 | 2820 |
| 4/ 2 m | 334 | 210 | 0 | 15157 | 15428 | 166311 | 166311 | 66118 | -60846 |
| d | 290 | 210 | 0 | 13915 | 14415 | 5640 | 0 | 4474 | |
| 4/ 3 m | 154 | 48 | 0 | 15529 | 15630 | 166311 | 170193 | 66391 | -60691 |
| d | 134 | 48 | 0 | 14415 | 14596 | 5640 | 0 | 3017 | |

(*) Re.Body/Re.panel; 'm'= refer.row for leg data, 'd'=refer.row for webs
(1) Bending at the pole of the panel for leg forces calculation, or torque due to eccentric loads due to the antennas for calculation of max web forces.
(2) Bending at pier of the reference body for calculation of force in the legs or torque due to position of facilities, for calculation of max web force.
(3) Calculated axial force in the legs (row'm') or force in the webs (row"d")
(4) Max tensile force in the legs (row'm') or force in the horizontal and structural member, if present (row'd').

Run parameters (legenda and values):

A) Weights distribution type Max total weight [daN] .... % Top Conc.Weight
B) Struct.Period [SEC]= 1/f' (0 means dyn.factor=cost.) .... Dunamic factor Cd
C) Standards ............... Wind pressure qz[daN/m2]....... Ice sleeve [mm]
D) Topographic Fator ....... Overlapping members index ..... MeanMaxWindFactor

A) 1 14530 0.10; B) 0.00 1.00; C) 14/ 3 81.6 12; D) 1.00 5% 0.0

Other parameters: L min= L 40 ; Mt_facil. .. 0 ; (lo/i med) x 1.2 - 20
Leg sections and weights max/min: Body) Area(cm2) FpMax/FpMin(daN):

1) 13.82 3270/ 1860 ... 2) 18.80 3270/ 1860 ...
3) 31.00 3270/ 1860 ... 4) 31.00 3270/ 1860 ...

Total FpMax / FpMin di calcolo ........... 14530 / 8270 daN
Top weights included .. 1450 / 830 daN

E= 210.000 N/mm2 (b= 1.89 m)

Standard code 14 / 3 PSIoxYq(vento)= 1.2 Yg1=1.3(1) Yg2=1.5(0). Check: 1 .5691673

mm-gg-aaaa ... In.11-29-2014/13:57:00 El.11-29-2014/13:57:18 RA602CL\co2 dir1-2

```
GEOMETRY AND LOADS AT TOWER BASE

Base width for calculation = 1.8925 m

Global loads ... Wind actions in hypothesis 1
Global Bending=   63905+   27300+   78988 =   170193 daN*m
Global Shear  =    6437+    3111+    6083 =    15630 daN
Nmin =   8270  daN;         Nmax =    14530 daN

Global loads .. Wind actions in hypothesis 2
Global Bending=   55569+   27300+   74911 =   157780 daN*m
Global Shear  =    5597+    3111+    5888 =    14596 daN
Nmin =   8270  daN;         Nmax =    14530 daN

Max loads on the leg at tower pier in wind direction hyp.1
Max Compression =  67222 daN
Max Up-Lift     =  61522 daN

Max loads on the leg at tower pier in wind drection hyp.2
Max Compression =  45318 daN
Max Up-Lift     =  39618 daN
```

Spostamenti

| BODY ( -- ) | Panel ( -- ) | ROTATION on vert.axis ( ' ) | Horizontal DISPLACEMENT ( mm ) |
|---|---|---|---|
| 4 | 3 | 0.6 | 0.0 |
| 4 | 2 | 1.3 | 0.3 |
| 4 | 1 | 1.9 | 0.9 |
| 3 | 3 | 4.5 | 1.9 |
| 3 | 2 | 7.0 | 5.4 |
| 3 | 1 | 9.6 | 7.8 |
| 2 | 4 | 12.6 | 10.7 |
| 2 | 3 | 15.6 | 18.1 |
| 2 | 2 | 18.7 | 26.6 |
| 2 | 1 | 21.7 | 36.0 |
| 1 | 4 | 25.9 | 47.0 |
| 1 | 3 | 30.1 | 60.1 |
| 1 | 2 | 34.3 | 75.0 |
| 1 | 1 | 38.5 | 87.7 |

y55disp1; 11-29-2014; 13:57:18

Input/Output Resume

Library: RA602CL\co3 ..ip1-2 Final input, mm-dd-yy: 11-29-2014/17:57:15

| Beginning | Job | Height | Top Width [m] | Bodies |
|---|---|---|---|---|
| 14-11-2014 | Gallicchio | 18.65 | 1 | 4 |

