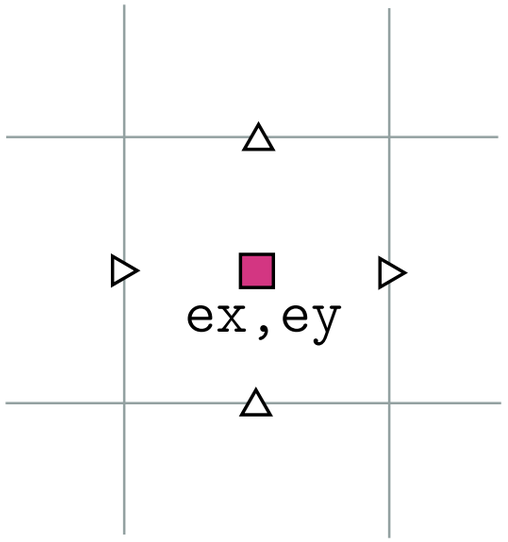

$$\nabla \cdot u = 0$$

$$\frac{1}{h^x}\left(u^x_{\text{right}} - u^x_{\text{left}}\right) + \frac{1}{h^y}\left(u^y_{\text{up}} - u^y_{\text{down}}\right) = 0$$

For each element(ex,ey), specify position and coefficient:

```
DMStagStencil row,col[5],point;
PetscScalar   valA[5],valRhs;
PetscReal     x[2];

row.i    = ex; row.j    = ey; row.loc    = ELEMENT; row.c    = 0;
col[0].i = ex; col[0].j = ey; col[0].loc = LEFT;    col[0].c = 0; valA[0] = -1.0 / hx;
col[1].i = ex; col[1].j = ey; col[1].loc = RIGHT;   col[1].c = 0; valA[1] =  1.0 / hx;
col[2].i = ex; col[2].j = ey; col[2].loc = DOWN;    col[2].c = 0; valA[2] = -1.0 / hy;
col[3].i = ex; col[3].j = ey; col[3].loc = UP;      col[3].c = 0; valA[3] =  1.0 / hy;
col[4] = row;                                                     valA[4] = 0.0;
ierr = DMStagMatSetValuesStencil(dmSol,A,1,&row,5,col,valA,INSERT_VALUES);CHKERRQ(ierr);
point.i = ex; point.j = ey; point.loc = ELEMENT;   point.c = 0;
ierr = DMStagGetCoordinateStencil(dmSol,point,x);CHKERRQ(ierr);
valRhs = g(x[0],x[1]);
ierr = DMStagVecSetValuesStencil(dmSol,rhs,1,&row,&valRhs,INSERT_VALUES);CHKERRQ(ierr);
```

(Use Computer Modern - this part cut off below)