SPEC - dati specifiche di calcolo del vento >> Spec. cod. .. 4 <<

| C, | fatt.diag., | ma.gh.[mm], | T[sec], | | q[daN/m2] |
|---|---|---|---|---|---|
| 2.8 | 1.15 | 0 | 0 | | >> 39.1 << |
| Ct | gammaG | psi0*Yq | Cd | Ind.sovrapp. | %-Faf |
| 1 | 1 | 1 | 1 | 5 | 0 |

Altri dati e profilo in quota da base torre.. secondo riepilogo a seguire

BODY - INPUT DATA OF PANELS [L,C, other profile, exposed height mm]

| Body | Double TAN | LEG | | Panel number | code | Height | Web | Horiz | Level midle | Level top | Progress. from top |
|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | mm | - | - | m | mm | mm | m | m | m |
| 1 | 0.000 | 2 L | 100 | 1 | 5 | 1.200 | 50 | 100 | 18.050 | 18.650 | 1.200 |
| 1 | 0.000 | 2 L | 100 | 2 | 5 | 1.600 | 50 | 100 | 16.650 | 17.450 | 2.800 |
| 1 | 0.000 | 2 L | 100 | 3 | 5 | 1.600 | 50 | 0 | 15.050 | 15.850 | 4.400 |
| 1 | 0.000 | 2 L | 100 | 4 | 5 | 1.600 | 50 | 100 | 13.450 | 14.250 | 6.000 |
| 2 | 0.070 | 2 L | 70 | 1 | 5 | 1.600 | 50 | 50 | 11.850 | 12.650 | 7.600 |
| 2 | 0.070 | 2 L | 70 | 2 | 5 | 1.700 | 50 | 0 | 10.200 | 11.050 | 9.300 |
| 2 | 0.070 | 2 L | 70 | 3 | 5 | 1.800 | 50 | 0 | 8.450 | 9.350 | 11.100 |
| 2 | 0.070 | 2 L | 70 | 4 | 7 | 0.900 | 60 | 0 | 7.100 | 7.550 | 12.000 |
| 3 | 0.070 | 2 L | 90 | 1 | 13 | 1.000 | 60 | 0 | 6.150 | 6.650 | 13.000 |
| 3 | 0.070 | 2 L | 90 | 2 | 5 | 2.100 | 60 | 0 | 4.600 | 5.650 | 15.100 |
| 3 | 0.070 | 2 L | 90 | 3 | 7 | 1.100 | 60 | 0 | 3.000 | 3.550 | 16.200 |
| 4 | 0.070 | 2 L | 90 | 1 | 13 | 1.200 | 60 | 0 | 1.850 | 2.450 | 17.400 |
| 4 | 0.070 | 2 L | 90 | 2 | 7 | 1.100 | 60 | 0 | 0.700 | 1.250 | 18.500 |
| 4 | 0.070 | 2 L | 90 | 3 | 13 | 0.250 | 60 | 0 | 0.025 | 0.150 | 18.750 |

| FACIL | - Ladder code / Cable way code | s1 [m2/m] projected area | s2 [m2/m] projected area | shape factor - |
|---|---|---|---|---|
| | 7 | 0 | 0 | 0 |
| | 4 | .1 | .1 | 1 |

Platforms .. total number = 2

| Re. | type [-] | level [m] | EPA45deg, [m2] | EPA90deg, [m2] | linear [m2/m] |
|---|---|---|---|---|---|
| 1 .. | 7 | 20 | 0 | 0 | .19 |
| 2 .. | 7 | 14 | 0 | 0 | .18 |

ANT - Antennas ... number of levels = 10

| Re. | description | level | EPA45 | EPA90 | ecc. | CablesData/Description | | |
|---|---|---|---|---|---|---|---|---|
| | [-] | [m] | [m2] | [m2] | [m] | number | dia[mm] | [-] |
| 1 | Palo/UHF | 21.00 | 6.00 | 5.20 | 0.35 | 1 | 25 | 1x25mm |
| 2 | 2pann.uhf+velett | 18.00 | 1.80 | 1.80 | 0.70 | 0 | 0 | - |
| 3 | 2xuhf | 16.00 | 1.25 | 1.25 | 0.00 | 0 | 0 | - |
| 4 | liv.YAGIpol.or.v | 15.00 | 1.00 | 1.00 | 0.70 | 1 | 25 | 1x25mm |
| 5 | liv.YAGIpol.or.v | 12.50 | 1.00 | 1.00 | 0.70 | 1 | 25 | 1x25mm |
| 6 | hp3m | 10.00 | 7.80 | 7.80 | 2.00 | 1 | 25 | 1x25mm |
| 7 | doppia yagi | 8.50 | 0.50 | 0.50 | 0.00 | 0 | 0 | - |
| 8 | 2standard1.5m | 5.00 | 5.80 | 5.80 | 2.00 | 2 | 50 | 2x25mm |
| 9 | yagi+passerella | 3.00 | 1.00 | 1.00 | 0.00 | 1 | 25 | - |
| 10 | NUOVA HP .6m Rai | 10.00 | 1.75 | 1.75 | 0.00 | 1 | 10 | 1x10mm |

GMONT,--LEG ... Weights and leg sections

| | | | | |
|---|---|---|---|---|
| Pesi on top ... | 1120 | | | |
| tronco 1 ..... | 2520 ..... | 2 L 100 | ...... area .. | 13.82 cm2 |
| tronco 2 ..... | 2520 ..... | 2 L 70 | ...... area .. | 18.80 cm2 |
| tronco 3 ..... | 2520 ..... | 2 L 90 | ...... area .. | 31.00 cm2 |
| tronco 4 ..... | 2520 ..... | 2 L 90 | ...... area .. | 31.00 cm2 |
| Totale ........ | 11200 daN | | | |

```
y55run9G
Profilo del vento lungo la torre            Spec.cod. 4 / 0
tr.ma.  z(m)      Ce      qb     Cd  YQ*PSI0  qb*Ce*Cd*YQ*PSI0
.. per TIA/G      Ke      Kzt    Kd   Gh*1.6       Gh*1.6*qz
                   -    daN/m2    -      -          (daN/m2)

 1  1   18.05   1.00   39.10  1.00   1.00         39.10
 1  2   16.65   1.00   39.10  1.00   1.00         39.10
 1  3   15.05   1.00   39.10  1.00   1.00         39.10
 1  4   13.45   1.00   39.10  1.00   1.00         39.10
 2  1   11.85   1.00   39.10  1.00   1.00         39.10
 2  2   10.20   1.00   39.10  1.00   1.00         39.10
 2  3    8.45   1.00   39.10  1.00   1.00         39.10
 2  4    7.10   1.00   39.10  1.00   1.00         39.10
 3  1    6.15   1.00   39.10  1.00   1.00         39.10
 3  2    4.60   1.00   39.10  1.00   1.00         39.10
 3  3    3.00   1.00   39.10  1.00   1.00         39.10
 4  1    1.85   1.00   39.10  1.00   1.00         39.10
 4  2    0.70   1.00   39.10  1.00   1.00         39.10
 4  3    0.02   1.00   39.10  1.00   1.00         39.10

FINE file IN-OUT, parte INPUT.     11-29-2014 - 17:57:21
```

Summary of EffettiveProjectedAreas (EPA): tower, ladder, cable running, cables/linears

| Body | Panel | Code | H | Midle level | qz | Ghx1.6 | Actual area | Force Coeff. | EPA ladder | EPA runn. | EPA linear | TOTAL EPA | Shiel. from app. | Hyp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | m | m | daN/m2 | - | m2 | - | m2 | m2 | m2 | m2 | 0=no | |
| Other/level 1 | | | | 20.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 1 |
| Other/level 1 | | | | 20.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 2 |
| Ant | level 1 | | | 21.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 6.000 | 0 | 1 |
| Ant | level 1 | | | 21.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 5.200 | 0 | 2 |
| Ant | level 2 | | | 18.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.800 | 0 | 1 |
| Ant | level 2 | | | 18.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.800 | 0 | 2 |
| 1 | 1 | 5 | 1.200 | 18.050 | 39.1 | 1.00 | 0.647 | 3.22 | 0.000 | 0.120 | 0.264 | 2.468 | 0 | 1 |
| 1 | 1 | 5 | 1.200 | 18.050 | 39.1 | 1.00 | 0.647 | 2.80 | 0.000 | 0.120 | 0.264 | 2.196 | 0 | 2 |
| Ant | level 3 | | | 16.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.250 | 0 | 1 |
| Ant | level 3 | | | 16.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.250 | 0 | 2 |
| 1 | 2 | 5 | 1.600 | 16.650 | 39.1 | 1.00 | 0.830 | 3.22 | 0.000 | 0.160 | 0.352 | 3.185 | 0 | 1 |
| 1 | 2 | 5 | 1.600 | 16.650 | 39.1 | 1.00 | 0.830 | 2.80 | 0.000 | 0.160 | 0.352 | 2.836 | 0 | 2 |
| Ant | level 4 | | | 15.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant | level 4 | | | 15.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 1 | 3 | 5 | 1.600 | 15.050 | 39.1 | 1.00 | 0.830 | 3.22 | 0.000 | 0.160 | 0.400 | 3.233 | 0 | 1 |
| 1 | 3 | 5 | 1.600 | 15.050 | 39.1 | 1.00 | 0.830 | 2.80 | 0.000 | 0.160 | 0.400 | 2.884 | 0 | 2 |
| Other/level 2 | | | | 14.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 1 |
| Other/level 2 | | | | 14.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 0.000 | 0 | 2 |
| 1 | 4 | 5 | 1.600 | 13.450 | 39.1 | 1.00 | 0.830 | 3.22 | 0.000 | 0.160 | 0.688 | 3.521 | 0 | 1 |
| 1 | 4 | 5 | 1.600 | 13.450 | 39.1 | 1.00 | 0.830 | 2.80 | 0.000 | 0.160 | 0.688 | 3.172 | 0 | 2 |
| Ant | level 5 | | | 12.500 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant | level 5 | | | 12.500 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 2 | 1 | 5 | 1.600 | 11.850 | 39.1 | 1.00 | 0.653 | 3.22 | 0.000 | 0.160 | 0.736 | 3.000 | 0 | 1 |
| 2 | 1 | 5 | 1.600 | 11.850 | 39.1 | 1.00 | 0.653 | 2.80 | 0.000 | 0.160 | 0.736 | 2.725 | 0 | 2 |
| Ant | level 6 | | | 10.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 7.800 | 0 | 1 |
| Ant | level 6 | | | 10.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 7.800 | 0 | 2 |
| Ant | level 10 | | | 10.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.750 | 0 | 1 |
| Ant | level 10 | | | 10.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.750 | 0 | 2 |
| 2 | 2 | 5 | 1.700 | 10.200 | 39.1 | 1.00 | 0.699 | 3.22 | 0.000 | 0.170 | 0.853 | 3.274 | 0 | 1 |
| 2 | 2 | 5 | 1.700 | 10.200 | 39.1 | 1.00 | 0.699 | 2.80 | 0.000 | 0.170 | 0.853 | 2.980 | 0 | 2 |
| Ant | level 7 | | | 8.500 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 0.500 | 0 | 1 |
| Ant | level 7 | | | 8.500 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 0.500 | 0 | 2 |
| 2 | 3 | 5 | 1.800 | 8.450 | 39.1 | 1.00 | 0.745 | 3.22 | 0.000 | 0.180 | 0.904 | 3.483 | 0 | 1 |
| 2 | 3 | 5 | 1.800 | 8.450 | 39.1 | 1.00 | 0.745 | 2.80 | 0.000 | 0.180 | 0.904 | 3.170 | 0 | 2 |
| 2 | 4 | 7 | 0.900 | 7.100 | 39.1 | 1.00 | 0.368 | 3.22 | 0.000 | 0.090 | 0.452 | 1.727 | 0 | 1 |
| 2 | 4 | 7 | 0.900 | 7.100 | 39.1 | 1.00 | 0.368 | 2.80 | 0.000 | 0.090 | 0.452 | 1.572 | 0 | 2 |
| 3 | 1 | 13 | 1.000 | 6.150 | 39.1 | 1.00 | 0.484 | 3.22 | 0.000 | 0.100 | 0.502 | 2.162 | 0 | 1 |
| 3 | 1 | 13 | 1.000 | 6.150 | 39.1 | 1.00 | 0.484 | 2.80 | 0.000 | 0.100 | 0.502 | 1.958 | 0 | 2 |
| Ant | level 8 | | | 5.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 5.800 | 0 | 1 |
| Ant | level 8 | | | 5.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 5.800 | 0 | 2 |
| 3 | 2 | 5 | 2.100 | 4.600 | 39.1 | 1.00 | 1.084 | 3.22 | 0.000 | 0.210 | 1.180 | 4.881 | 0 | 1 |
| 3 | 2 | 5 | 2.100 | 4.600 | 39.1 | 1.00 | 1.084 | 2.80 | 0.000 | 0.210 | 1.180 | 4.426 | 0 | 2 |
| Ant | level 9 | | | 3.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 1 |
| Ant | level 9 | | | 3.000 | 39.1 | 1.00 | cavi o equiv.in SRFlin di maglia | | | | | 1.000 | 0 | 2 |
| 3 | 3 | 7 | 1.100 | 3.000 | 39.1 | 1.00 | 0.533 | 3.22 | 0.000 | 0.110 | 0.651 | 2.477 | 0 | 1 |
| 3 | 3 | 7 | 1.100 | 3.000 | 39.1 | 1.00 | 0.533 | 2.80 | 0.000 | 0.110 | 0.651 | 2.253 | 0 | 2 |
| 4 | 1 | 13 | 1.200 | 1.850 | 39.1 | 1.00 | 0.582 | 3.22 | 0.000 | 0.120 | 0.710 | 2.703 | 0 | 1 |
| 4 | 1 | 13 | 1.200 | 1.850 | 39.1 | 1.00 | 0.582 | 2.80 | 0.000 | 0.120 | 0.710 | 2.459 | 0 | 2 |
| 4 | 2 | 7 | 1.100 | 0.700 | 39.1 | 1.00 | 0.538 | 3.22 | 0.000 | 0.110 | 0.651 | 2.495 | 0 | 1 |
| 4 | 2 | 7 | 1.100 | 0.700 | 39.1 | 1.00 | 0.538 | 2.80 | 0.000 | 0.110 | 0.651 | 2.269 | 0 | 2 |
| 4 | 3 | 13 | 0.250 | 0.025 | 39.1 | 1.00 | 0.197 | 3.22 | 0.000 | 0.025 | 0.148 | 0.808 | 0 | 1 |
| 4 | 3 | 13 | 0.250 | 0.025 | 39.1 | 1.00 | 0.197 | 2.80 | 0.000 | 0.025 | 0.148 | 0.725 | 0 | 2 |

Input mm-dd-yy 11-29-2014/17:57:15 .. Print 11-29-2014/17:57:20

RA602CL\co3 .. dir1-2 - Summary and outputs

| Panel (*) | | Wind forces due to Tower daN | Linear daN | Conc. daN | Shear pole daN | Shear base daN | Bending pole (1) daN x m | Bending base (2) daN x m | MemberForce (3) daN | Others (4) daN |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/ 1 | m | 81 | 15 | 70 | 283 | 401 | 721 | 929 | 947 | -72 |
| | d | 71 | 15 | 70 | 203 | 360 | 49 | 0 | 143 | |
| 1/ 2 | m | 104 | 20 | 49 | 464 | 575 | 1300 | 1679 | 1515 | -325 |
| | d | 91 | 20 | 49 | 360 | 519 | 49 | 0 | 242 | |
| 1/ 3 | m | 104 | 22 | 39 | 638 | 740 | 2189 | 2729 | 2300 | -795 |
| | d | 91 | 22 | 39 | 519 | 671 | 77 | 0 | 326 | |
| 1/ 4 | m | 104 | 33 | 0 | 809 | 878 | 3376 | 4024 | 3297 | -1477 |
| | d | 91 | 33 | 0 | 671 | 795 | 77 | 0 | 382 | |
| 2/ 1 | m | 82 | 35 | 39 | 976 | 1034 | 4757 | 5579 | 4264 | -2129 |
| | d | 72 | 35 | 39 | 795 | 941 | 104 | 0 | 319 | |
| 2/ 2 | m | 88 | 40 | 373 | 1098 | 1536 | 6465 | 7689 | 5140 | -2690 |
| | d | 77 | 40 | 373 | 941 | 1431 | 714 | 0 | 721 | |
| 2/ 3 | m | 94 | 42 | 20 | 1623 | 1692 | 9062 | 10595 | 6349 | -3584 |
| | d | 82 | 42 | 20 | 1431 | 1574 | 714 | 0 | 692 | |
| 2/ 4 | m | 46 | 21 | 0 | 1725 | 1759 | 12147 | 12147 | 7593 | -4513 |
| | d | 40 | 21 | 0 | 1574 | 1636 | 714 | 0 | 646 | |
| 3/ 1 | m | 61 | 24 | 0 | 1801 | 1844 | 12147 | 13949 | 7803 | -4303 |
| | d | 53 | 24 | 0 | 1636 | 1712 | 714 | 0 | 680 | 387 |
| 3/ 2 | m | 136 | 54 | 227 | 2166 | 2261 | 15968 | 18349 | 9202 | -5282 |
| | d | 119 | 54 | 227 | 1712 | 2112 | 1168 | 0 | 886 | |
| 3/ 3 | m | 67 | 30 | 39 | 2349 | 2397 | 20911 | 20911 | 10802 | -6462 |
| | d | 58 | 30 | 39 | 2112 | 2239 | 1168 | 0 | 875 | |
| 4/ 1 | m | 73 | 32 | 0 | 2450 | 2503 | 20911 | 23851 | 11012 | -6252 |
| | d | 64 | 32 | 0 | 2239 | 2335 | 1168 | 0 | 910 | 520 |
| 4/ 2 | m | 68 | 30 | 0 | 2552 | 2600 | 26658 | 26658 | 12650 | -7470 |
| | d | 59 | 30 | 0 | 2335 | 2424 | 1168 | 0 | 823 | |
| 4/ 3 | m | 25 | 7 | 0 | 2616 | 2632 | 26658 | 27312 | 12860 | -7260 |
| | d | 22 | 7 | 0 | 2424 | 2453 | 1168 | 0 | 554 | |

(*) Re.Body/Re.panel; 'm'= refer.row for leg data, 'd'=refer.row for webs
(1) Bending at the pole of the panel for leg forces calculation, or torque due to eccentric loads due to the antennas for calculation of max web forces.
(2) Bending at pier of the reference body for calculation of force in the legs or torque due to position of facilities, for calculation of max web force.
(3) Calculated axial force in the legs (row'm') or force in the webs (row"d")
(4) Max tensile force in the legs (row'm') or force in the horizontal and structural member, if present (row'd').

Run parameters (legenda and values):

A) Weights distribution type Max total weight [daN] .... % Top Conc.Weight
B) Struct.Period [SEC]= 1/f' (0 means dyn.factor=cost.) .... Dunamic factor Cd
C) Standards ............... Wind pressure qz[daN/m2]....... Ice sleeve [mm]
D) Topographic Fator ....... Overlapping members index ..... MeanMaxWindFactor

A) 3 11200 0.10; B) 0.00 1.00; C) 4/ 0 39.1 0; D) 1.00 5% 0.0

Other parameters: L min= L 40 ; Mt_facil. .. 0 ; (lo/i med) x 1.2 - 20

Leg sections and weights max/min: Body) Area(cm2) FpMax/FpMin(daN):

1) 13.82 2520/ 1620 ... 2) 18.80 2520/ 1620 ...
3) 31.00 2520/ 1620 ... 4) 31.00 2520/ 1620 ...

Total FpMax / FpMin di calcolo ........... 11200 / 7200 daN
Top weights included .. 1120 / 720 daN

E= 210.000 N/mm2 (b= 1.89 m)

Standard code 4 / 0 PSIoxYq(vento)= 1 Yg1=1.3(1) Yg2=1.5(0). Check: 1 1

mm-gg-aaaa ... In.11-29-2014/17:57:15 El.11-29-2014/17:57:20 RA602CL\co3 dir1-2

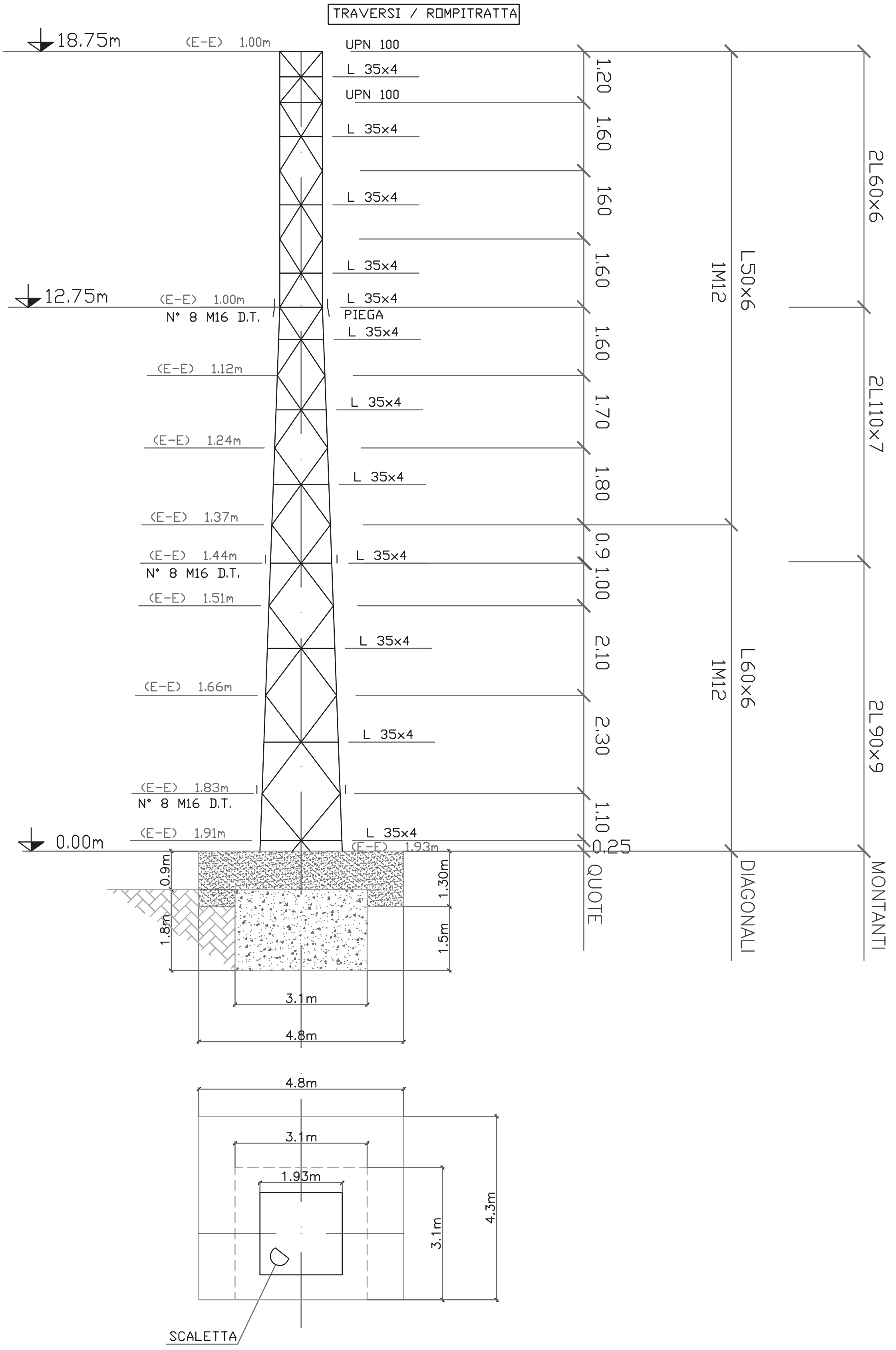
```
GEOMETRY AND LOADS AT TOWER BASE

Base width for calculation = 1.8925 m

Global loads ... Wind actions in hypothesis 1 (45 DEG, Wind Diect.Ip1)
Global Bending=   10570+    3277+   13202 =    27049 daN*m
Global Shear  =    1136+     405+    1091 =     2632 daN
Nmin =   11200  daN;        Nmax =    11200 daN

Global loads .. Wind actions in hypothesis 2 (90 DEG, Wind Direct.Ip2)
Global Bending=    9191+    3277+   12545 =    25013 daN*m
Global Shear  =     988+     405+    1060 =     2453 daN
Nmin =   11200  daN;        Nmax =    11200 daN

Max loads on the leg at tower pier in wind direction hyp.1 (45ø/SQUARE; 90ø/TRIA)
Max Compression =  12906 daN
Max Up-Lift     =  7306 daN

Max loads on the leg at tower pier in wind drection hyp.2  (90ø/SQUARE; 60ø/TRIA)
Max Compression =  9408 daN
Max Up-Lift     =  3808 daN
```

Spostamenti

| BODY<br>( -- ) | Panel<br>( -- ) | ROTATION on vert.axis<br>( ' ) | Horizontal DISPLACEMENT<br>( mm ) |
|---|---|---|---|
| 4 | 3 | 0.1 | 0.0 |
| 4 | 2 | 0.2 | 0.1 |
| 4 | 1 | 0.3 | 0.1 |
| 3 | 3 | 0.7 | 0.3 |
| 3 | 2 | 1.1 | 0.9 |
| 3 | 1 | 1.5 | 1.2 |
| 2 | 4 | 2.0 | 1.7 |
| 2 | 3 | 2.4 | 2.9 |
| 2 | 2 | 2.9 | 4.2 |
| 2 | 1 | 3.4 | 5.6 |
| 1 | 4 | 4.0 | 7.4 |
| 1 | 3 | 4.6 | 9.4 |
| 1 | 2 | 5.3 | 11.7 |
| 1 | 1 | 5.9 | 13.6 |

y55disp1; 11-29-2014; 17:57:20

VISTA TORRE

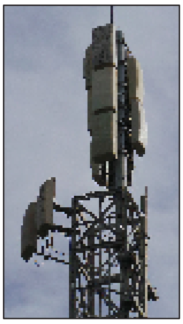



PIANTA

RA602CL: ALLEGATO 4/1
SCHEMA STRUTTURALE
SCALA 1:100

# VISTA D'ASSIEME TORRE

FOTO N° 5



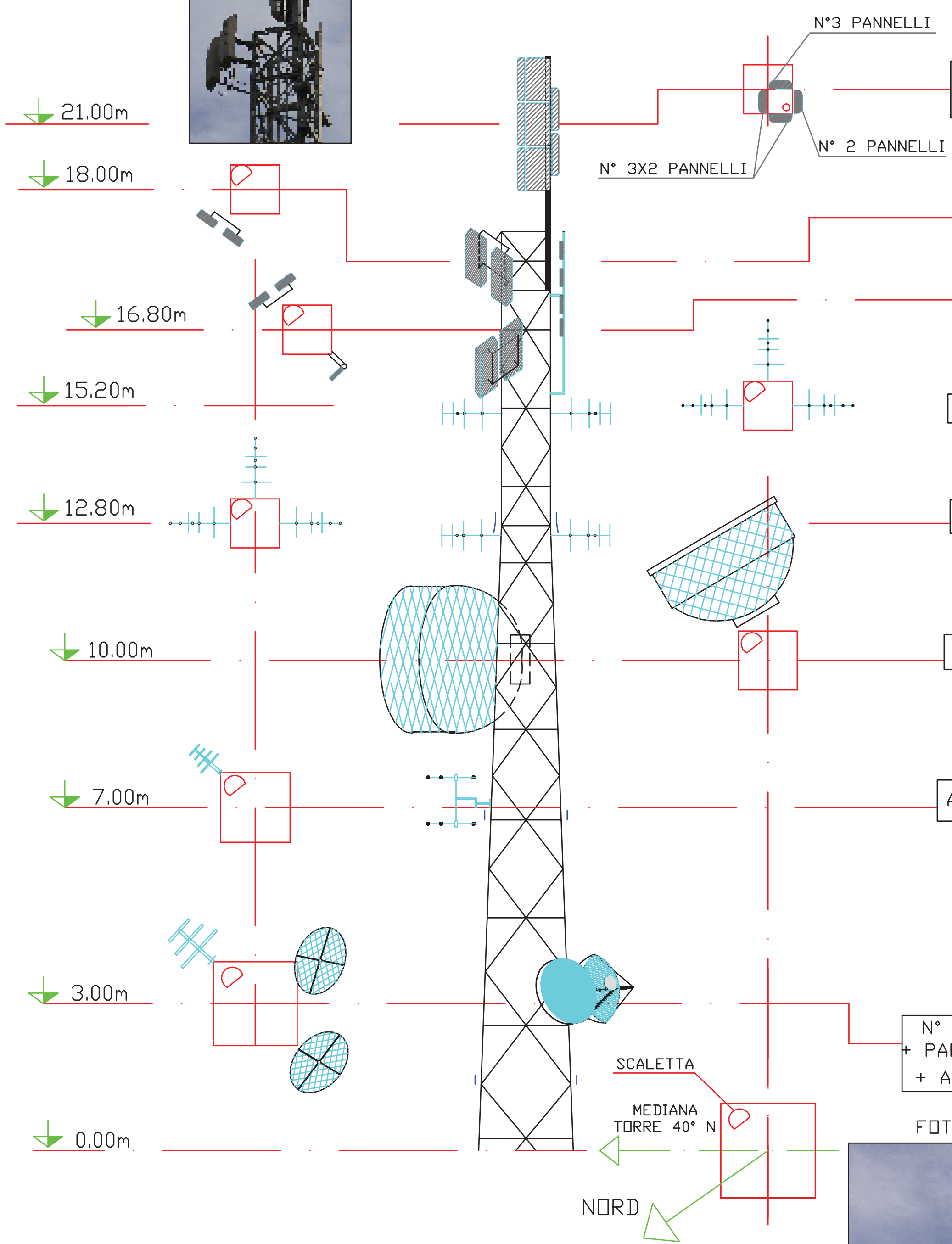



FOTO N° 2

FOTO N° 1 ( VISTA D'ASSIEME)

FOTO N° 4

FOTO N° 3

RA602CL: ALLEGATO 4/2
SCHEMA ANTENNE
SCALA 1:100